

*Memorandum*

January 29, 1982

*24257*

TO : MASAD/SDA Staff

FROM : Senior Associate Director, MASAD/SDA - *Donald E. Day*

SUBJECT: MASAD/SDA Handbook

The attached handbook contains reference material essential to a clear understanding of the major systems acquisition management process. It is for your personal use in your daily work.

From time to time we will either update the material contained therein or add new material. You will be responsible for making the changes upon receipt of the new or updated material. If you are reassigned out of SDA, I would appreciate your returning the handbook to my secretary so that it can continue to be put to good use.

Attachment

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Report on Initiative No. 5g. Title: Patent Policies

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Provide a consistent policy which will promote innovation by giving contractors all the economic and commercial incentives of the patent system. Provide policies to protect proprietary rights and data.

ACCOMPLISHMENTS TO DATE:

1. Patent Policy: The DAR Patents Subcommittee concluded in a 7 August 1981 report that current DoD policy of permitting contractors and subcontractors to acquire title to inventions made under most DoD R&D procurements fulfills the initiative objective of giving contractors all the economic and commercial incentives of the patent system. The Subcommittee report included an informational item suggested for publication in an upcoming Defense Acquisition Circular (DAC) to remind contracting officials of the policies and procedures governing patents.

2. Technical Data:

a. The DAR Technical Data Subcommittee concluded in a 14 August 1981 report (DAR Case 81-79) that DoD policy complies with the initiative objective of protecting proprietary rights and data. The Subcommittee identifies on-going efforts to better implement this policy, as follows:

(1) A DAC issued 15 May 1981 added DAR coverage to permit delivery of commercial computer software with restricted rights without case-by-case negotiation.

(2) A proposed DAR change to permit Government acquisition of less than unlimited rights to privately developed ADPE and computer software was sent to Industry. Comments were due 19 December 1981 (DAR Case 80-62).

(3) The Subcommittee is developing DAR coverage on alternatives to the acquisition of unlimited rights in technical data and computer software for the purpose of establishing competition (DAR Case 80-143).

b. The Subcommittee report included an informational item suggested for publication in an upcoming DAC to remind DoD contracting officials of the policies and procedures governing technical data rights.

BARRIERS TO IMPLEMENTATION:

1. Patent Policy: None

2. Technical Data: Industry appears concerned that, despite stated policy, DoD is: (i) acquiring unneeded rights to technical data, and (ii) is sometimes not adequately protecting data from disclosure outside the Government.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. Patent Policy:

a. By January 1982, DAR Council review Subcommittee report.

b. By March 1982, DAR Council publish DAC informational item on policies and procedures governing patents. (Action considered closed upon DAC publication).

2. Technical Data:

a. DAR Case 81-79:

(1) By January 1982, DAR Council review Subcommittee report.

(2) By March 1982, DAR Council publish DAC informational item on policies and procedures governing technical data rights.

b. DAR Case 80-62: By March 1982, DAR Council review Industry comments on 80-62 and issue DAR revisions.

c. DAR Case 80-143:

(1) By January 1982, Subcommittee complete coverage.

(2) By March 1982, DAR Council issue coverage to Industry and the DoD Components for comment. Comments should also be solicited regarding any additional measures needed to protect technical data rights.

(3) By July 1982, Subcommittee review comments and revise and/or draft new coverage as necessary.

(4) By November 1982, DAR Council review and issue DAR revisions.

Report on Initiative No. 5h. Title: Vinson-Trammell Act Repeal

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

General Counsel should work to repeal the Vinson-Trammell Act.

ACCOMPLISHMENTS TO DATE:

The DoD Authorization Act of 1982, signed on 1 December 1981, provides for repeal of the profit limitation provisions of the 1934 Vinson-Trammell Act and authorizes the President, upon a declaration of war or national emergency, to prescribe such regulations as are determined necessary to control excessive profits on defense contracts.

BARRIERS TO IMPLEMENTATION: None.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. By January 1982, USDRE(AM) direct DoD procurement activities to immediately discontinue inclusion of excess profit provisions in all contracts/solicitations.
2. By June 1982, DAR Council revise Defense Acquisition Regulation to reflect elimination of Vinson-Trammell excess profit provisions.



ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 6. Title: Budget to Most Likely Cost

Task Force Principals: Mr. J. E. Williams & Mr. J. T. Kammerer

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

ASD(C) require the Services to budget to most likely or expected costs, including predictable cost increases due to risk, instead of the contractually agreed-upon cost. USDRE and the Services provide incentives for acquisition officers and contractors to accurately project costs, including financial incentives and performance evaluation considerations to DoD personnel, and profit incentives to industry to reduce costs.

**ACCOMPLISHMENTS TO DATE:**

1. In accord with the Nov 20, 1981 DRB decision, the Service Secretaries are now required to explicitly choose between program manager and independent system cost estimates, and explain their choices to the DepSecDef.
2. The OASD(C) is, during the annual budget review, examining development and early procurement cost estimates to make sure they adequately accommodate program risk and are not a reflection of contractual targets alone. The CAIG is attempting to explain all differences among Service and OSD cost estimates at designated Program Reviews or DSARCs, to explain all significant variances, and to track all cost estimates from milestone to milestone.

**BARRIERS TO IMPLEMENTATION:**

Continued optimism on the part of sponsoring acquisition organizations is probably the greatest remaining barrier to this initiative. In particular, the initiation of overly ambitious subsystem development is a matter of concern lest this critical path element may delay acquisition of the entire program. See Initiative No. 2, Preplanned Product Improvement, for progress in this regard.

**SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:**

1. The DSARC Chairman should call new DSARC meetings for performance, schedule and cost threshold breaches.
2. Continued high-level attention must be focused on this initiative through the Steering Group, and a study made of appropriate incentives, possibly through an Ad Hoc committee under the Steering Group.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 7. Title: Economic Production Rates

Task Force Principals: BG C. F. Drenz, USA & Mr. T. P. Christie

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

Secretary of Defense establish policy requiring Services to fund programs at economic rates or justify any differences during budget reviews by OSD and the DRB. USDRE and ASD(C) include this requirement in the FY 83 program and budget guidance.

**ACCOMPLISHMENTS TO DATE:**

1. The spirit of this initiative carried through the FY 81 supplemental and FY 82 amended budgets by increasing or restoring production rates for several programs that were being funded at inefficient rates. For the most part, the Service POMs continued this momentum toward high rate efficient production in their POM submissions.
2. When we look back on many FY 83 budget decisions to this point, however, there is reason for deep concern, if not alarm. We have reduced funding for the very same programs (M-1 tanks, Fighting Vehicle System, Patriot, A-6E, P-3C, A-10) for which we requested additional money in the FY 82 budget amendment.
3. The most recent DRB decisions of the past several weeks have taken steps in the right direction; but many of the more important decisions are still pending. The Services have been directed by the DRB to establish offsets in the FY 83 budget to allow production at more economical rates of certain systems, such as the Mark 46 torpedo, the TOW anti-tank missile, the F-18 fighter, and the re-engining of the KC-135 tanker. These decisions are being reviewed by the DRB as the FY 83 budget is finalized.
4. During this past year the programming budgeting system has been plagued by uncertainty. Target figures for the top-line have fluctuated, and the system has shown little versatility in adapting to what has become the rule, rather than the exception--budget uncertainty. This inability to adapt efficiently can be attributed to an absence of agreed upon priorities that leads to a reluctance to terminate marginal or low priority programs.

**BARRIERS TO IMPLEMENTATION:**

1. The primary barrier to implementation of this initiative has been the uncertainty of the defense program budget level.
2. The inability, so far, on the part of Congress, OSD, and the Services to establish a sense of mission priorities makes the response to budget uncertainties lack of sense of unity and common purpose.
3. The continued unwillingness to cancel programs precludes other DepSecDef initiatives. When Congress, OSD, or the Services do offer a program for cancellation it is likely to be restored. There is little commitment to establishing priorities and cancelling marginal programs to respond to budget reductions.

4. There are legitimate reasons to produce at an uneconomic rate in special cases. Production problems sometimes justify a less than economic production rate. For example, certain parts are impossible to acquire at a rate necessary to support a higher production rate. Technical problems constituting considerable risk also may justify a less than economic production rate. The Patriot missile, which has experienced software difficulties, is a case in point. Programs that plan for a relatively small buy can never efficiently build to their economic rate. And, other initiatives intended to improve the acquisition process sometimes interfere with the goal of higher production rates. For example, to stabilize production and to implement multi-year procurement initiatives, it may be desirable to lock a program in at a less economic rate.

5. Warm production lines, even when operating at inefficient rates, are usually of a real strategic value, and their marginal utility should compete on an equal footing with other defense programs for our limited resources. We should expect some of them to fare well in the budget process.

6. There is a lack of understanding in contrasting "economical production rates" with "efficient production rates." A larger buy usually produces a more efficient rate, but the most economic rate refers to the range where the marginal utility of an additional unit no longer realizes the same savings as the previous unit--that is, the "knee of the curve." Programs aim for the most economic rate that meets the threat (even these definitions are not universally accepted; so, as a first step, an agreement on the definition of terms is required).

#### SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. An understanding among decision-makers needs to be established to work towards the more economic rates for our program and to cancel or truncate lower priority programs to maintain the economic rate of others, while at the same time the value and priority of various warm production lines is not lost in the process.

2. Such an initiative needs to show commitment on the part of the initiator: OSD through the Defense Guidance, the PDM, and the day-to-day DRB decisions must demonstrate the seriousness of it's intent. Otherwise, an initiative like this succumbs to business as usual.

3. The timing must be immediate. OSD and the Services must hold themselves to task on this initiative. It is only then that the Congress will sense a unity of purpose and be willing to support such a DoD initiative. The final DRB decisions on the FY 83 budget are of paramount importance to demonstrate seriousness and must support this initiative or we must accept that it will not be implemented. The Services must compile their offsets so as to support fully the DRB's most recent efficiencies (TOW, Mark 46, KC-135 re-engineing, F-18, etc.). Then to maintain the momentum, the Defense Guidance must reflect these types of efficiencies to orient the FY 84 budget properly. Also, the DoD Acquisition Executive (USDRE) through the Service Acquisition Executives needs to define terminology and implement an education process within the program management community to effect an understanding of what is economic, efficient, etc.

4. Finally, as part of achieving Milestone II, programs should be required to estimate what the economic production rate's range of values is, and the estimate should be updated periodically. (For certain programs, the Acquisition Executive may find it better to determine this range earlier than Milestone II.) The Services, when choosing to take a program to DSARC II, should understand that they are then responsible either for supporting an economic rate through the PPBS or for justifying why another rate is necessary.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 8. Title: Assure Appropriate Contract Type

Task Force Principals: Mr. J. E. Williams & Mr. J. T. Kammerer

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

1. Establish an OSD, Service, and Industry working group to develop an implementation plan to ensure that appropriate contract types are used.
2. Ensure that Program Managers have the responsibility for determining appropriate contract type. Ensure clarity in regulations.

ACCOMPLISHMENTS TO DATE:

A joint working group was established, consensus reached within the DoD and policy guidance drafted for DepSecDef signature.

BARRIERS TO IMPLEMENTATION:

Achieving Industry consensus.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. DUSD(AM) meet with Industry (NSIA, AIA) in January to inform them of the DoD policy on selection of contract type.
2. DepSecDef issue the DoD policy memorandum. Should be completed by 31 Jan 1981.
3. Service Secretaries ensure implementing regulations are in compliance with DoD policy within 90 days and notify SecDef, thereby closing out administrative actions required under this initiative. Continued monitoring is required.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiatives No. 9 & 31. Title: Improve Support and Readiness

Task Force Principals: Dr. R. D. Webster & VADM R. R. Monroe, USN

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

These initiatives support the management principle enunciated in Initiative No. 1 that "Improved readiness is a primary objective of the acquisition process of comparable importance to reduced unit cost or reduced acquisition time. Resources to achieve readiness will receive the same emphasis as those required to achieve schedule or performance objectives. Include from the start of weapon system programs designed-in reliability, maintainability and support."

a. Action required by Initiative No. 9 was "MRA&L draft SecDef policy letter to be issued within thirty days, reaffirming weapons support policy and objectives and tasking the Services to develop implementing guidelines, including procedures for addressing support early in acquisition programs."

b. Action required by Initiative No. 31 was "USDRE issue guidance adding early assessment of support options to the current procedures."

**ACCOMPLISHMENTS TO DATE:**

1. A memo was signed by DepSecDef on June 13, 1981, which required the Services to take implementing actions, within a year, in the following areas:

a. Assigning readiness goals as design objectives and primary management tools.

b. Developing guidelines for additional front end funding and attention for concurrent development programs.

c. Designating programs for support emphasis.

d. Establishing organizations and procedures to implement the policies.

2. Service implementation responsibilities have been assigned and implementation timetables have been established. Progress briefings have been provided by the Services. The procedural aspects of implementation are currently being worked (revision of directives and handbooks, development of procedures for assigning readiness objectives, etc.).

3. Some initial steps have been taken to change organizations and responsibilities for making "designed-in" weapon system readiness an integral part of all new acquisitions. Examples are the Navy's logistic assessment requirements, included in a recent instruction on operational availability, and the Army's plan to augment logistic review capabilities to support their ASARC assessments.

4. Implementation of Initiative No. 31 is being accomplished within the Services as part of Initiative No. 9. USDRE has taken action to incorporate the guidance

required by Initiative No. 31 in the revision of DODI 5000.2.

BARRIERS TO IMPLEMENTATION:

1. Impediments to progress fall in three categories:

a. Lack of management priority by the acquisition community. The perception at all levels in the acquisition community is that there has not been a substantial shift in traditional management priorities. As a result, programs continue to be structured to give top priorities to cost, schedule or performance objectives; support and readiness considerations are left to be accommodated within these program constraints. Recent strategic system acquisitions, structured to meet tight IOC dates and constrained acquisition costs are pertinent examples.

b. Lack of front end emphasis and processes. Although progress has been made in getting support issues addressed as part of production decisions, the front end planning processes for new weapons programs do not typically address measures to reduce support risk. Ambitious cost and schedule objectives can be accommodated with minimal adverse effects on support if the funding is made available for additional test hardware (Initiative No. 12), reliability and support incentives (Initiative No. 16), or other risk-reducing measures. This must be done early in the acquisition cycle since, once the R&D funding is fixed through PPBS actions or ceilings on development cost, there is little opportunity to add efforts to affect the support characteristics inherent in the new system.

c. Inadequate procedures, organizations and technical capabilities. The Services have only recently issued their revised top level directives reflecting the 1980 update of DoDD 5000.1, DoDI 5000.2, and DoDD 5000.39. The Services have not issued their implementing directives for DoDD 5000.40. Work is underway to develop lower tier implementing instructions, handbooks, etc. The Service implementation plans should be entirely adequate to remove procedural barriers, but it will take a year or more before the new procedures are in routine use by program managers. In the interim, some programs should be selected for ad hoc attention and trial application of the new procedures.

(1) Organizations responsible for logistic assessments and for independent evaluation of the readiness implications of test results need strengthening, to varying degrees, in each Service.

(2) An organizational barrier identified by the DSB 1981 summer study on readiness is that the logistic organizations in OSD and the Services are set up to manage support functions (supply, maintenance, training, etc.) with little visibility of the total support resources and their interactions for a weapon system. Initiative No. 30, which would give the program manager greater visibility and involvement in support resource decisions affecting his weapon system, is a key element in removing this barrier.

(3) Technical difficulties include the lack of a standard set of terms for readiness and support-related parameters, and the failure to apply established analytical approaches to relate design characteristics and support concepts and resources to readiness goals. Much progress has been made, case-by-case, in recent acquisition programs in all three Services. However, major programs continue to come forward for DSARC review without well defined and consistent support and readiness goals. The problem now is to take the best features of the good examples

resources to readiness goals. Much progress has been made, case-by-case, in recent acquisition programs in all three Services. However, major programs continue to come forward for DSARC review without well defined and consistent support and readiness goals. The problem now is to take the best features of the good examples and institutionalize them, as well as continuing to improve analytical approaches and data bases.

**SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:**

1. The program structure for each weapons system should include explicit IOT&E periods, with highly visible support and readiness thresholds, to provide firm data to decision-makers at production milestones. The support thresholds should be based on realistic schedules for availability of support elements at each milestone. (Include as revision to DoDI 5000.2 and DoDD 5000.3).

2. Service and OSD managers should include as an agenda item in each program review an assessment of readiness objectives, risks in achieving these, and options to reduce the risk. At program initiation, the review should address the acquisition strategy including front end funding, contractor incentives, design and supportability tradeoffs, alternative schedule and funding approaches and effect on readiness achievement. Implementation requires revision of the policy directives and instructions (5000.2, 5000.3, 5000.39, 5000.40); assignment of staff expertise to carry out the front end planning and assessments; and changes in procedures to ensure that readiness and support are routinely included on the agenda of milestone and other program planning meetings.

3. Top management must create awareness of the necessity for support and readiness within the acquisition community and must continue to emphasize policies and procedures for designed-in reliability and maintainability.

4. MRA&L and USDRE should establish an OSD/Service working group on specifying support-related DSARC goals. The objective would be to assist each Service in completing their guidelines by June 30, 1982.

5. Each Service should assign responsibility and resources for quantitative assessment of the readiness implications of the measured R&M characteristics and resource utilization observed in early T&E. (Include in revisions to 5000.2 and 5000.39).

6. The Services should implement the milestone plans which they have submitted in response to the 13 June memo by Secretary Carlucci.



ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No 10. Title: Reduce the Administrative Cost and Time to Procure Items

Task Force Principals: LTG J. H. Merryman, USA & Mr. J. W. Melchner

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Items:

- a. Raise small purchase ceiling from \$10,000 to \$25,000.
- b. Raise threshold for contractor costing data input from \$100K to \$500K.
- \*c. Raise threshold for Secretarial D&F's for R&D from \$100K to \$1M.
- d. Encourage greater use of class D&Fs.
- e. Raise reprogramming thresholds.
- f. Eliminate need for non-Secretarial D&Fs.

\*NOTE: Legislation in Congress raised this from \$100K to \$5M (in lieu of DoD's request of \$1M).

ACCOMPLISHMENTS TO DATE:

Items a, b & c. All three actions have been included in "Department of Defense Authorization Act, 1982." The Act was signed into law (P.L. 97-86) on 1 Dec 81.

Item d. Dropped as being unnecessary--determination made by DUSD(AM).

Item e. Transferred to Initiative 15--determination made by DUSD(AM).

Item f. Dropped as being not feasible--determination made by DUSD(AM).

New Item g. OSD initiated new action to develop simplified contract format for purchase above small purchase threshold and under \$100K.

BARRIERS TO IMPLEMENTATION:

Items a, b & c. None.

Item g. Many contract clauses are required by statute or to protect the Government's interest. AF, with support from Army, Navy and DLA, will have to work around these, shorten or eliminate them, where possible.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

Items a, b & c. DAR Council initiated actions for implementation within DoD. Target date for interim implementation is within 30 days (31 Dec 81).

Item g. DepSecDef memo tasking AF with lead requires submission of milestone plan for completion by 15 Jan 82.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 11. Title: Budget Funds for Technological Risk

Task Force Principals: LTG J. H. Merryman, USA & Mr. J. W. Melchner

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

SecDef emphasize the requirement to evaluate, quantify and plan for risk. USDRE direct all Services to budget funds for risk. In particular, each Service should review the TRACE concept and either adopt it or propose an alternative for its use to USDRE within 60 days.

ACCOMPLISHMENTS TO DATE:

1. Army: TRACE concept implemented for several years.
2. AF: Completed evaluation of TRACE. Proposed to USDRE, on 24 September 1981, continuation of a similar AF system.
3. Navy: The risk cost estimating concept is being implemented in NAVAIR. The concept is identical to Army TRACE. Wider application of the TRACE concept is being considered for POM 85 implementation for undetermined programs in NAVSEA and NAVELEX system commands.

BARRIERS TO IMPLEMENTATION: None.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

USDRE should add Section V.F.3. to Defense Guidance for POM 84-88 as follows:

3. Programing for Technology Risk. Services will develop methods and procedures to quantify technological risk during development and will budget funds where appropriate to contend with this risk.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 12. Title: Provide Adequate Front-end Funding for Test Hardware

Task Force Principals: VADM R. R. Monroe, USN & Dr. R. D. Webster

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF 30 APRIL:

"USDRE ensure that the acquisition strategy identify plans for and funding required to acquire adequate subsystem and system test hardware to reduce overall schedule time and risks."

ACCOMPLISHMENTS TO DATE:

Some support--in principle--for this initiative has been included in wording of various OSD and Service directives; however, nothing has been done which could be expected to bring about a change in actual practice.

BARRIERS TO IMPLEMENTATION:

The real problem is our attitude about test and evaluation (T&E). Most of those involved in the acquisition process:

- a. Have an underlying belief that systems will work as advertised;
- b. Tend to regard T&E as a "wicket" to be passed, rather than an essential tool in the process;
- c. Believe that, in most cases, money can be saved and the acquisition process speeded up by reducing test hardware and test periods;
- d. Seem quite willing to give program go-aheads at key points without reviewing test results; and
- e. When confronted with poor test results, tend to be willing to accept promises of correction, and to be impatient about delaying the program to correct problems and retest.

As a result of these institutional attitudes there is an unwillingness to commit resources to buy adequate quantities of development hardware.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

No single, one-time, action or group of actions will achieve any real results. We will get adequate front-end funding for test hardware only if attitudes about T&E are changed, and this will require a steady, concerted, long-term effort across-the-board, both in our policy/procedure directives and in our actual

actions, week by week, in decision-making on specific programs. Rhetoric in support of T&E will not suffice. It must be backed up by the early commitment of resources required to carry out adequate T&E during all phases of development. The proposed action program is as follows:

a. Incorporate one or two brief additional policy statements about T&E in draft DoD Directive 5000.1. (Note: It has been typical of our attitude about T&E that we have relegated its treatment to DoD Directive 5000.3, and have not included strong reference to T&E in DoDD 5000.1 or DoDI 5000.2. This omission reinforces the view that T&E is an isolated topic, rather than an integral aspect of system acquisition.)

b. Accomplish the same upgrading of attention to T&E by specific procedural references in DoD Instruction 5000.2.

c. In the forthcoming rewrite of DoD Directive 5000.3, give explicit attention to providing adequate front-end funding for test hardware.

d. DDT&E prepare (prior to 31 Dec 1981) two hard-hitting letters for DepSecDef's signature on Initiative No. 12; one addressed to Service Secretaries, giving specific guidance on what is expected, and one addressed to USDRE(DDT&E), placing increased emphasis on the DDT&E role for ensuring adequacy of front-end funding for test hardware. The purpose of the letters is to strengthen the hand of those few who argue for adequate T&E, vis-a-vis the many who argue for reducing RDT&E cost and time.

e. While the above four actions will start the implementation process, the only really effective effort will be the case-by-case decisions made in each program over the coming weeks and months. If we do not support "adequate front-end funding for test hardware" here, no words in directives will matter.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 13. Title: Governmental Legislation Related to Acquisition

Task Force Principals: BG C. F. Drenz, USA & Mr. T. P. Christie

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

USDRE establish joint OSD and Service team to weigh the impact of the various governmental requirements and regulations on the efficiency and effectiveness of the total DoD acquisition and contracting process. Industry and OMB should participate to the maximum extent possible. A report should be prepared for the DepSecDef within 45 days.

ACCOMPLISHMENTS TO DATE:

1. OSD/Service team offered its recommendations in August 1981.
2. A report on the status of each of the 10 issues approved for final actions is enclosed.

BARRIERS TO IMPLEMENTATION:

At the Congressional level, and during OMB level coordination with other Executive Departments/Agencies, the initiatives could encounter opposition from other constituencies such as organized labor and advocates of the Uniform Federal Procurement System.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. DUSD(AM) expedite internal OSD and Service/Agency coordination on the legislative initiatives currently in the DoD coordination process (target date: 31 December 1981).
2. DUSD(AM) determine the appropriate actions required to expedite accomplishment of all the Initiative No. 13 recommendations in light of the existing political climate, etc. These actions could include high level DoD contacts with organizations external to DoD; e.g., OMB or Congress (target date: 15 January 1982).
3. DUSD(AM) review the status of the initiatives on a monthly basis and take appropriate action based upon the political environment, etc. Provide a periodic report with recommendations for specific action to DepSecDef (target date: ongoing action).
4. DUSD(AM) convene Task Group 13 on a quarterly basis to review the overall Defense acquisition situation and determine if additional legislative initiatives are necessary.

5. Contingent on the result of the determinations discussed in 2. above, DUSD(AM) should seek support from appropriate industry organizations, e.g., American Defense Preparedness Association.

6. Note that the FY 82 Authorization Bill increases the small purchase ceiling to \$25,000 (Initiative 10). The legislative proposals contained in this initiative support and augment that action.

7. On 27 November 1981, DepSecDef tasked the Services and DLA to develop simplified contract formats for use above \$25,000. This project is being monitored under Initiative No. 10. We recommend full support of this program. The initial project status report is due DepSecDef by 15 January 1982.

SUMMARY OF PROPOSED LEGISLATIVE INITIATIVES

1. DoD continues to oppose draft legislation to provide for an extension of a pilot program of Section 8(a) contracting as the Director, OMB, was advised on April 9, 1981. Mark-up bills are in Committee. (S.1620, reported in Senate 28 September, Report No. 97-195. Companion Bill H.R. 4500, reported in House 28 October, passed House 17 November. Bill is different than S.1620--no exemption for DoD.)

2. (a) Amend the Walsh-Healey Public Contracts Act to increase the minimum threshold to \$25,000. Legislative initiatives are being developed. (Sec issue number 10.)

(b) Amend the Walsh-Healey Public Contracts Act to permit a 4-day, 40-hour week without premium overtime compensation. The Congress is considering bills to this end that DoD proposes to support. (H.R. 2911 and H.R. 3185 referred jointly to the Committee on Education and Labor and the Judiciary--appear to be buried in Committee; no action since June.)

(c) Amend the regulations of the Department of Labor to eliminate the distinction between suppliers of new and used automatic data processing equipment with respect to the requirement to maintain, store, or warehouse stock. Regulatory initiatives are being developed. (Letter to DoL sent 17 November.)

3. Amend the Contract Work Hours and Safety Standards Act to permit a 4-day, 40-hour week without premium overtime compensation. The Congress is considering bills to this end that DoD proposes to support. (Sec 2(b) above.)

4. Support revision of current DoL regulations (Davis-Bacon Act) to remove substantial administrative and direct costs in the acquisition process. Revise procedures for establishing prevailing wages, extending coverage to construction helpers, and other changes. Revisions proposed by DoL are in the comment stage. (Comments provided 8 October 1981.)

5. Amend the Service Contract Act to remove substantial administrative and direct costs in the acquisition process. However, the Secretary of Labor has proposed regulatory revisions that generally address these same issues, and DoD has supported these changes. The voluntary regulatory changes will only become permanent by amendment to the statute. Specific legislative changes were provided to OMB on 19 February 1981. (Legislative Proposal DoD 97-87 sent to OMB on 19 February 1981.)

6. Amend the Armed Services Procurement Act to delete the ten percent fee limitation on cost-plus-fixed-fee contracts. Legislative initiatives are being developed. (Draft legislation submitted to OSD General Counsel for coordination on 19 November 1981. DUSD(AM) to follow up and expedite.)

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7. Monitor DoL activity to streamline DoL regulations regarding non-discrimination in federal contracts. DoL has published revisions for comment due 26 October 1981.

8. Amend the Copeland Anti-Kickback Act to relieve contractors of the requirements to provide weekly wage statements. Legislative initiative is being developed. (Draft legislation submitted to OSD General Counsel for coordination on 19 November 1981. DUSD(AM) to follow up and expedite.)

9. Amend the Armed Services Procurement Act to delete the requirements to solicit suggestions from retiring civilians and military personnel. DoD-sponsored legislation was submitted to the House of Representatives on May 1, 1981. (H.R. 4276 introduced 27 July 1981. Referred to Armed Services Subcommittee on Procurement and Military Nuclear Systems.)

10. Amend 11 statutory thresholds to achieve a level of applicability for significant socio-economic programs at \$25,000. Statutes include, among others, the Davis-Bacon Act, Service Contract Act, Employment of the Handicapped Act, and Walsh-Healey Public Contracts Act. Legislative initiative is being developed.

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ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 14. Title: Reduce the Number of DoD Directives

Task Force Principals: VADM R. R. Monroe, USN & Dr. R. D. Webster

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF 30 APRIL:

"USDRE establish a joint OSD, Service, Industry team to provide recommendations within 90 days to substantially reduce the number of directives, and the documentation required in contracts."

ACCOMPLISHMENTS TO DATE:

Significant early action has been underway. An OSD/Tri-Service/NSIA-AIA team has reviewed 136 DoD acquisition directives and made specific recommendations on each (retention, cancellation, consolidation, etc.). Action officers are now reviewing these recommendations, with a December response date.

BARRIERS TO IMPLEMENTATION:

We can expect the entire process to bog down at this point. There are three serious barriers to further action:

a. The normal resistance to change (and unwillingness to dispense with any control mechanisms) exhibited by any large bureaucracy.

b. The immense inertia of any large bureaucracy in getting revised directives on the street (even when the rewrites are strongly desired).

c. It is well recognized that a wise balance must be struck between reduction of directives and provision of adequate guidance for improving the acquisition process.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. For each directive which was recommended for change (cancellation, combination, revision, etc.), form a follow-up team from the offices which recommended the change. This team would ensure that pressure is maintained to implement the change recommendation, and would review the draft revisions before promulgation to ensure they accomplish the goal.

2. Establish a small "score-keeping group." Have the group track results only, not intentions or work in progress, on each of the 136 directives, reporting summary results (numerical) in USDRE(AM)'s monthly sitreps, and fingering delinquent directives/offices quarterly in a list appended to the sitrep.

3. DepSecDef issue a procedural directive stating that on 1 July 1982 all DoD acquisition directives dated prior to 1977 are automatically cancelled. All reissuances prior to this terminal date will undergo the normal coordination required for any new directive.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 15. Title: Funding Flexibility

Task Force Principals: LTG J. H. Merryman, USA & Mr. J. W. Melchner

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

1. Transfer Authority. ASD(C), working with the General Counsel, OMB and Congress, establish procedures for DoD approval of the transfer of funds in a given fiscal year from Procurement to RDT&E for an individual weapon system when the Secretary of Defense determines that it is in the National Interest to do so.

2. Reprogramming Thresholds. Renew SecDef/DepSecDef efforts to obtain Congressional committee approval (HASC, SASC, HAC, SAC) to raise reprogramming thresholds from \$2 million to \$10 million for RDT&E appropriations and from \$5 million to \$25 million for procurement.

**ACCOMPLISHMENTS TO DATE:**

1. Transfer Authority. On August 28, 1981, DepSecDef requested the 4 DoD oversight committees to approve a proposal permitting a notification reprogramming action to the committees on transfers from procurement to R&D where the funds remain within the same program. This would be in lieu of a prior approval reprogramming action which is the current practice. None of the committees has responded to the letter.

2. Reprogramming Thresholds. ASD(C) has written letters to and has had meetings with committee staff directors to press for the requested increases, which are fivefold the current levels. HASC and SASC have approved the requested increases. SAC has approved the increase, but not the levels requested by DoD. The SAC approval is for approximately a threefold increase and included this in its committee report. DepSecDef has written to the HAC on October 26, 1981, reenforcing the ASD(C) discussion with the HAC during hearings on October 7, 1981. To date, HAC has neither responded nor included the item in its committee report. The conferees agreed upon essentially a doubling of the existing reprogramming thresholds in military personnel, procurement, and research, development, test and evaluation areas. No increase to existing thresholds for new starts was granted, and a limitation of only one below threshold reprogramming a year was imposed.

**BARRIERS TO IMPLEMENTATION:**

1. Transfer Authority. The committees are not focusing on the issues.

2. Reprogramming Thresholds. The committees are not convinced that a fivefold increase is necessary.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. Transfer Authority. Actions must be taken to reemphasize to the committees the need for the transfer flexibility. ASD(C) is attempting to have the conferees consider the change to notification procedures along with the increase to the thresholds (see below). If this is done, then this will become part of item 2 below. If not, then additional actions are needed.

a. Military Departments prepare and submit to OASD(C) examples of how the implementation of this increased flexibility would save funds or improve program management (February 1982).

b. OASD(C) meet with committee staff directors to secure their support for the switch from prior approval to notification actions using the data provided by the Military Departments (March 1982).

c. If OASD(C) actions do not result in a change by early April 1982, SecDef and DepSecDef should arrange personal meetings with committee chairmen to force early action.

2. Reprogramming Thresholds. Given that the conferees partially approved the increased thresholds, actions need to be taken to implement the approved changes and to re-request increases to the threshold.

a. OASD(C) prepare a letter change to the DoDD and DoDI on reprogramming for immediate release to approve the changes agreed to by the conferees. (January 4, 1982).

b. OASD(C) should review reprogramming activity again after 1 year and reapply for increased thresholds. (December 1982).

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 16. Title: Contractor Incentives to Improve Reliability and Support

Task Force Principals: Dr. R. D. Webster & VADM R. R. Monroe, USN

ACTION REQUIRED BY DEPSECDEF MEMO OF APRIL 30:

"USDRE working with the Services, develop guidelines to include the approaches to incentivize contractors to improve support within 60 days, followed by a USDRE and Service evaluation of incentives within the next year. USDRE (lead transferred to MRA&L) develop with the Services, within one year, improved approaches to translate maintenance manpower skill projections into system design objectives."

"Incentives" in this context includes a broad range of approaches to motivate contractors to improve reliability and support (source selection criteria, contract incentive provisions, warranties, contractor maintenance, etc.)

ACCOMPLISHMENTS TO DATE:

1. USDRE memo dated 26 August 1981 provided additional guidelines: (1) "as normal course of action" use source selection and performance clauses as contractor reliability and support incentives unless clearly prohibited by acquisition strategy, (2) evaluate adequacy of policy on incentives using current experience, new trial applications on both source selection and support incentives and include contractor reactions.

2. Numerous actions on-going within the Services. Service procurement managers' approach to this item is to provide a "positive climate" for application of contractor incentives. Although the climate is positive, there is not widespread application (Air Force has widest application).

3. Approaches are being developed leading to an ability to improve the capability to translate maintenance manpower skill projections into design or program requirements. Activities involve:

a. MRA&L/Services have developed front-end logistic support analysis guidelines (Revised MilStd 1388) to identify early ("at the front-end") initial support "drivers" candidates that can be incentivized, and have specifically added approaches to identify skilled manpower and training requirements.

b. DSB study on Operational Readiness for High Performance Systems has reviewed Service suggestions on skilled maintenance manpower strategies and recommend an approach to filling these needs by using contractor support in the mid term and designing away complexity in the longer term.

BARRIERS TO IMPLEMENTATION:

1. Responsibility between procurement, acquisition, support and reliability for being the advocate and having the lead for incorporation of contractor incentives for readiness and support is unclear.
2. Funding for contractor incentives for reliability and support is not receiving appropriate emphasis in program or budget decision.
3. Evaluation of current experience or trial applications (USDRE memorandum August 26, 1981) is not being given emphasis. There exists a general perception within some Services that these contract incentives will not be effective.
4. There is resistance to including in the DoD acquisition policy revision, DoDD 5000.2, the requirements for contractor incentives.
5. There is a general feeling in the procurement community that the initiatives may unduly limit flexibility or cause emphasis on reliability and support out of proportion to the need. Also, there is general concern that establishment of stringent standards for reliability and support may delay production decisions at end of development, when testing discloses significant reliability and support shortfalls.
6. Increased use of contractors either as part of incentive arrangements such as warranties or workarounds (to make up for critical skill shortfalls in the support area) is perceived as an undesirable because of potential for a sole source situation, and because of reduction of in-house capabilities.
7. The need for much wider dissemination, particularly to acquisition managers, of the requirement to consider incentives and to provide training and information for selecting and implementing incentives approaches (the Air Force has the only organized start in this area).

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. Service Material Commands establish senior level (SES/FLAG) group--procurement, support and reliability--to select and establish implementation approach on each major weapon program at all Milestones. In addition they should evaluate experience on recent programs as outlined in the 26 August memorandum.
2. USDRE (Acquisition Management) review acquisition strategies in early program documentation for adequate funding for incentives and approaches to incentivizing support and readiness. This should be combined with a review of approaches to managing unit cost because of strong interactions.
3. Establish, at Milestones I and II, highly visible reliability and support thresholds for demonstration through test and evaluation prior to production decisions.
4. In the revision of DoDI 5000.2 include policy guidance on the use of contractor incentives, responsibility for selection, and funding.

5. Establish a group, under JLC, to identify or develop contractor incentives approaches for support, particularly emphasizing incentives for support cost reduction. USDRE action to determine approach in 60 days.

6. Publish the 26 August memorandum on "Incentives" in the Federal Register.

7. Revise DoD Directive on Maintenance Policy (4151.1) to open the way for wider application of contractor support using appropriate incentives particularly in the area of high technology and for on-coming critical DoD skill shortfalls. MRA&L draft revision for comment in 120 days.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 17. Title: Decrease DSARC Briefing and Data Requirements

Task Force Principals: LTG J. H. Merryman, USA & Mr. J. W. Melchner

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

USDR&E make explicit the changed character and the reduced number of briefings and data for the DSARC review.

ACCOMPLISHMENTS TO DATE:

1. DoD Directive 5000.1 has been revised and is scheduled to be published by December 31, 1981.

2. DoD Instruction 5000.2 draft No. 4 is being prepared. This revision will eliminate the following documentation and DSARC briefings:

a. Integrated Program Summary requirement was eliminated at Milestone I review and was reduced for the Milestone II review.

b. Other OSD information requirements were reduced for various decision points (Enclosure).

3. Services have initiated the following actions:

a. Army - All changes are being reflected in revised drafts of AR 1000-1 and AR 15-14, to be staffed when DoDI 5000.2 goes to printer. ASARCs replaced by Army programs reviews in selected cases.

b. Navy - DNSARC pre-briefs combined. All NAVMAT reviews are combined into a single NMC review. OPNAV note of 9 Jun reduces NDCP requirement and condenses format of other documents. SECNAV 5000.1 and OPNAV 5000.42 under revision.

c. Air Force - Developing changes to SPR/CAR/MAR. Will send policy letter to field. Updating AFR 800-2.

BARRIERS TO IMPLEMENTATION:

1. There is an apparent conflict with other elements of the Acquisition Improvement Program which require additional data to demonstrate compliance.

2. DoD Instruction 5000.2 is needed for Service implementation.

3. Services need to formalize procedures for assuming the delegated responsibilities. The role of Project Managers must be clearly established vis-a-vis the acquiring Service hierarchy.



4. Specific guidance on format and content of programs reviews is needed.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. Ensure issuance of DoD Directive 5000.1, USDR&E by December 31, 1981.

2. Issue DoD Instruction 5000.2, USDR&E by March 1, 1982.

3. Services and OSD must officially take action to reduce the time and effort required by DSARC and Service major systems reviews. Services must publish implementing instructions not later than 120 days after issuance of DoD Instruction 5000.2.

4. OSD should continue follow-up actions to ensure implementation.

a. Include Service participation in all policy development.

b. Re-establish use of Steering Group for review of monthly report to DepSecDef.

c. Publish specific guidance on format and content of program reviews.

d. Identify specific data and briefing requirements reduced.

e. Decrease number of Service SARCs.

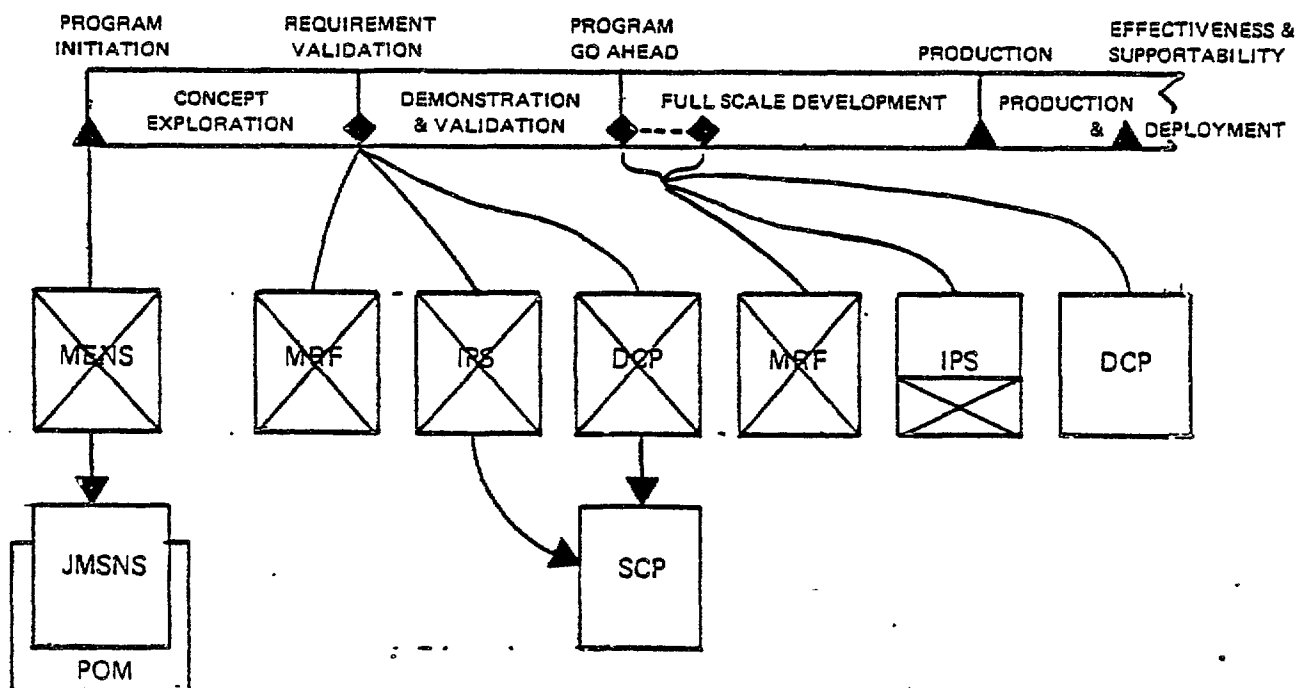
f. Review dollar threshold for consideration of level of review for programs within the Service.

g. Reduce or consolidate the briefings that PMs give at Service and major command level.

h. Identify specific information requirements eliminated.

5. Although DoDD 5000.1 and DoDI 5000.2 have not yet been published, there are many things which the Services can do without waiting for those official publications. The Services should take appropriate action now to decrease internal data and briefing requirements.

## DSARC INFORMATION REQUIREMENTS



The thrust of Action 17 is to significantly reduce the amount of paper work required for a typical DSARC review; interim guidance was published in a 14 July 1981 USDRE Memorandum. As suggested by this chart, the Milestone Reference File (MRF) has been eliminated for all DSARC reviews. In addition, the Integrated Program Summary (IPS) has been eliminated for the Requirement Validation review; this action will, of course, require that the System Concept Paper (SCP-an augmented Decision Coordinating Paper (DCP) contain complete cost information on the alternatives to be considered. The Under Secretary of Defense for Research and Engineering is also examining the possibility of shortening the IPS for the Program Go-Ahead review scheduled to be held at the OSD.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 18. Title: Budgeting for Inflation

Task Force Principals: Mr. J. T. Kammerer & Mr. J. E. Williams

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Comptroller and PA&E develop in more detail the various alternatives addressing the inflation issue as related to planning and budgeting for major acquisition programs and provide a decision paper to the Deputy Secretary of Defense within 30 days; discuss draft options with OMB and appropriate Congressional staff.

ACCOMPLISHMENTS TO DATE:

Required decision paper sent to Director, OMB by Secretary of Defense (6 Aug 81); OMB, DOD, congressional staff discussions held. Answer pending from Director, OMB. Selected staff elements, material commands, and program offices sounded out on feasibility of design and construction of an output oriented major weapons system price index for support of budget submission and funding of "retrograde effect" during budget execution.

BARRIERS TO IMPLEMENTATION:

Primarily national in scope, that is ultimately a decision between White House, Director, OMB, and SecDef. Until an agreement is reached on budgeting for inflation more realistically, unbudgeted inflation will continue to cause massive program instability and perceived cost growth.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

Another staff (OSD(C), PA&E) effort to be made during December budget phase to move the issue forward in OMB National Security Directorate and Economics Review Division. Although initial discussions have been held with OMB, the Task Force recommends that the Department adopt a strong position on this issue and aggressively pursue the matter further. Further contact with Congress awaits development of an Administration position. Anticipate a January follow-on contract effort to sample stable, in-production major weapons systems to establish feasibility and scope of effort to construct a major weapons system price index. On site contractor work is anticipated.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 19. Title: Forecasting of Business Base Conditions at Major Defense Plants

Task Force Principals: Mr. T. P. Christie & BG C. F. Drenz, USA

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

"Contract Administration functions will be directed to maintain a business base projection and government offices will be directed to support this effort and utilize these data in planning and budgeting. The OSD Cost Analysis and Improvement Group (CAIG) will maintain a data exchange for the Services to assist in approved forecasting."

ACCOMPLISHMENTS TO DATE:

1. DUSD(AM) issued instructions to the Services and DLA on 1 June 1981. These instructions directed contract administration functions to maintain a business base projection at each major defense plant. It further directed program offices to provide program projections to plant representatives.
2. DLA issued an implementing letter on 17 June 1981. Army identified Hughes Helicopter (Venice), Bell Helicopter (Ft. Worth) and Boeing Vertol (Philadelphia) as their cognizant major plants. A semi-annual reporting requirement was established.
3. Air Force instructions were issued 1 October 1981. The instructions apply to programs exceeding \$10M in any plant with a DoD plant representative. Five years of projections are to be made.
4. Navy instructions were issued 23 October 1981, and were similar to the Air Force guidance.
5. CAIG representative met with USDRE and Service points of contact to clarify intent of initiative on 30 Nov 81.
6. CAIG representative met with Service representatives on 24 Nov 81 to decide (1) what implementing instructions are needed to satisfy the intent of the initiative and (2) what instructions will achieve a realistic, workable program.
7. The Cost & Economic Analysis Office, DPA&E, has developed the Defense Economic Impact Modeling System (DEIMS) for use by industry to aid business forecasts. The model is currently available for use.
8. OSD CAIG provided DUSD(AM) a list of plants for reporting purposes, definitive reporting requirements and reporting schedule on 4 Dec 81.
9. DUSD(AM) provided reporting requirements to Services on 15 Dec 81.

BARRIERS TO IMPLEMENTATION: None

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE.

By 30 Apr 1982, Services and DLA forward first forecasts to CAIG.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 20. Title: Improve the Source Selection Process

Task Force Principals: Mr. J. E. Williams & Mr. J. T. Kammerer

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

1. Modify DODD 4105.62 to emphasize objectives, e.g., past performance, schedule realism, facilitization and cost credibility.
2. Establish a DoD system for recording, documenting and sharing contractor performance.

**ACCOMPLISHMENTS TO DATE:**

1. An interim report on DODD 4105.62 was prepared and reviewed by OSD and the Services.
2. An Ad Hoc group (Army, Navy, Air Force and OSD) evaluated the recommendation to establish a new DoD system to provide contractor performance information. This group unanimously suggested to DUSD(AM) that a new system was unnecessary.

**BARRIERS TO IMPLEMENTATION:**

1. The greatest barrier to implementation of an effective system is the lack of understanding of what is required to fully implement this initiative.
2. A second barrier is each Service's opinion that in-being Service systems fulfill the requirement. They do not.
3. Another obstacle is the fact that this initiative has been interpreted as requiring a centralized, DoD data base of contractor past performance. The Task Force disagrees with this interpretation and recommends that the solution be based on the individual systems already being implemented by the Services, although modifications to these systems will be required.

**SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:**

1. The Ad Hoc group (Army, Navy, Air Force and OSD) should define and describe by March 1, 1982 the requirements for methods of recording, documenting, and sharing contractor performance. These requirements should include individual Service systems designed to specific criteria and coordinated by OSD.
2. USDRE provide "For Coordination" draft of DoDD 4105.62 to the Services for review and comment by 1 April 1982.
3. DepSecDef issue DODD 4105.62 by 1 July 1982. Emphasis will be on past performance, schedule realism, and selection of contractor who appears to have highest probability of meeting requirements. Importance of lowest proposed cost will be de-emphasized.
4. Services revise implementing regulations: AFR 70-15, AR 715-6, and NAVMATINST 4200.49 within 90 days of issue date of DODD 4105.62, thereby closing this action.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 21. Title: Develop and Use Standard Operational and Support Systems

Task Force Principals: Dr. R. D. Webster & VADM R. R. Monroe, USN

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Develop and use standard operational and support systems. More specifically, this means institutionalizing an effective means for the identification and approval of candidate RDT&E programs which are ultimately produced and implemented as standard (common) hardware (e.g., subsystems, major components, and support systems) in major weapon systems.

ACCOMPLISHMENTS TO DATE:

OSD developed a three phase action plan. Phase 1 (Near Term--OSD select on-going RDT&E programs for standardization) has not yet resulted in substantial changes to Service standardization plans. Phase 2 (Mid Term--Services nominate candidate RDT&E programs) has gotten a very positive response from the Joint Services Review Committee (JSRC) for 5 proposed tri-service avionics standardization programs. The JSRC efforts need additional "seed money" to get started. Non-avionics subsystems (support and test equipment, mechanical systems, etc.) have no organization comparable to the JSRC, and consequently are lagging in implementation of this initiative. Phase 3 (Longer Term - Improvements in policies, procedures, organizations) was initiated at the 3-5 November 1981 DoD Standardization Seminar. An implementation plan was developed, and a number of actions are underway. These actions will require a year or more to take full effect.

BARRIERS TO IMPLEMENTATION:

The most critical problem is advocacy within the weapon system community. When the Services and OSD establish priorities during the POM cycle, the hardware and support systems standardization efforts evolve as very low priority programs and simply never get supported. Examples of this may be found in: (1) B-1 (where the preferred avionics standards may not get implemented); (2) the MATE program (where funds are being deferred by OSD); and (3) the five avionics standardization programs recommended by the JSRC (all with significant potential cost avoidance savings, but inadequate funding).

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. Serious consideration must be given to the following possible actions:

a. Continue to vigorously support the Recommendation 21 action plan. A memo from USDRE should tell the Services to approve and fund the five avionics standardization programs recommended by the JSRC (OUSDRE-OASD(MRA&L)-JSRC meeting, 4 Dec 81). This will give evidence that we support these materiel standardization programs.

b. USDRE, MRA&L, and the Services should convene a panel on support and test equipment to review Service management approaches and RDT&E efforts for development of standard support systems, and to develop a recommended DoD program.

c. USDRE should convene a meeting of the Defense Specifications and Standards Board (DSSB) by 29 Jan 82 to address FY 82 Standardization Program Guidance. At this time, a JSRC for ground support equipment should be initiated.

d. Seriously address the deficiencies in management, acquisition policy, standardization, organization and operational requirement areas identified at the November DoD Standardization Seminar. USDRE develop a Service coordination action plan to resolve every major issue. The Services should develop standardization program plans which should be phased and support the OSD action plan.

e. USDRE and the Services should each designate advocates for each of the standardization areas, along with funding responsibilities.

2. Because unanimity does not exist at this time on how to proceed, the Ad Hoc committee under the Steering Group should further examine this issue.



ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 22. Title: Design to Cost Contract Incentives

Task Force Principals: Mr. T. P. Christie & BG C. F. Drenz, USA

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

DoD will "provide appropriate incentives to industry by associating fee awards to actual costs achieved during the early production runs." DoD will "insure program managers and contracting officers develop contract terms and procedures to provide for the payment of Design to Cost (DTC) awards and incentives based on "evidence during early production runs that Design to Cost goals are being achieved."

**ACCOMPLISHMENTS TO DATE:**

1. A Tri-Service/OSD group, meeting over a four month period, developed the necessary guidance to implement the DepSecDef decision, and initiated the revision of appropriate documents.
2. USDRE issued interim guidance on 3 December 1981 to the Services, DCA, and DLA, outlining procedures for rewarding contractors who demonstrate that they have achieved DTC requirements and for penalizing those who do not.
3. DoDD 5000.28, Design to Cost, has been revised to incorporate this guidance and as soon as DoDD 5000.1 and DoDI 5000.2 have been coordinated and reissued, DoDD 5000.28 will also be coordinated and reissued.
4. The Defense Acquisition Regulation (DAR) is being revised accordingly.
5. A Design to Cost Military Standard is in preparation.
6. The Joint Logistics Commanders DTC Guide is to be updated.

**BARRIERS TO IMPLEMENTATION:**

Lack of issuance of DoDD 5000.1 and DoDI 5000.2.

**SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:**

1. By March 30, 1982, USDRE issue revised DoDD 5000.28, Design to Cost, incorporating DTC contract incentives guidance.
2. By July 31, 1982, DAR council revise and reissue regulation on DTC contractual requirements.
3. By September 30, 1982, Air Force prepare, coordinate and issue DTC Military Standard.
4. By December 31, 1982, Air Force update, coordinate and issue Joint Logistics Commanders DTC Guide.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 23. Title: Implementation of DoD Acquisition Improvement Program

Task Force Principals: Mr. W. A. Long

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

1. Assign overall responsibility to USDRE for monitoring and follow-up of all decisions made in this report.
2. USDRE will assign a prime responsibility for action on every recommendation and decision in this report. In general, these assignments have been specified under the "Action Required" sections; however, in certain cases specific action responsibilities will be defined in the immediate future.
3. USDRE should consider utilizing a working group containing OSD and Service representatives to assist in implementation.
4. USDRE should consider utilizing a number of creative techniques to translate the intent of these recommendations to all levels. This could include formal training sessions, conferences, videotaped training films, articles, and policy letters.
5. Both the SecDef and the DepSecDef must maintain a personal interest in ensuring that the changes are implemented, that there is continuous action to improve the acquisition process, that periodic reviews take place, and that all Services and OSD staff be made aware of the SecDef priority interest on this subject.

ACCOMPLISHMENTS TO DATE:

1. The memorandum of April 30, 1981 assigned USDRE responsibility for follow-up and ensuring implementation. During May 1981, USDRE assigned DUSD(AM) as the principal action officer for the implementation effort. An Acquisition Improvement Program Steering Group was assembled at the three-star (or equivalent) level representing the Services, MRA&L, ASD(C), and PA&E. Working teams were designated, responsibilities were assigned, and the Acquisition Improvement Effort Implementation Plan was approved. USDRE action offices were assigned for each program decision.
2. The Acquisition Improvement Program Steering Group met regularly and provided a monthly status report for the period May to September 1981 to DepSecDef on the implementation of each program decision.
3. On November 17, 1981, the DepSecDef directed the Council on Integrity and Management Improvement to establish a Task Force on Acquisition Improvement. On November 19, 1981, the USDRE met with Task force members representing the Services and OSD. Upon approval of the Task Force Final Report, the Steering Group will assume responsibility for assessing progress and ensuring implementation.

4. Numerous briefings, speeches, articles, testimony, and official actions have occurred in order to give the program the widest possible dissemination. Briefings have been provided to the Investigation Subcommittee of the HASC, and to GAO and OFPP senior officials. Major industrial associations, such as NSIA, ADPA, AIAA, have been briefed. Other organizations including the National Institute for Management Research and the National Contract Management Association have also received presentations. Many prime and subcontractors have received the word through these conferences as well as through a special conference recently held in Pittsburgh. Articles have appeared in Government Executive, Defense 81, and Concepts magazines on the Acquisition Improvement Program. Sections on the program are also included in this year's SecDef and USDRE Posture Statements. Congressional testimony on the subject has been heard by various subcommittees of the HASC, the HAC, and the Senate and House Committees on Governmental Affairs.

5. The "word" has been promulgated to members of the Services through official channels, as well as through briefings, and educational programs. The new management principles have been incorporated into the course work offered by the Defense Systems Management College. The College has also prepared a briefing on the Acquisition Improvement Program which has been provided at numerous military commands.

BARRIERS TO IMPLEMENTATION: None.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

See Task Force Final Report cover letter recommendations, -and the specific recommendations throughout this report.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 24. Title: Decision Milestones

Task Force Principals: VADM R. R. Monroe, USN & Dr. R. D. Webster

**ACTION REQUIRED BY DEPSECDEF MEMO OF 30 APRIL:**

"USDRE revise DoDD 5000.1/DoDI 5000.2 appropriate to alternatives selected.

**ACCOMPLISHMENTS TO DATE.**

A draft of DoDD 5000.1 was circulated on 22 September. All comments have now been received by USDRE and consolidation of comments is now in process. A draft of DoDI 5000.2 is being prepared in USDRE for coordination.

**BARRIERS TO IMPLEMENTATION.**

This initiative has been difficult to implement because the 30 April decision paper contained none of the in-depth structuring and integration necessary to incorporate the decision into the complex acquisition process. In particular, three aspects have been difficult to define: (a) The relationship between these new DSARC decision points and the actual program milestones (e.g., the start of full-scale development); (b) the relationship between these new DSARC decision points and the Service decision points in a major program; and (c) the relationship between the new DSARC decision points and the Service decision points in less-than-major programs.

**SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:**

1. Recent Action: Essential agreement was reached on all major outstanding 5000.1 issues at an OSD/Tri-Service meeting on 4 December. USDRE has circulated revised pages 5-7 of DoD Directive 5000.1, putting these agreements into words, for review by Service representatives. A final draft of these key pages should be agreed to within a few days.
2. Future Action: To ensure timely resolution of any remaining issues in 5000.1, and to expedite processing of 5000.2, it is essential that we engage high-level decision-makers in in-depth resolution of the different views. A small, high-level group (4 or 5 individuals, generally at the three-star or DUSD/DASD level)--one from each Service and one or two from OSD, each with broad authority to speak for his organization--will engage in a series of meetings to resolve issues. The group members themselves will get involved in the actual drafting of language on the difficult points. Meetings will be held at least once a week to allow rapid resolution while still permitting expedited internal review within parent organizations between meetings. DoDD 5000.1 should require only a single meeting before issuance.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 25. Title: Mission Element Need Statement (MENS)  
in the POM

Task Force Principals: LTG J. H. Merryman, USA & J. W. Melchner

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

USDRE revise DoDD 5000.1 and DoDI 5000.2 to require submission of a MENS (shortened or as currently required) no later than Service POM, thus linking the acquisition and PPBS processes. SecDef approval of MENS would be by accepting POM in absence of specific disapproval.

**ACCOMPLISHMENT TO DATE:**

1. DoDD 5000.1 has been revised and will be published by December 31, 1981.
2. DoDI 5000.2 Draft No. 4 is being prepared. This revision will require a Justification for Major System New Start (JMSNS) in lieu of a MENS which must be submitted not later than the POM submission.
3. Services have initiated the following actions:
  - a. Army, Navy and Air Force are concurrently preparing implementing regulations.
  - b. Army is changing title and reducing content of three MENS in process. A draft Letter of Instruction (LOI) for JMSNS is being prepared. AR 71-9 is being revised. Awaiting final format in DODI 5000.2.
  - c. Navy has replaced MENS with JMSNS. Awaiting final format in DODI 5000.2.
  - d. Air Force issued preliminary guidance on process in August 1981. Progress on DoD directive being monitored. Draft revision of AFR 57-1 expected to be issued by March 1982.

**BARRIERS TO IMPLEMENTATION:**

1. DoDI 5000.2 is needed for Service implementation.
2. A barrier to linking the PPBS and DSARC processes may have existed in POM 83; however this barrier is considered by OSD to have been corrected by follow on actions currently in process, under the DRB/POM review process and development of the DG for POM 84 (see Initiatives 1 and 29). POM 83 did not include identification of any major system new starts. Several MENS had been submitted to OSD for review in accordance with the March 1980 DODI 5000.2.
3. OSD staff reviewed POM 83 and identified potential new starts. USDRE requested additional information on these. Based on Service responses, a list of

new starts was determined and an issue paper was prepared for the DRB. The DRB reviewed the new starts for POM 83 and a memo for the Service Secretaries has been prepared to document the DRB decision on new starts.

4. The process used in POM 83 has worked and is now being described in the revised DODI 5000.2. Therefore, although there may have been a barrier to implementation in the POM 83 review due to an absence of new starts identification, both the Defense Guidance and the revised DODI 5000.2 will be available to the Services to clarify requirements for POM 84.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. Issue DoDI 5000.2, USDRE by March 1, 1982.
2. In the DG for POM 84, establish a precise definition for a major system new start which should be accompanied by a JMSNS, DPA&E by January 31, 1982.
3. Services must clearly identify major system new starts in their POM 84 submissions in May 1982 to be accompanied by JMSNSs. The related JMSNSs should be submitted to the DAE as early as possible to facilitate the POM review, however, they are not required before the POM submission.
4. Establish format of JMSNS as being identical to that requested by USDRE in his letter of 9 July 1981 on justification of major system new starts.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 26. Title: DSARC Membership

Task Force Principals: Mr. W. A. Long

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Appropriate Service Secretary or Service Chief be included as full member of the DSARC.

ACCOMPLISHMENTS TO DATE:

Implemented as of April 30, 1981, in each DSARC level meeting.

BARRIERS TO IMPLEMENTATION: None.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

None. This initiative requires no further review.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 27. Title: Acquisition Executive

Task Force Principals: Mr. W. A. Long

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Retain USDRE as Defense Acquisition Executive.

ACCOMPLISHMENTS TO DATE:

Implemented as of April 30, 1981, in each DSARC level meeting.

BARRIERS TO IMPLEMENTATION: None.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

None. This initiative requires no further review.



ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 28. Title: What Should be the Criterion for Systems  
Reviewed by DSARC

Task Force Principals: VADM R. R. Monroe, USN & Dr. R. D. Webster

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

"USDRE revise DoDD 5000.1/DoDI 5000.2."

ACCOMPLISHMENTS TO DATE:

1. Draft revisions of DoDD 5000.1 and DoDI 5000.2 include the new threshold.
2. Services are changing their instructions to be compatible with the new DoDD 5000.1/DoDI 5000.2.
3. USDRE memo of 10 Jun 1981, "Withdrawal of Major System Designation," delegated ten major systems now to be the responsibility of the Services.

BARRIERS TO IMPLEMENTATION: None.

RECOMMENDED ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

In addition to the changes made to date, one procedural improvement should be incorporated. DoDD 5000.1/DoDI 5000.2 should contain specific reference to the fact that, prior to SecDef's designating a system as major, a Service-USDRE dialogue should develop the pros and cons, etc., of such designation.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 29. Title: How Should the DSARC/PPBS Decision Be Integrated?\*

Task Force Principals: Mr. J. E. Williams, and Mr. J. T. Kammerer

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

Programs reviewed by DSARC will assure their affordability by demonstrating that resources are programmed in the FYDP and EPA to execute the program as recommended. DSARC review should certify program ready to proceed to the next acquisition stage.

**ACCOMPLISHMENTS TO DATE:**

1. DoDD 5000.1 and DoDI 5000.2, dated March 19, 1980, contain policies on affordability which state that a program should not be approved at a DSARC milestone to pass into the next phase unless sufficient funding is contained in the FYDP and EPA to execute the program as recommended, or unless the Service can identify sufficient sources of additional funds to adequately budget the program. Decision Coordinating Papers prepared for DSARCs now contain a resource annex which illustrates the funding required for the recommended course of action compared to the funding contained in the FYDP and EPA. Affordability issues are therefore brought to the attention of the DSARC.

2. Milestone "0" and the MENS process are being integrated into the PPBS, and the Services maintain they have in the past and are continuing to manage investment in new starts in a manner which is accountable to decisions which alter funding in major systems. Actually, too few DSARCs have been held since April to demonstrate whether a significant improvement in this direction has occurred.

3. USDRE is concerned over the attention given to reviewing new starts to date and has gotten DRB approval to extend this effort to the ongoing budget review.

4. The Army believes there is confusion and conflict over what defines a new start. The development and production of a new system is a continuous process which ties together virtually all facets of the Army. The PPBS and DSARC process are snap shots either of the whole investment at a given time or of one system from that investment listing. A number of different sets of rules must dovetail, and not infrequently the dominant set of rules places one or another system in a category which does not accurately represent the system(s). One example of such a misfit is the disagreement which occurs over whether or not a requirements document is required or should have been completed.

\* Note: The subjects of DSARC and PPBS are very broad and covered by a number of specific initiatives. This section of the report covers only those matters pertaining to new starts and the funding of programs at the time of DSARCs and program reviews.

5. Navy agrees with Army that a serious definitional problem exists over what is a new start. In particular, if a potential new program is funded in the outyears, without budget year funding, they propose that it not be considered a new start at that time.

BARRIERS TO IMPLEMENTATION:

1. The principal barrier to implementation is the frequent need to provide additional funding (above the FYDP and EPA) to properly execute the program when it passes into the next phase. DSARC meetings are sometimes held with the subject program not being adequately funded in the FYDP and EPA.

2. The biggest barrier to implementation remains the differences between OSD and the Services on the definition of new starts, particularly in the case of outyear programs.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. DSARCs and Program Reviews will not be held unless the programs are fully funded in the FYDP and the EPA, and, if cost growth has occurred, the issuance of additional funds is identified.

2. The USDRE and the Military Department Acquisition Assistant Secretaries should resolve all new start definitional and procedural problems by 29 January 1981.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 30. Title: Program Manager Control Over Logistics and Support Resources

Task Force Principals: Dr. R. D. Webster & VADM R. R. Monroe, USN

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

The decision was to "have Services submit, with the POM, support resource requirements and readiness objectives by weapon system, for systems entering or in early production. Direct OSD to have a single review of support associated with individual systems." It also required the Services to develop procedures that would "give the Program Manager a voice in the support resource allocation and budget execution process through increased and centralized resource visibility and coordination by the PM on changes to his plans." Action required was "ASD(MRA&L) letter to Services stating objectives. ASD(MRA&L) work with the Services to define and evaluate implementing options. Initial letter can be prepared within 30 days."

This initiative is a cornerstone in the implementation of the management principles (Initiative No. 1) on improving readiness and delegating authority.

ACCOMPLISHMENTS TO DATE:

1. An ASD(C)/MRA&L memo was signed June 1, 1981, requiring:

a. The Services to develop procedures giving the program manager better visibility of weapon system support resources in POM and budget preparation, and a greater voice in budget execution; and

b. OSD and the Services to develop procedures for PPBS reviews of selected weapons so that support resource decisions are made in a more integrated manner, with visibility of the effects on weapon system support schedules and readiness objectives.

2. An OSD/Service Steering Group and working group have been established to oversee implementation. Each Service has briefed its plans for substantial changes in internal PPBS procedures to improve the visibility of weapon system support resources. The Army and Navy have shown preliminary results. Expanded application of the new Service procedures is planned in POM 84 development.

3. The joint working group developed procedures for a trial FY 83 OSD budget review of support for six weapon systems. The trial is proceeding on 4 of the 6 (M-1 tank, AAH, F-18, and AEGIS). The ability to track a significant number of weapon system support elements and to identify shortfalls has already been demonstrated. A schedule has been established for OSD and the Services to evaluate the results of the trial budget review by March 1982, and to develop criteria and procedures for a trial OSD POM review of support resources for selected systems. LMI has been tasked to assist in the effort.

BARRIERS TO IMPLEMENTATION:

1. Misinterpretation of the intent of this initiative has been a barrier. The title of the initiative should be changed to more clearly reflect the decision. (The recommendation is "Management of Initial Support Funding for Major Systems"). It is intended that PM's be given increased coordination, but not necessarily direct control, over support resources. It is also intended that the Services retain the flexibility to apply support resources where they are determined to be most needed in the execution phase, but to keep the PM informed and involved in the process.

2. Service concerns over the potential for OSD over-management have also been barriers to implementation. The decision is clear in requiring improved visibility of weapon system support resources and readiness objectives in PPBS reviews. To remove the barrier, it is important that the visibility and review process be structured to support the intent of achieving advocacy and support of resources needed to meet readiness objectives, rather than for fine tuning.

3. A few of the funding categories that affect weapon system support are not easily identifiable or allocatable to specific weapon systems, and yet may have a large effect on system readiness (e.g., "common spares"). The on-going trial budget review will provide a better perspective on whether further changes to OSD and Service accounting procedures should be considered.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

The plan originally approved by the Joint Steering Group, to implement changes to Service and OSD PPBS procedures and Service budget execution procedures within a year, should be pursued to completion. Specifically:

a. The current trial budget review should be completed and evaluated as planned. MRA&L, with assistance from the Initiative 30 Steering Group and LMI, should produce an evaluation report by early March, 1982.

b. MRA&L and the Services should, by late March, develop implementing options for program review procedures based on review of Service internal plans and results of the trial budget review. ASD(MRA&L) and ASD(C) should forward trial program review procedures to the Services by mid-April, 1982, for use in the trial review.

c. The Services should, by April 1982, present to the Joint Steering Group their proposed internal procedures for increased PM involvement in budget execution. Service budget execution procedures should be implemented on a trial basis by June 1982.

d. MRA&L, with assistance from the Joint Steering Group and LMI, should evaluate the results of the trial review and recommend procedures for long term implementation by September 1982.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 31. Title: Improve Reliability and Support

Included in discussion of Initiative No. 9: Improve Support and Readiness

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 32. Title: Increase Competition in the  
Acquisition Process

Task Force Principals: BG C. F. Drenz, USA & Mr. T. P. Christie

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

1. This initiative was added to DepSecDef April 30 memorandum by a subsequent memorandum of July 27.
2. The memorandum required action to direct acquisition management organizations to establish management objectives that would enhance competition.

**ACCOMPLISHMENTS TO DATE:**

1. The Military Services and Defense Agencies responded in positive fashion to DepSecDef 27 July memorandum.
2. Based on objectives submitted, on 10 November 1981 OUSDRE issued a second memorandum to the Military Services and Defense Agencies which tasked them to:
  - a. Designate advocates for competition at each procuring activity;
  - b. Establish goals for increasing competition;
  - c. Ensure commanders understand their responsibilities with regard to competition;
  - d. Make competition a matter of special interest; and
  - e. Develop procedures to identify and elevate significant achievements.

Reports on plans to implement are due to USDRE in January 1982.

3. USDRE has engaged Logistics Management Institute (LMI) to conduct a study to determine those commodities/programs offering the greatest opportunity for increased competition and those commodities/programs offering little or no opportunities for increased competition (e.g., nuclear aircraft carriers). The target date for completion of the study is 30 June 1982.
4. At the direction of DUSD(AM), DAR coverage for the Spare Parts Breakout Program is being developed by an ad hoc committee chaired by the Army.

BARRIERS TO IMPLEMENTATION:

1. Identification of those commodities/programs offering the greatest potential for increased competition as compared to those commodities/programs offering little or no realistic opportunities for increased competition (e.g., prime contracts for nuclear aircraft carriers). Recent program reviews have demonstrated that there are extra near term costs associated with additional contractors in a hardware phase "fly off" when the program more appropriately lends itself to a less expensive competitive approach.
2. Military Service/Defense Agency commitment of adequate resources to develop additional qualified sources for supplies and services.
3. Perception in some segments of private industry and the DoD technical community that this initiative may result in competing contracts without properly weighing the risk to successful program completion.

RECOMMENDED ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. By 10 January 1982, Military Services/Defense Agencies provide OUSDRE plans to comply with direction contained in USDRE 10 November memorandum.
2. DUSD(AM) in January review Military Service and Defense Agency plans for implementation of USDRE 10 November memorandum to ensure compliance with intent.
3. DUSD(AM) follow-up with Military Services and Defense Agencies in June 1982 to ensure plans submitted have been implemented.
4. DUSD(AM) consider program to place special emphasis on those commodities/programs identified by LMI as offering the greatest opportunity for increased competition.
5. DUSD(AM) consider feasibility of increasing the extent of competition in subcontracting.
6. DUSD(AM), concurrent with review discussed in 2 above, review Military Service/Defense Agency implementation of plans to meet objectives they established in responses to DepSecDef 27 July memorandum.
7. DUSD(AM), based on results of LMI study, determine where development of additional sources is cost-effective.
8. DUSD(AM) consider developing policy that will enable DoD to emphasize the benefits of expanded competition based on factors other than price, e.g., total cost of ownership, best value to the Government over the life cycle, technical factors, delivery, etc.



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EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF MANAGEMENT AND BUDGET  
WASHINGTON, D.C. 20503

Mar 19, 80  
5000.1 (Encl 2)

April 5, 1976

CIRCULAR NO. A-109

TO THE HEADS OF EXECUTIVE DEPARTMENTS AND ESTABLISHMENTS

SUBJECT: Major System Acquisitions

1. Purpose. This Circular establishes policies, to be followed by executive branch agencies in the acquisition of major systems.

2. Background. The acquisition of major systems by the Federal Government constitutes one of the most crucial and expensive activities performed to meet national needs. Its impact is critical on technology, on the Nation's economic and fiscal policies, and on the accomplishment of Government agency missions in such fields as defense, space, energy and transportation. For a number of years, there has been deep concern over the effectiveness of the management of major system acquisitions. The report of the Commission on Government Procurement recommended basic changes to improve the process of acquiring major systems. This Circular is based on executive branch consideration of the Commission's recommendations.

3. Responsibility. Each agency head has the responsibility to ensure that the provisions of this Circular are followed. This Circular provides administrative direction to heads of agencies and does not establish and shall not be construed to create any substantive or procedural basis for any person to challenge any agency action or inaction on the basis that such action was not in accordance with this Circular.

4. Coverage. This Circular covers and applies to:

a. Management of the acquisition of major systems, including: ° Analysis of agency missions ° Determination of mission needs ° Setting of program objectives ° Determination of system requirements ° System program planning ° Budgeting ° Funding ° Research ° Engineering ° Development ° Testing and evaluation ° Contracting ° Production ° Program and management control ° Introduction

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of the system into use or otherwise successful achievement of program objectives.

b. All programs for the acquisition of major systems even though:

(1) The system is one-of-a-kind.

(2) The agency's involvement in the system is limited to the development of demonstration hardware for optional use by the private sector rather than for the agency's own use.

5. Definitions. As used in this Circular:

a. Executive agency (hereinafter referred to as agency) means an executive department, and an independent establishment within the meaning of sections 101 and 104(1), respectively, of Title 5, United States Code.

b. Agency component means a major organizational subdivision of an agency. For example: The Army, Navy, Air Force, and Defense Supply Agency are agency components of the Department of Defense. The Federal Aviation Administration, Urban Mass Transportation Administration, and the Federal Highway Administration are agency components of the Department of Transportation.

c. Agency missions means those responsibilities for meeting national needs assigned to a specific agency.

d. Mission need means a required capability within an agency's overall purpose, including cost and schedule considerations.

e. Program objectives means the capability, cost and schedule goals being sought by the system acquisition program in response to a mission need.

f. Program means an organized set of activities directed toward a common purpose, objective, or goal undertaken or proposed by an agency in order to carry out responsibilities assigned to it.

g. System design concept means an idea expressed in terms of general performance, capabilities, and characteristics of hardware and software oriented either to

operate or to be operated as an integrated whole in meeting a mission need.

h. Major system means that combination of elements that will function together to produce the capabilities required to fulfill a mission need. The elements may include, for example, hardware, equipment, software, construction, or other improvements or real property. Major system acquisition programs are those programs that (1) are directed at and critical to fulfilling an agency mission, (2) entail the allocation of relatively large resources, and (3) warrant special management attention. Additional criteria and relative dollar thresholds for the determination of agency programs to be considered major systems under the purview of this Circular, may be established at the discretion of the agency head.

i. System acquisition process means the sequence of acquisition activities starting from the agency's reconciliation of its mission needs, with its capabilities, priorities and resources, and extending through the introduction of a system into operational use or the otherwise successful achievement of program objectives.

j. Life cycle cost means the sum total of the direct, indirect, recurring, nonrecurring, and other related costs incurred, or estimated to be incurred, in the design, development, production, operation, maintenance and support of a major system over its anticipated useful life span.

6. General policy. The policies of this Circular are designed to assure the effectiveness and efficiency of the process of acquiring major systems. They are based on the general policy that Federal agencies, when acquiring major systems, will:

a. Express needs and program objectives in mission terms and not equipment terms to encourage innovation and competition in creating, exploring, and developing alternative system design concepts.

b. Place emphasis on the initial activities of the system acquisition process to allow competitive exploration of alternative system design concepts in response to mission needs.

c. Communicate with Congress early in the system acquisition process by relating major system acquisition programs to agency mission needs. This communication should follow the requirements of Office of Management and Budget (OMB) Circular No. A-10 concerning information related to budget estimates and related materials.

d. Establish clear lines of authority, responsibility, and accountability for management of major system acquisition programs. Utilize appropriate managerial levels in decisionmaking, and obtain agency head approval at key decision points in the evolution of each acquisition program.

e. Designate a focal point responsible for integrating and unifying the system acquisition management process and monitoring policy implementation.

f. Rely on private industry in accordance with the policy established by OMB Circular No. A-76.

7. Major system acquisition management objectives. Each agency acquiring major systems should:

a. Ensure that each major system: Fulfills a mission need. Operates effectively in its intended environment. Demonstrates a level of performance and reliability that justifies the allocation of the Nation's limited resources for its acquisition and ownership.

b. Depend on, whenever economically beneficial, competition between similar or differing system design concepts throughout the entire acquisition process.

c. Ensure appropriate trade-off among investment costs, ownership costs, schedules, and performance characteristics.

d. Provide strong checks and balances by ensuring adequate system test and evaluation. Conduct such tests and evaluation independent, where practicable, of developer and user.

e. Accomplish system acquisition planning, built on analysis of agency missions, which implies appropriate resource allocation resulting from clear articulation of agency mission needs.

f. Tailor an acquisition strategy for each program, as soon as the agency decides to solicit alternative system design concepts, that could lead to the acquisition of a new major system and refine the strategy as the program proceeds through the acquisition process. Encompass test and evaluation criteria and business management considerations in the strategy. The strategy could typically include: \*

- Use of the contracting process as an important tool in the acquisition program
- Scheduling of essential elements of the acquisition process
- Demonstration, test, and evaluation criteria
- Content of solicitations for proposals
- Decisions on whom to solicit
- Methods for obtaining and sustaining competition
- Guidelines for the evaluation and acceptance or rejection of proposals
- Goals for design-to-cost
- Methods for projecting life cycle costs
- Use of data rights
- Use of warranties
- Methods for analyzing and evaluating contractor and Government risks
- Need for developing contractor incentives
- Selection of the type of contract best suited for each stage in the acquisition process
- Administration of contracts.

g. Maintain a capability to: \*

- Predict, review, assess, negotiate and monitor costs for system development, engineering, design, demonstration, test, production, operation and support (i.e., life cycle costs)
- Assess acquisition cost, schedule and performance experience against predictions, and provide such assessments for consideration by the agency head at key decision points
- Make new assessments where significant costs, schedule or performance variances occur
- Estimate life cycle costs during system design concept evaluation and selection, full-scale development, facility conversion, and production, to ensure appropriate trade-offs among investment costs, ownership costs, schedules, and performance
- Use independent cost estimates, where feasible, for comparison purposes.

#### 8. Management structure.

a. The head of each agency that acquires major systems will designate an acquisition executive to integrate and unify the management process for the agency's major system acquisitions and to monitor implementation of the policies and practices set forth in this Circular.

b. Each agency that acquires--or is responsible for activities leading to the acquisition of--major systems will

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establish clear lines of authority, responsibility, and accountability for management of its major system acquisition programs.

c. Each agency should preclude management layering and placing nonessential reporting procedures and paperwork requirements on program managers and contractors.

d. A program manager will be designated for each of the agency's major system acquisition programs. This designation should be made when a decision is made to fulfill a mission need by pursuing alternative system design concepts. It is essential that the program manager have an understanding of user needs and constraints, familiarity with development principles, and requisite management skills and experience. Ideally, management skills and experience would include: ° Research and development ° Operations ° Engineering ° Construction ° Testing ° Contracting ° Prototyping and fabrication of complex systems ° Production ° Business ° Budgeting ° Finance. With satisfactory performance, the tenure of the program manager should be long enough to provide continuity and personal accountability.

e. Upon designation, the program manager should be given budget guidance and a written charter of his authority, responsibility, and accountability for accomplishing approved program objectives.

f. Agency technical management and Government laboratories should be considered for participation in agency mission analysis, evaluation of alternative system design concepts, and support of all development, test, and evaluation efforts.

g. Agencies are encouraged to work with each other to foster technology transfer, prevent unwarranted duplication of technological efforts, reduce system costs, promote standardization, and help create and maintain a competitive environment for an acquisition.

9. Key decisions. Technical and program decisions normally will be made at the level of the agency component or operating activity. However, the following four key decision points should be retained and made by the agency head:

a. Identification and definition of a specific mission need to be fulfilled, the relative priority assigned within the agency, and the general magnitude of resources that may be invested.

b. Selection of competitive system design concepts to be advanced to a test/demonstration phase or authorization to proceed with the development of a noncompetitive (single concept) system.

c. Commitment of a system to full-scale development and limited production.

d. Commitment of a system to full production.

10. Determination of mission needs.

a. Determination of mission need should be based on an analysis of an agency's mission reconciled with overall capabilities, priorities and resources. When analysis of an agency's mission shows that a need for a new major system exists, such a need should not be defined in equipment terms, but should be defined in terms of the mission, purpose, capability, agency components involved, schedule and cost objectives, and operating constraints. A mission need may result from a deficiency in existing agency capabilities or the decision to establish new capabilities in response to a technologically feasible opportunity. Mission needs are independent of any particular system or technological solution.

b. Where an agency has more than one component involved, the agency will assign the roles and responsibilities of each component at the time of the first key decision. The agency may permit two or more agency components to sponsor competitive system design concepts in order to foster innovation and competition.

c. Agencies should, as required to satisfy mission responsibilities, contribute to the technology base, effectively utilizing both the private sector and Government laboratories and in-house technical centers, by conducting, supporting, or sponsoring: ° Research ° System design concept studies ° Proof of concept work ° Exploratory subsystem development ° Tests and evaluations. Applied technology efforts oriented to system developments should be performed in response to approved mission needs.

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## 11. Alternative systems.

a. Alternative system design concepts will be explored within the context of the agency's mission need and program objectives--with emphasis on generating innovation and conceptual competition from industry. Benefits to be derived should be optimized by competitive exploration of alternative system design concepts, and trade-offs of capability, schedule, and cost. Care should be exercised during the initial steps of the acquisition process not to conform mission needs or program objectives to any known systems or products that might foreclose consideration of alternatives.

b. Alternative system design concepts will be solicited from a broad base of qualified firms. In order to achieve the most preferred system solution, emphasis will be placed on innovation and competition. To this end, participation of smaller and newer businesses should be encouraged. Concepts will be primarily solicited from private industry; and when beneficial to the Government, foreign technology, and equipment may be considered.

c. Federal laboratories, federally funded research and development centers, educational institutions, and other not-for-profit organizations may also be considered as sources for competitive system design concepts. Ideas, concepts, or technology, developed by Government laboratories or at Government expense, may be made available to private industry through the procurement process or through other established procedures. Industry proposals may be made on the basis of these ideas, concepts, and technology or on the basis of feasible alternatives which the proposer considers superior.

d. Research and development efforts should emphasize early competitive exploration of alternatives, as relatively inexpensive insurance against premature or preordained choice of a system that may prove to be either more costly or less effective.

e. Requests for alternative system design concept proposals will explain the mission need, schedule, cost, capability objectives, and operating constraints. Each offeror will be free to propose his own technical approach, main design features, subsystems, and alternatives to schedule, cost, and capability goals. In the conceptual and

less than full-scale development stages, contractors should not be restricted by detailed Government specifications and standards.

f. Selections from competing system design concept proposals will be based on a review by a team of experts, preferably from inside and outside the responsible component development organization. Such a review will consider: (1) Proposed system functional and performance capabilities to meet mission needs and program objectives, including resources required and benefits to be derived by trade-offs, where feasible, among technical performance, acquisition costs, ownership costs, time to develop and procure; and (2) The relevant accomplishment record of competitors.

g. During the uncertain period of identifying and exploring alternative system design concepts, contracts covering relatively short time periods at planned dollar levels will be used. Timely technical reviews of alternative system design concepts will be made to effect the orderly elimination of those least attractive.

h. Contractors should be provided with operational test conditions, mission performance criteria, and life cycle cost factors that will be used by the agency in the evaluation and selection of the system(s) for full-scale development and production.

i. The participating contractors should be provided with relevant operational and support experience through the program manager, as necessary, in developing performance and other requirements for each alternative system design concept as tests and trade-offs are made.

j. Development of subsystems that are intended to be included in a major system acquisition program will be restricted to less than fully designed hardware (full-scale development) until the subsystem is identified as a part of a system candidate for full-scale development. Exceptions may be authorized by the agency head if the subsystems are long lead time items that fulfill a recognized generic need or if they have a high potential for common use among several existing or future systems.

## 12. Demonstrations.

a. Advancement to a competitive test/demonstration phase may be approved when the agency's mission need and program objectives are reaffirmed and when alternative system design concepts are selected.

b. Major system acquisition programs will be structured and resources planned to demonstrate and evaluate competing alternative system design concepts that have been selected. Exceptions may be authorized by the agency head if demonstration is not feasible.

c. Development of a single system design concept that has not been competitively selected should be considered only if justified by factors such as urgency of need, or by the physical and financial impracticality of demonstrating alternatives. Proceeding with the development of a noncompetitive (single concept) system may be authorized by the agency head. Strong agency program management and technical direction should be used for systems that have been neither competitively selected nor demonstrated.

## 13. Full-scale development and production.

a. Full-scale development, including limited production, may be approved when the agency's mission need and program objectives are reaffirmed and competitive demonstration results verify that the chosen system design concept(s) is sound.

b. Full production may be approved when the agency's mission need and program objectives are reaffirmed and when system performance has been satisfactorily tested, independent of the agency development and user organizations, and evaluated in an environment that assures demonstration in expected operational conditions. Exceptions to independent testing may be authorized by the agency head under such circumstances as physical or financial impracticability or extreme urgency.

c. Selection of a system(s) and contractor(s) for full-scale development and production is to be made on the basis of (1) system performance measured against current mission need and program objectives, (2) an evaluation of estimated acquisition and ownership costs, and (3) such factors as

contractor(s) demonstrated management, financial, and technical capabilities to meet program objectives.

d. The program manager will monitor system tests and contractor progress in fulfilling system performance, cost, and schedule commitments. Significant actual or forecast variances will be brought to the attention of the appropriate management authority for corrective action.

14. Budgeting and financing. Beginning with FY 1979 all agencies will, as part of the budget process, present budgets in terms of agency missions in consonance with Section 201(i) of the Budget and Accounting Act, 1921, as added by Section 601 of the Congressional Budget Act of 1974, and in accordance with OMB Circular A-11. In so doing, the agencies are desired to separately identify research and development funding for: (1) The general technology base in support of the agency's overall missions, (2) The specific development efforts in support of alternative system design concepts to accomplish each mission need, and (3) Full-scale developments. Each agency should ensure that research and development is not undesirably duplicated across its missions.

15. Information to Congress.

a. Procedures for this purpose will be developed in conjunction with the Office of Management and Budget and the various committees of Congress having oversight responsibility for agency activities. Beginning with FY 1979 budget each agency will inform Congress in the normal budget process about agency missions, capabilities, deficiencies, and needs and objectives related to acquisition programs, in consonance with Section 601(i) of the Congressional Budget Act of 1974.

b. Disclosure of the basis for an agency decision to proceed with a single system design concept without competitive selection and demonstration will be made to the congressional authorization and appropriation committees.

16. Implementation. All agencies will work closely with the Office of Management and Budget in resolving all implementation problems.

17. Submissions to Office of Management and Budget. Agencies will submit the following to OMB:

(No. A-109)

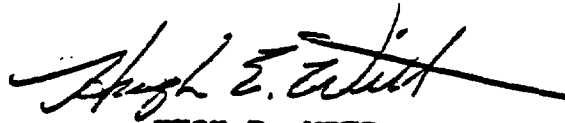
a. Policy directives, regulations, and guidelines as they are issued.

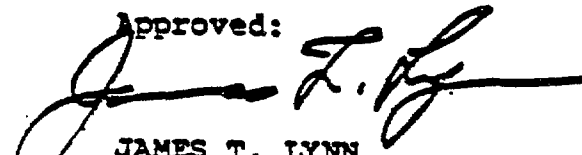
b. Within six months after the date of this Circular, a time-phased action plan for meeting the requirements of this Circular.

c. Periodically, the agency approved exceptions permitted under the provisions of this Circular.

This information will be used by the OMB, in identifying major system acquisition trends and in monitoring implementations of this policy.

18. Inquiries. All questions or inquiries should be submitted to the OMB, Administrator for Federal Procurement Policy. Telephone number, area code, 202-395-4677.

  
HUGH E. WITT  
ADMINISTRATOR FOR  
FEDERAL PROCUREMENT POLICY

Approved:  
  
JAMES T. LYNN  
DIRECTOR



March 19, 1980  
NUMBER 5000.2

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## Department of Defense Instruction USDRE

**SUBJECT:** Major System Acquisition Procedures

- References:**
- (a) DoD Directive 5000.2, "Major System Acquisition Process," January 18, 1977 (canceled by reference (b))
  - (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 (u), see enclosure 1

### A. PURPOSE

This Instruction replaces DoD Directive 5000.2 (reference (a)) to provide revised supplementary 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.

### C. PROCEDURES

1. Major System Designation. The Secretary of Defense shall designate certain acquisition programs as major systems. The Defense Acquisition Executive (DAE) may recommend candidate programs to the Secretary of Defense at any point in the acquisition process, but normally recommendations shall be made in conjunction with Mission Element Need Statement (MENS) approval. The DAE is authorized to withdraw the designation of "major systems" when changing circumstances dictate. The DAE shall advise the Secretary of Defense before such an action is taken.

2. Major System Listings. The Executive Secretary of the Defense Systems Acquisition Review Council (DSARC) shall, as the agent of the DAE, maintain and distribute a list of designated major systems. Additions and deletions to the list shall be disseminated when changes occur. The Executive Secretary, in conjunction with the Assistant Secretary of Defense (Comptroller) shall maintain a listing of programs for which Selected Acquisition Reports (SARs) are required.

### 3. Milestone O Documentation

#### a. Mission Element Need Statement (MENS)

(1) Purpose. A MENS is the document upon which the Milestone O decision is based. It identifies and defines: (a) a specific deficiency or opportunity within a mission area; (b) the relative priority of the deficiency within the mission area; (c) the Defense Intelligence Agency (DIA) validated threat forecast or other factor causing the deficiency; (d) the date when the system must be fielded to meet the threat; and (e) the general magnitude of acquisition resources that the DoD Component is willing to invest to correct the deficiency. A MENS is required for each acquisition, including system modifications and additional procurement of existing systems, which the DoD Component anticipates will cost in excess of \$100 million (FY 1980 dollars) in research, development, test and evaluation (RDT&E) funds or \$500 million (FY 1980 dollars) in procurement funds. A MENS is not required for programs, regardless of size, directed toward developing and maintaining a viable technology base.

(2) Scope. The deficiency or opportunity identified in a MENS should be defined as narrowly as possible to allow a reasonable probability of correcting the deficiency by acquiring a single system. Defining a broad architecture of systems to counter projected threats in a mission area is part of the ongoing analysis of mission areas rather than a part of a specific acquisition program. Though the scope of the deficiency identified in a MENS shall be narrowly defined, solutions to the problem shall not be specified. Alternative concepts and associated risks shall be evaluated in the Concept Exploration phase.

(3) Format. Enclosure 2 contains the format of a MENS along with explanatory information regarding its preparation.

#### (4) Processing

(a) DoD Components shall identify all new acquisition starts in the yearly submission of the Program Objective Memoranda (POM). These submissions shall identify those new acquisitions that are likely to exceed dollar thresholds specified above for a MENS. New system acquisitions exceeding the dollar thresholds specified above that have not previously had a MENS reviewed and approved must have a MENS submitted to the DAE no later than POM submission date. Review and approval of MENS before POM submission are encouraged.

(b) The DoD Component shall forward a draft MENS, along with a recommendation as to whether the program should be designated as a major system, to the DAE who shall solicit comments from the OSD staff, OJCS, the other Military Departments and the DIA.

1 When the DAE plans to recommend designation as a major system, comments on the MENS shall be provided to the DoD Component

within 20 workdays of receipt of the draft MENS. Upon receipt of OSD comments, the DoD Component shall revise the MENS and return it to the DAE within 20 workdays for approval action.

2 When the DAE does not recommend designation as a major system, the MENS shall be returned to the appropriate DoD Component or functional organization for milestone decision responsibility on the program.

b. Secretary of Defense Decision Memorandum (SDDM)

(1) When the DAE plans to recommend approval of the MENS and designation of a system as major, the action officer shall prepare a SDDM. The DAE shall forward the SDDM to the Secretary of Defense after formal coordination. The SDDM shall be coordinated with the DSARC permanent members and any advisors the DAE considers appropriate. The Milestone 0 SDDM shall also establish when the next milestone review shall occur.

(2) Upon approval of the MENS by a SDDM and designation of a system as major, the DoD Component may take necessary programing action to incorporate required resources into the Planning, Programing, and Budgeting System (PPBS). Programing action may be taken in parallel with preparation of the MENS. If the requirement is urgent, the MENS should be submitted with a request for reprograming action.

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

a. DSARC Permanent Members and Principal Advisors

(1) Permanent Members

- (a) Defense Acquisition Executive.
- (b) Under Secretary of Defense for Policy or a representative designated by the Under Secretary of Defense for Policy.
- (c) Under Secretary of Defense for Research and Engineering or a representative designated by the Under Secretary of Defense for Research and Engineering.
- (d) Assistant Secretary of Defense (Comptroller).
- (e) Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics).
- (f) Assistant Secretary of Defense (Program Analysis and Evaluation).



(g) Chairman, Joint Chiefs of Staff, or a representative designated by the Chairman, Joint Chiefs of Staff.

(2) Principal Advisors

(a) For communications, command, control, and intelligence (C<sup>3</sup>I) research, engineering, and program matters: Assistant Secretary of Defense (Communications, Command, Control, and Intelligence) (ASD(C<sup>3</sup>I)).

(b) For NATO affairs: Advisor to the Secretary of Defense and Deputy Secretary of Defense on NATO Affairs.

(c) For producibility and acquisition strategy matters: Deputy Under Secretary of Defense for Research and Engineering (Acquisition Policy).

(d) For program matters: Appropriate Deputy Under Secretary of Defense for Research and Engineering.

(e) For defense policy and related operational requirements matters: Appropriate Deputy Under Secretary of Defense Policy.

(f) For threat assessment and substantive intelligence matters: Director, DIA.

(g) For test and evaluation (T&E) matters: Director of Defense Test and Evaluation.

(h) For cost matters: Chairman of the Cost Analysis Improvement Group.

(i) For Logistics Support: Director, Weapons Support Improvement Group.

b. DSARC Reviews. The DAE is responsible for convening formal meetings to facilitate the decision process. Principal advisors shall not attend unless invited by the DAE. Formal DSARC reviews shall normally be held at Milestones I, II and III. In addition, any DoD Component head or DSARC member may request the Chair to schedule a meeting of the DSARC to consider significant issues at any point in the acquisition process for any major system. The Secretary of Defense may, upon the recommendation of the DAE, choose to make his decision and issue a SDDM without a formal council review. Dispensing with the formal review shall be considered by the DAE when the OSD staff review, preliminary to a scheduled review, indicates that there are no substantial issues that would require a DSARC meeting. In this case, the SDDM shall be prepared by the action officer and coordinated in accordance with subparagraph C.4.e.(4). before it is forwarded to the Secretary of Defense for his decision.

c. Milestone Review Process

(1) Milestone Planning Meeting. A planning meeting shall be scheduled by the Executive Secretary and chaired by the action officer six months in advance of each DSARC meeting. The purpose of the Milestone Planning Meeting is to identify the system and program alternatives and the issues and items to be emphasized in the Decision Coordinating Paper (DCP) and the Integrated Program Summary (IPS). DSARC members, DSARC advisors, DoD Components, and the program manager shall be represented at the meeting. After the meeting, the action officer shall prepare a memorandum recording the issues and responsibilities and distribute it to DoD Components, DSARC members, and DSARC principal advisors.

(2) For Comment DCP and IPS. The For Comment DCP and the IPS shall be submitted together by the DoD Component to the DAE three months before to a DSARC meeting. The action officer shall ensure that copies are made available to DSARC members and advisors and to their staffs for review and discussion with the DoD Components. The action officer shall prepare and 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 DCP and IPS Update. A Final DCP and an update to the IPS shall be submitted by the DoD Component to the Secretary of Defense through the DAE 15 workdays before a scheduled DSARC meeting. The action officer shall provide copies of the Final DCP and the update to the IPS to each DSARC member and advisor.

(4) Pre-Brief Meeting. The position of each DSARC member and advisor on the DCP shall be determined by their staff representatives in time to prepare a presentation to be given to the DAE at the Pre-Brief Meeting. Attendees at the Pre-Brief Meeting shall be prepared to discuss the DCP and to provide specific program recommendations. Following the Pre-Brief Meeting, the action officer shall prepare a recommended position paper and provide copies to the members and principal advisors to the DSARC so that final action can be taken at the executive session after the formal DSARC meeting. Members and principal advisors who have dissenting positions shall be prepared to submit them at the executive session for final resolution.

(5) Post DSARC Action. Within five workdays following the DSARC meeting, the DAE shall submit the SDDM, together with any dissenting positions, to the Secretary of Defense. Normally, the SDDM shall be issued to the DoD Component within 15 workdays following the DSARC meeting.

d. Milestone Planning Schedule

Event	Schedule in Relation to Date of DSARC Meeting
Milestone Planning Meeting	- 6 months
For Comment DCP and IPS	- 3 months
DCP Comments to DoD Components	- 2 months
Final DCP and Update to IPS	- 15 workdays
OSD Cost Analysis Improvement Group (CAIG) Briefing	- 15 workdays
OSD Test and Evaluation (T&E) Briefing	- 15 workdays
OSD Manpower and Logistics Analysis (M&LA) Briefing	- 15 workdays
DIA Report to DSARC Chair	- 10 workdays
DSARC Chair's Pre-Brief Meeting (OSD Staff Only)	- 5 workdays
CAIG Report	- 3 workdays
T&E Report	- 3 workdays
M&LA Report	- 3 workdays
DSARC Meeting	0
SDDM issued to DoD Component	+ 15 workdays

e. Milestone I, II and III Documentation

(1) Decision Coordinating Paper (DCP). The DCP provides the primary documentation for use by the DSARC in arriving at the milestone recommendation. It summarizes the program and the acquisition strategy, the alternatives considered, and the issues. The format of the DCP is in enclosure 3. Notwithstanding any other DoD issuance, additional requirements for information in the DCP shall be issued only by the DAE.

(2) Integrated Program Summary. The IPS summarizes the implementation plan of the DoD Component for the life cycle of the system. The IPS provides information for a management overview of the entire

program. The format of the IPS is in enclosure 4. Notwithstanding any other DoD issuance, additional requirements for information in the IPS shall be issued only by the DAE.

(3) Milestone Reference File (MRF). A MRF shall be established at each milestone to provide a central location for existing program documentation referenced in the DCP and IPS. This working file shall be provided by the DoD Component to the DSARC Executive Secretary at the time the For Comment DCP and IPS are submitted. It shall be used by DoD personnel who need more detailed information.

(4) 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, and supportability, exceptions to the acquisition process, and other appropriate direction. Before forwarding the SDDM to the DAE, the action officer shall obtain coordination from the DSARC permanent members and such advisors as the DAE considers appropriate for the action. The DAE shall forward the SDDM to the Secretary of Defense for signature.

(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. The action officer shall also prepare and coordinate a SDDM when programing or budgeting decisions (including congressional direction) affect thresholds or program direction contained in the previous SDDM. This shall be done 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.

f. DSARC Executive Secretary. The DAE shall designate a permanent Executive Secretary who shall administer and coordinate the DSARC process and:

- (1) Maintain and distribute periodic status reports.
- (2) Make administrative arrangements for Milestone Planning Meetings, Pre-Brief Meetings, and DSARC meetings.
- (3) Assemble and distribute necessary documentation.
- (4) Maintain a central reference file for current DCPs, IPSs, and SDDMs.
- (5) Hold the MRF until a SDDM is issued.
- (6) Control attendance at Pre-Brief Meetings and DSARC meetings.

g. 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. For example, they may be from the Office of the Under Secretary of Defense for Research and Engineering for systems involving research, development, and production, from the Office of the Assistant Secretary of Defense (Comptroller) for general purpose ADP systems, or from the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) for military construction that is designated as a major system. They shall:

- (1) Conduct the Milestone Planning Meeting for assigned major systems.
- (2) Process the DCP and IPS in accordance with this Instruction.
- (3) Present the DSARC Chair's Pre-Brief Meeting.
- (4) Monitor the milestone planning schedule.
- (5) Draft, coordinate, and obtain approval of all SDDMs including those necessitated by PPBS or congressional action.

#### D. DEFENSE ACQUISITION REGULATORY SYSTEM (DARS)

DoD directives, regulations, and instructions that relate to the acquisition process are part of the DARS as stipulated by DoD Directive 5000.35 (reference (c)). The object of this system is to provide detailed functional regulations required to govern DoD acquisition of materials, supplies, and equipment. Program managers shall tailor their programs to DoD issuances that are part of DARS. Principal issuances that relate to major system acquisitions are listed in enclosure 5.

#### E. ACQUISITION PLANNING

Special attention in the development of acquisition planning shall be given to the following matters.

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, and other factors such as environmental conditions which bear on the missions of the various 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. The scope may vary from a very narrow subject, such as the survivability of a Minuteman silo attacked by a single reentry vehicle, to a very broad subject, such as the ability of the United States to maintain overall strategic deterrence.

2. Operational Requirements. Materials, supplies, and equipment 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 current national military strategy or enhance future capabilities of the military forces to achieve national and defense policy objectives. Department of Defense operational requirements should be prioritized based on their effectiveness in furthering policy objectives and strategic and operational concepts, in consideration of threat and other factors, such as environmental conditions, which bear on the missions of the various Components of the Department of Defense.

3. Threat. The effectiveness of a proposed weapon system in its intended threat environment is a fundamental concern of the acquisition effort and shall be considered by the program manager from the outset. An interactive analysis, that is, a study of the system-threat interaction, shall be conducted before Milestone I and shall be updated in greater specificity before each subsequent milestone. The intelligence used for the interactive analysis shall be provided by the DoD Component intelligence organization directly to the program manager and to DIA. Analyzing system concepts and specific systems in this manner allows program managers to identify threat parameters, such as numbers, types, mix, or characteristics of projected enemy systems, that are most critical to the effectiveness of the U.S. system. These Critical Intelligence Parameters (CIPs) shall be provided to the DIA through the DoD Component intelligence organization. The Director, DIA, shall validate threat data before its use in the interactive analysis, review CIPs output, and report the findings and conclusions in writing to the DAE 10 workdays before the DSARC meeting. The DoD Component shall confirm the effectiveness of the U.S. system in its intended threat environment at Milestones II and III.

#### 4. Acquisition Strategy

a. 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 in response to specific goals and objectives of the program and in ensuring that the system being acquired satisfies the approved mission need. Acquisition strategy encompasses the entire acquisition process. The strategy shall be developed in sufficient detail, at the time of issuing the solicitations, to permit competitive exploration of alternative system design concepts in the Concept Development phase. Additionally, sufficient planning must be accomplished for succeeding program phases, including production, for those considerations that may have a direct influence on competition and design efforts by contractors. 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, and other aspects of the program.

b. Development of the initial program acquisition strategy shall be completed by the cognizant DoD Component as soon as possible after Milestone 0. The program acquisition strategy is unique for each program and should be tailored by the program manager to the circumstances surrounding the program. Intended exceptions to applicable DoD Directives

and Instructions should be noted in the acquisition strategy summary. Advice and assistance should be sought from business and technical advisors and experienced managers of other major system programs.

c. While the acquisition strategy developed is not a document requiring DAE approval, the program manager shall be required to keep all management levels informed on strategy and shall be required to summarize certain aspects of it at the milestone decision points. At the earliest practical date and no later than Milestone II, the program manager shall be required to have a comprehensive strategy for full-scale development, test and evaluation, and production. The strategy for production shall be updated at Milestone III.

## 5. Management

a. Management Information. Management information shall be limited in all areas of activity to information essential to effective control. Normally, the required information shall be provided from the same data base used by the contractor 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.

b. Programing and Budgeting. Secretary of Defense milestone decisions are based upon review of details of one particular program and reflect the readiness of that system to progress to the next acquisition phase. The program must compete for funds with other programs in the PPBS process. The Secretary of Defense milestone decision is based on specific schedule, cost and operational effectiveness estimates which, if changed significantly, might alter the Secretary of Defense milestone decision. PPBS actions by the DoD Components and the OSD staff, that cause the schedule and cost estimates to change significantly enough to call into question the last milestone decision, shall be explained by the DoD Component or OSD staff element proposing the change in the PPBS document.

c. 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 adjustments for inflation and to segregate estimating error from program changes, shall be maintained starting with program cost estimates approved at Milestone I.

(1) A life-cycle cost estimate shall be prepared at Milestone I, using the best available data and techniques. An updated life-cycle cost estimate shall be provided for each subsequent milestone. These cost estimates shall be developed as soon as ongoing development activities permit to eliminate unnecessary delays in the milestone decision process.

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

(3) Goals and thresholds for cost, schedule, performance, and supportability shall be documented in the SDDM. At Milestone II, firm design-to-cost goals shall be established for the system or systems selected for full-scale development. Program accomplishments shall be evaluated against cost, schedule, and supportability goals with the same rigor as the evaluation of technical performance.

d. Thresholds. Threshold values shall be proposed at Milestones I, II, and III by the DoD Component and approved by the Secretary of Defense for cost, schedule, performance, and supportability. These values shall reflect reasonable variances that are acceptable for the goals proposed in the DCP. At Milestone I, threshold values shall be established for only a few items and the distance between the goal and the threshold for individual items may be larger than at subsequent milestones. Program managers are responsible for reporting actual and projected threshold breaches immediately to each line official 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.

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

f. 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 on those systems. 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 on the continued development stages. In selected cases where no capability exists in the private sector or when it may be in the best interest of the Government to do so, DoD research and development centers may be assigned development tasks to complement a major system development. DoD research and development centers may be used as a technical arm of the program management office, especially in matrix management organizations. Typical



assignments may include actions such as studies, analysis, technology development, systems engineering, risk and cost reduction efforts, and development test and evaluation.

g. Affordability

(1) Affordability, the ability to provide adequate resources to acquire and operate a system, is principally a determination of the PPBS process. The ability to provide sufficient resources to execute a program in an efficient and effective manner is a fundamental consideration during milestone reviews. Requests or 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.

(2) The DoD Component shall describe in the MENS the general magnitude of resources it is prepared to commit to acquire 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 Five Year Defense Plan/Extended Planning Annex (FYDP/EPA) or unless compensating changes are made to other items in the defense program.

(3) The DoD Component briefing presented to the DSARC at Milestones I, II, and III shall include the following affordability considerations:

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

(b) 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.

(c) Analysis of variation in unit cost (recurring hardware, flyaway, and procurement) with production rate (Milestones II and III).

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

h. Timeliness. An objective of any acquisition is to achieve Initial Operational Capability (IOC) 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 cycle time by planned concurrency. This may include

increasing funding, overlapping, combining, or omitting the phases of the acquisition process or overlapping or combining development T&E with operational T&E. The amount or degree of such concurrency should be based on the extent of potential savings in acquisition time balanced against technical, cost and supportability risks and national urgency in each acquisition program. To achieve timely deployment, consideration may also be given to accepting system performance growth after deployment. When any of the foregoing actions are planned, the risks associated therewith will be discussed in the documentation provided to the DSARC. Further, when tailoring of the acquisition process includes modification or reduction of the number of milestone reviews by the Secretary of Defense, the planned approach must be approved in a SDDM.

i. 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 assign the program manager and request the other participating DoD Components to assign deputy program managers. The lead DoD Component shall also establish the program's objectives by promulgating a program charter after coordination with the other participating DoD Components.

## 6. Competitive Concept Development

a. Alternative Concept Solutions. Alternative concept solutions to the mission need shall be obtained competitively unless the Secretary of Defense, in approving the MENS, has approved pursuing a single concept. Even when pursuing a single concept, competition should be considered in development of that concept. The widest possible range of acquisition and support alternatives to satisfy the mission need shall be considered. Foreign contractors should be included in solicitations, when feasible and 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, and operating and deployment constraints.

b. Standards and Specifications. Maximum use should be made of architectural standards and functional specifications that include only minimum requirements. Specifications stated in detailed or how to language should be avoided, when possible. The number of government specifications and standards specified or referenced in solicitations shall be minimized. Solicitations should normally not specify standard support concepts. If nonstandard support concepts are proposed, they shall be accompanied with estimates of the cost to implement them.

## 7. Contracting

a. Pre-Proposal Briefings. Program managers should conduct orientation briefings for all interested participants and, where appropriate,

allow industry to comment on acquisition strategy and drafts of solicitations. The objectives are to remove inhibitors to innovative solutions and to improve the approach to achieving all system objectives.

b. Competition. Competition should be introduced in the Concept Exploration phase and maintained throughout the acquisition cycle as long as economically practical. In addition, both the government and its contractors shall break out components for competition throughout the acquisition cycle to the maximum extent possible. Techniques and procedures that result in cost auctioning between prospective contractors or where technical ideas or data are shared with other contractors without prior authorization of the source are prohibited.

c. Socioeconomic Program Implementation. Government socioeconomic programs must be considered throughout the system acquisition process. Particular emphasis shall be placed on contracting with small and disadvantaged business firms.

## 8. Design Considerations

a. Standardization in Engineering Design. Standardization shall be applied in design during the Demonstration and Validation phase and the Full-Scale Development phase, as appropriate, to reduce cost of production and operational support and to accelerate timely operational readiness through optimum utilization of existing or codeveloped subsystems, equipment, components, parts, and materials common to other systems and available in supply. Standardization shall be optimized to enhance nuclear and nonnuclear survivability and endurance, quality, reliability, maintainability, support ability, 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 DoD Directive 4120.3 (reference (e)) and DoD Instruction 4120.19 (reference (f)).

b. 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, and capability. Affordability must be considered in production planning. The program manager shall also 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 (g)).

c. 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 set forth in the MENS. It establishes required readiness and activity rates and provides the basis for further 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.

d. Manpower and Training

(1) New systems shall be designed to minimize both the numbers and the skill requirements of people needed for operation and support, consistent with system availability objectives. Manpower and personnel factors, to include numbers, occupations, and skill levels of manpower required, shall be included as considerations and constraints in system design. Integration of manpower and personnel considerations with the system shall start with initial concept studies and shall be refined as the system progresses to form the basis for crew station design, personnel selection and training, training devices and simulator design, and other planning related to manpower and personnel.

(2) Where applicable, planning for training shall consider provisions for unit conversion to the fielded system and training of reserve component personnel. Such planning shall consider tradeoffs conducted among equipment design, technical publications, formal training, on-the-job training, unit training, and training simulators and shall develop a cost-effective plan for attaining and maintaining the personnel proficiency needed to meet mission objectives.

(3) After Milestone 0, manpower requirements shall be subjected to tradeoffs with system characteristics and support concepts. Manpower goals and thresholds consistent with projected activity levels, maintenance demands, and support concepts shall be identified by Milestone II. Tradeoffs for maintenance effectiveness among manpower (numbers, occupations, and skill levels), support equipment, system design, and the support structure shall be conducted. The manpower and training requirements to support peacetime readiness objectives and wartime employment shall be developed by Milestone III. These requirements shall be based upon considerations that include available Operational Test and Evaluation results and current field experiences with similar equipment.

e. System Energy Requirements. Energy requirements shall be considered in system selection and design. Major considerations shall be minimum energy usage and the substitution of other energy sources for petroleum and natural gas.

f. 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.

g. Deployment Requirements. When deployment is a requirement, transportability shall be a system selection and design factor. The

## FORWARD

The purpose of this handbook is to provide a reference and instructional source for GAO staff involved in the MASAD/SDA assignments. Our intention at this time is to provide the basic documents that pertain to the weapon system acquisition process. Although the book is geared to defense acquisitions, the management principles discussed have equal applicability to civil projects and should be used with that in mind. Additionally, the SDA group director for civil acquisitions has issued specific guidance to attain our objectives in that important area.

The bibliography at the end of the handbook lists other documents that provide more detail in specific areas. These documents have been provided to the headquarters staff and regional offices over a period of time.

The handbook will be updated periodically. We solicit your suggestions for material to be added, and any other ideas you have for improving this handbook. Any comments or suggestions should be addressed to Senior Associate Director, Mission Analysis and Systems Acquisition Division, Systems Development and Acquisition Subdivision.



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

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 (P<sup>3</sup>I) 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 compacity, 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

*Competing alternatives*

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 to 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 of 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.

#### G. 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.

#### H. 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

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

Figure 2

RELIABILITY AUDIT TRAILS (EXAMPLES)

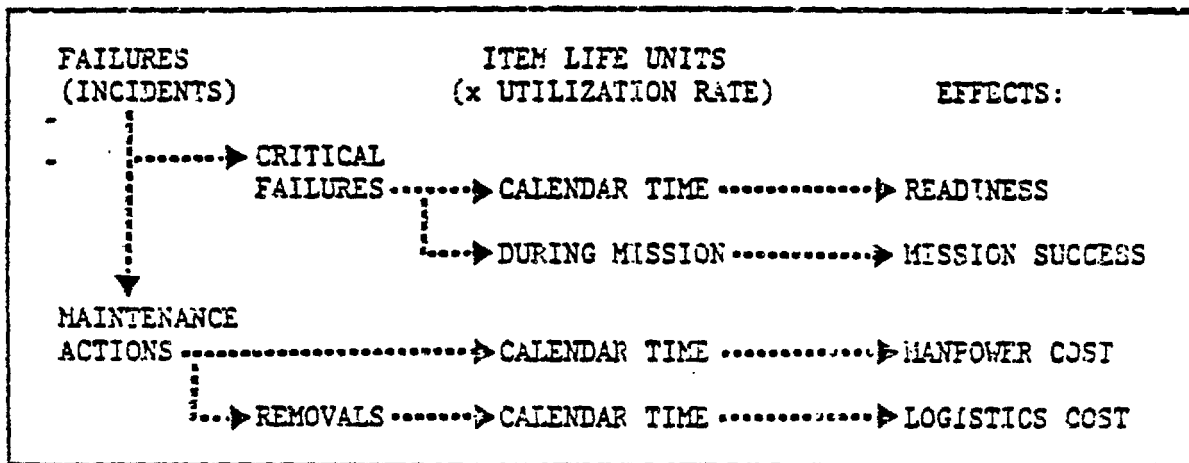
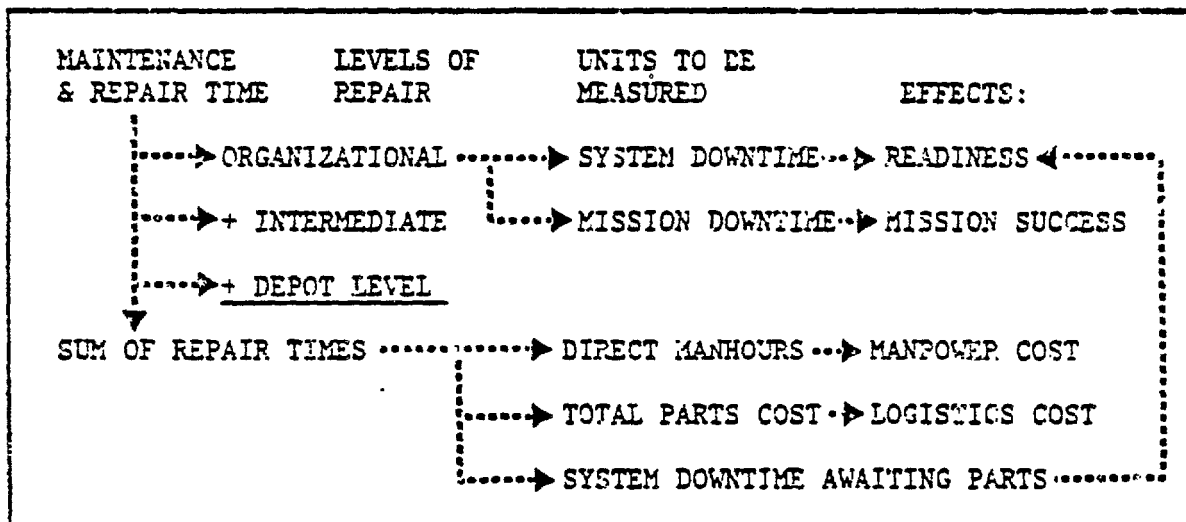


Figure 3

MAINTAINABILITY AUDIT TRAILS (EXAMPLES)



*Memorandum*

APR 24 1981

TO : All Regional Managers

*Donald E. Day*

FROM : Senior Associate Director, MASAD/SDA - Donald E. Day

SUBJECT: Review of Major Civil Acquisitions

An extremely important but unfortunately often overlooked part of the work we do in the Systems Development and Acquisition Subdivision of MASAD is our review of civil acquisition programs.

Early this year, Les Farrington was selected to be the Group Director in charge of our Civil Acquisitions Group. He has taken a number of initiatives that should enable us to put greater emphasis in this important area. We need your help in doing this.

In a memorandum dated February 10, 1981, to the Regional Managers, Les provided a list of major projects located in your regions. He also requested that you provide ideas on potential surveys and reviews. We are encouraged by the response we have received up to this point.

Enclosed is an excellent paper that Les and his staff put together which identifies the work that we have done, what we presently have underway, and some of our plans for the future. It should be useful to you and your staff in getting acquainted with our work. Please particularly note the section concerning the seven new jobs planned in the July-September 1981 timeframe.

We work closely with the applicable operating divisions at Headquarters, not only during the planning stage but also after jobs are in process and as the reports are being drafted. We would greatly appreciate any suggestions or comments which you might offer.

If you have any questions, please do not hesitate to contact Les on 275-3506.

Enclosure

cc: MASAD/SDA Staff  
Director, FOD  
Issue Area Coordinators in CED, EMD, GGD, PLRD (3)  
Regional Office Sublocations (2)

MISSION ANALYSIS AND SYSTEMS  
ACQUISITION DIVISION  
CIVIL ACQUISITIONS GROUP

REVIEW OF MAJOR CIVIL SYSTEMS  
PAST---PRESENT---FUTURE

U.S. GENERAL ACCOUNTING OFFICE  
LESTER C. FARRINGTON, GROUP DIRECTOR

APRIL 1981

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## BACKGROUND

During most of the 1950's and 1960's weapon system programs experienced cost overruns which were noted by some Congressmen and procurement planners. However, the Congress did not become particularly concerned until major cost growth for the C-5A aircraft was publicized in 1969. Reflecting this concern, the Congress called upon the General Accounting Office to report periodically on the progress of various major weapon systems' acquisitions and to provide authorizing and appropriating committees with more reliable information on issues involving weapon system cost, schedule, and performance status.

In an August 1969 letter to the Chairmen of the Senate and House Committees on Armed Services, the Comptroller General outlined plans for giving greater attention to the procurement of major weapon systems and for periodically reporting findings to the Congress. At the same time, GAO established in what was then called the Defense Division, a separate major acquisitions subdivision, to fulfill this commitment.

In February 1970, the subdivision issued its first annual financial status report on DOD's major systems in various phases of the acquisition process. The widespread attention given to the financial status report generated interest in 1972 for similar reporting of major programs acquired by civilian agencies. And so, the Comptroller General started the process of developing criteria to be used in selecting civil agency programs for annual reporting. Meanwhile, in hearings before the House Armed Services Committee on March 29, 1973, Congressman Dickinson asked the General Accounting Office to furnish the committee with information pertaining to cost overruns on civil systems. Information provided on 20 civil systems first appeared in the Congressional Record of September 24, 1973.

As a result of the increased congressional interest in major civil system acquisitions, the Civil Group was established in the major acquisitions subdivision about January 1974 to review major civil acquisitions and to prepare a report on the financial status of these acquisitions as of December 31, 1973.

Civil acquisitions costing over \$25 million each have increased substantially since the Civil Group's first status report as of December 31, 1973. At that time, these acquisitions

numbered 269 with a total estimated cost of \$132 billion. As of September 30, 1980, they have increased to 854 with an estimated cost of \$340.5 billion.

In the past, the Civil Group has reviewed only a small portion of these large expenditures. In line with the Comptroller General's direction and the overall findings of the Moot-Morris studies cited in the Comptroller General's memorandum of December 22, 1980, the Civil Group plans to significantly expand its work in the acquisition of civil systems.

#### SELECTION OF SYSTEMS FOR REVIEW

The Civil Group is responsible for reviewing all major civil systems. Most of the group's work is self-initiated. In carrying out its responsibility, extensive research is conducted into civil programs to identify those systems warranting review. For identifying major civilian systems, the group has established a unilateral threshold of \$25 million or more in RDTE 1/ and/or production both individually and as a combination of systems which fulfill a mission need. Systems are selected based on the number and dollar value of an agency's systems, whether PSAD/MASAD 2/ has performed any work in the agency recently, and whether other GAO divisions or civil agencies plan work in the particular system or area we have in mind. Generally, systems are selected based on cost growth, large dollar value, indications that the systems are in trouble, congressional interest, and whether a report on the system would have an impact on the systems development or on critical decisions.

Annually, the Group prepares and issues to the Congress a financial status report which compiles into one document major civil and defense acquisition projects that represent a universe from which job planning can begin. The information contained in this report provides a source for potential MASAD-initiated work, and regional office-initiated work as well as congressional requested work.

#### NATURE OF CIVIL GROUP'S REVIEWS

Initially, the Civil Group's reviews consisted primarily of assessing the cost, schedule, and performance status of major civil agencies acquisitions. However, the review scope has expanded to include reviews of agencies' cost-estimating procedures, warranties, agencies' planning and acquisition processes, grant program management, research and development and other acquisition strategies followed in acquiring major systems.

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1/Research, Development, Test, and Evaluation.

2/PSAD (Procurement and Systems Acquisition Division) was reorganized in January 1981 and became MASAD (Mission Analysis and Systems Acquisition Division).

In pursuing its efforts, the Civil Group considers Office of Management and Budget (OMB) Circular A-109, Major Systems Acquisitions, a policy for acquisition of major systems by all executive agencies. OMB Circular A-109 defines the system acquisition process as "The sequence of acquisition activities starting from the agency's reconciliation of its mission needs with its capabilities, priorities and resources, and extending through the introduction of a system into operational use or the otherwise successful achievement of program objectives". System acquisition includes such activities as:

- analyzing agency missions;
- determining mission needs;
- setting of program objectives;
- determining of system requirements;
- system program planning;
- budgeting and funding;
- research, engineering, and development;
- testing and evaluation;
- contracting or procurement;
- program and management control; and
- introducing the system into use or otherwise successful achievement of program objectives.

#### SUBJECTS OF INTEREST

Some of the subjects of interest for the Civil Group are:

- Whether the public and the Congress have adequate visibility of the financial status of major civil and defense projects being acquired by federal agencies.
- Whether cost estimates of major systems are reliable, accurate, and complete.



- The impact of management problems, schedule slippages, and program changes on system cost growth.
- Whether the system's performance compares to that originally planned.
- The affordability of the system in comparison to the overall objectives of the agency.
- Whether the systems procured will meet the agencies' mission needs.
- Whether the agencies' various missions and systems are integrated to carry out the mission at the lowest possible cost.
- Whether agencies are taking advantage of all available means of reducing total program costs, e.g., exercising warranty provisions of contracts.
- Whether the Congress has accurate, objective and complete information on the status, progress, and significant issues of individual major civil systems under development and construction for which funds are being requested.
- Whether testing and evaluation of major civil acquisitions is effectively planned, conducted, reported, and considered in decisionmaking.
- Whether agencies are in compliance with OMB Circular A-109's concepts of project management.
- Whether OMB Circular A-109 has had an impact on acquisition programs in terms of helping Federal agencies acquire systems which are affordable, satisfy the need, and which are available on time.
- Whether management strategies used by Federal agencies for the development and acquisition of major programs/systems have been effective.
- Whether planning for major acquisitions adequately consider potential critical material shortages on system cost, schedule, and performance goals.

REPORTS IN PROGRESS

Improvements Needed in the Management of the  
the Acquisition of Major Systems, Department of  
Energy (Code 951539)

Improvements Needed in Procuring Rail Mass Transit  
Equipment, Department of Transportation, Urban Mass  
Transportation Administration (Code 951520)

ASSIGNMENTS IN PROGRESS

SURVEY OF DOE'S PROCUREMENT OF THE  
GAS CENTRIFUGE ENRICHMENT PLANT  
PORTSMOUTH, OHIO  
(CODE 951599)

The Gas Centrifuge Enrichment Plant is being constructed adjacent to the Portsmouth, Ohio, Gaseous Diffusion Plant. Construction of the first eight process buildings began in FY 1980 and is scheduled to be completed in 1989. The objectives of the survey are directed to the causes of the cost increases, validity of the completion schedule, the controls by DOE over costs, schedule, contract bids, construction performance, and warranties.

SURVEY OF UMTA'S ACQUISITION OF A  
COMMUTER RAILROAD TUNNEL IN  
PHILADELPHIA, PENNSYLVANIA (CODE 951606)

The construction of a 1.7 mile Center City Commuter Tunnel in Philadelphia started in 1978 and is now scheduled for completion in 1985--about 2 years behind schedule. The project is being supported with \$240 million in Federal funds with UMTA responsible for overseeing the project. Since construction started, the project has been the subject of considerable controversy including an FBI probe of alleged kickbacks.

SURVEY OF SAN FRANCISCO'S  
WASTE-WATER PROGRAM  
(CODE 951607)

San Francisco has adopted a program to meet environmental standards for diluted raw sewage discharged into the Bay and the Ocean. The program is estimated to cost about \$2 billion, and about \$350 million has already been spent or committed to date. There are indications that alternative acquisition strategies to reduce or change the scope and cost of the program have not been explored.

POTENTIAL NEW JOBS PLANNED

(JULY-SEPTEMBER 1981 PLANNED STARTS)

1. Survey of the Central and Southern Florida Flood Control Project (Corps of Engineers--\$2.1 billion)
2. Survey of the Water and Power Resources, Central Arizona Project for Water Development (Department of Interior--\$1.9 billion)
3. Survey of the Acquisition of the Next Generation Weather Radar (National Oceanic and Atmospheric Administration--\$320 million)
4. Annual Review of the Status of Major Federal Acquisitions as of September 30, 1981
5. Survey of the Coast Guard's Effectiveness and Efficiency in Acquiring Major Systems (Department of Transportation)
6. Survey of the Effectiveness of Urban Mass Transportation Administration's Planning and Acquisition Practices for Major Systems (Department of Transportation)
7. Survey of the Federal Aviation Administration's Effectiveness and Efficiency in Acquiring Major Systems (Department of Transportation)

ACCOMPLISHMENTS

Some of the Civil Group's past efforts have resulted in substantial dollar savings such as the Washington Metropolitan Area Transit Authority's recovery of over \$1 million in warranty costs for deficient METRO transit vehicles, and at least a \$20 million savings resulting from the Congress postponing further funding of the Darien Gap Highway. Also, the Group's efforts have resulted in improving agencies' cost estimating procedures and better disclosure of costs to the Congress, increased congressional visibility of agency programs, and in some instances elimination, postponement or reconsideration of agency programs.

Some of the Civil Group's efforts in which accomplishment reports have been prepared are as follows:

Construction Progress and Problems of  
The Darien Gap Highway (PSAD-77-154, 8/15/77)

Linking the Americas - Progress and Problems  
of the Darien Gap Highway (PSAD-78-65, 2/23/78)

These reports assisted the Department of Agriculture's negotiation for improvement of joint U.S. Columbian foot-and-mouth disease control and eradication program, led to the Department of Transportation's furnishing cost data to the Congress, and postponed further funding (\$20 million) 1/ of the Darien Gap Highway south of Yaviza, Panama.

Status of the Tokamak Fusion Test  
Reactor Project (PSAD-78-129, 7/10/78)

As a result of this report, Department of Energy disclosed all costs associated with the Tokamak project in Congressional Data Sheets.

Tennessee Valley Authority (TVA)  
Can Improve Estimates and Should  
Reassess Reserve Requirements for  
Nuclear Power plants (PSAD-79-49, 3/22/79)

As a result of this report, TVA improved its cost and schedule estimating and demand forecasting for its nuclear power plants.

Better Management of METRO Subway Equipment  
Warranties Needed (PSAD-79-41, 2/27/79)

Washington Metropolitan Area Transit Authority made significant changes in their warranty management, and over \$1 million was recovered from the railcar contractor.

Transit Equipment Warranties Should Be  
Enforced (PSAD-80-12, 12/7/79)

The Port Authority of Allegheny County collected \$17,000 from AM General Corporation for in-house warranty repairs which were identified during the review of warranty administration by Urban Mass Transportation Administration grantees.

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1/ At the time the accomplishment report was submitted the total savings were not known. However, we were advised that the savings are at least \$20 million.

BRIEF SUMMARY OF REPORTS ISSUED BY THE CIVIL GROUP  
JANUARY 1, 1979 THROUGH MARCH 31, 1981

The Civil Group has issued 18 reports from January 1979 through March 31, 1981. A brief summary of these reports follow.

**FINANCIAL STATUS OF MAJOR FEDERAL  
ACQUISITIONS, SEPTEMBER 30, 1978**  
(PSAD-79-14, 1/11/79)

Major acquisitions are estimated to cost \$531.2 billion at completion--an increase of \$207.4 billion, or 64 percent, over baseline estimates. Cost estimates are shown for each of the 857 civil and military acquisitions currently in development, test, production, or construction phases.

**THE 140-FOOT HARBOR TUGBOAT: DOES THE  
COAST GUARD NEED IT ON THE EAST COAST?**  
(PSAD-79-17, 1/15/79)

The Coast Guard planned to spend about \$35 million to buy five 140-foot multimission domestic icebreakers for the east coast. GAO questioned the need for this type of vessel on the east coast, and recommended that the Coast Guard reevaluate its overall east coast mission and match it with a vessel that would satisfy the mission need.

**CONGRESS NEEDS RELIABLE COST ESTIMATES  
AND ESTIMATED PRIORITIES FOR ALLOCATING  
FUNDS FOR WATER RESOURCES PROJECT**  
(PSAD-79-13, 1/29/79)

Cost estimates presented to the Congress by the Bureau of Reclamation and the Corps of Engineers to authorize construction of water resources projects are based on incomplete data, are not always based on current prices, and do not include future inflation through project completion. Also, neither the Corps nor the Bureau sets priorities on its projects for use by the Congress in allocating funds.

**BETTER MANAGEMENT OF METRO SUBWAY  
EQUIPMENT WARRANTIES NEEDED**  
(PSAD-79-41, 2/27/79)

As of December 1978, the Washington Metropolitan Area Transit Authority had bought about \$300 million of equipment, including rail vehicles, train control,

communication and fare collection equipment, and escalators for METRO. Authority officials estimated another \$600 million is needed for similar equipment to service the total system. The authority has not taken full advantage of warranty and reliability clauses in its procurement contracts. It has not effectively monitored the reliability of railcars, communications, and fare collection equipment. As a result additional costs are being incurred by METRO.

TENNESSEE VALLEY AUTHORITY CAN  
IMPROVE ESTIMATES AND SHOULD  
REASSESS RESERVE REQUIREMENTS  
FOR NUCLEAR POWER PLANTS  
(PSAD-79-49, 3/22/79)

Cost estimates for Hartsville, Phipps Bend, and Yellow Creek nuclear powerplants are understated by several hundred million dollars each because of excluded costs and optimistic and probably unachievable construction schedules. GAO recommended that estimates for power plants be based on likely cost and schedule conditions and that TVA's Board of Directors reassess the reserve requirements.

LETTER REPORT TO GARY R. GAYTON,  
ACTING ADMINISTRATOR, URBAN MASS,  
TRANSPORTATION ADMINISTRATION,  
RE: PURCHASE OF NONESSENTIAL OR  
DUPLICATIVE EQUIPMENT FOR ADVANCED  
DESIGN BUS  
(PSAD-79-87, 6/07/79)

Some transit authorities were procuring both odometers and hubodometers--instruments that perform the same function--for the advanced design bus. GAO recommended that the need for both odometer and hubodometers as well as other optional equipment in the procurement of these buses be evaluated and if warranted, suspend the procurement of hubodometers or odometers on existing and future bus contracts.

UNNECESSARY PROCUREMENT OF AN AVIATION  
WEATHER AND NOTICE TO AIRMEN SYSTEM BY FAA  
(PSAD-79-94, 8/03/79)

FAA's purchase of a second Aviation Weather and Notice to Airmen System prototype to demonstrate the feasibility of consolidating several stations and collocating them with the air traffic control at Leesburg, Virginia, resulted in an unnecessary acquisition of \$2.6 million. FAA purchased this new system before it had completely developed and evaluated the system's performance capabilities. Also, FAA did not consider relocating the

existing prototype nor did it reconsider its decision when still another system proved to be capable of handling the Lassburg operations.

FAA'S PROGRAM TO AUTOMATE FLIGHT SERVICE STATIONS: STATUS AND NEEDS  
(PSAD-80-1, 10/31/79)

FAA plans to spend \$175 million for automating flight service stations enabling pilots to obtain weather and other information and file flight plans without assistance from flight service specialists. FAA plans to award a production contract before it has developed the software required for automation. GAO believes FAA could improve the plan by deleting a portion of the system and doing more development during the competitive development phase.

LETTER REPORT TO DOUGLAS M. COSTLE,  
ADMINISTRATOR, ENVIRONMENTAL PROTECTION  
AGENCY RE: NEED FOR MORE EFFECTIVE  
MANAGEMENT OF WARRANTIES  
(PSAD-80-11, 11/16/79)

EPA could do more to help grantees realize the full benefits of warranty coverages in contracts for construction of water waste treatment facilities. Also, EPA should encourage grantees to train its employees in equipment inspection, analysis, and correction of equipment malfunctions to assure a more efficient operation and better warranty enforcement.

TRANSIT EQUIPMENT WARRANTIES SHOULD BE ENFORCED  
(PSAD-80-12, 12/07/79)

State and local transit authorities have not taken full advantage of contract warranties. Equipment manufacturers are not reimbursing the transit authorities for defects in material or workmanship because warranties expire before all the equipment is placed in operation and warranty enforcement, recordkeeping procedures, and provisions are inadequate.

FINANCIAL STATUS OF MAJOR FEDERAL ACQUISITIONS, SEPTEMBER 30, 1979  
(PSAD-80-25, 2/12/80)

Major acquisitions are estimated to cost \$606.8 billion at completion--an increase of \$260.5 billion, or 75 percent, over baseline estimates. Cost estimates are shown for each of the 940 civil and military acquisitions currently in development, test, production, or construction phases.

LETTER REPORT TO NEIL E. GOLDSCHMIDT,  
SECRETARY OF TRANSPORTATION RE: NEED  
FOR CONTROLS BY THE URBAN MASS  
TRANSPORTATION ADMINISTRATION OVER  
NO-PREJUDICE AUTHORIZATIONS  
(PSAD-80-36, 3/14/80)

The Urban Mass Transportation Administration (UMTA) authorizes local transit authorities to incur costs on a "no-prejudice" basis. These authorizations permit local authorities to use local funds for a variety of purposes, such as project development and purchase of buses, with the understanding that such costs may be reimbursed if future grants are approved. GAO recommended that the Secretary of Transportation direct the Administrator, UMTA, to (1) develop procedures to aid in accurately preparing and maintaining records of outstanding no-prejudice authorizations, (2) devise controls and incentives for no-prejudice authorizations similar to those presently followed when awarding full-funding contracts to authorities for project development, (3) provide oversight of project development during no-prejudice development to assure that only eligible costs are included in future claims for reimbursement, and (4) provide data on no-prejudice authorizations in back-up budget material furnished to legislative and appropriation committees.

METROPOLITAN ATLANTA'S RAPID TRANSIT  
SYSTEM: PROBLEMS AND PROGRESS  
(PSAD-80-34, 4/09/80)

Experiences under the Metropolitan Atlanta Rapid Transit Authority's (MARTA's) phase A grant awarded by the Urban Mass Transportation Administration (UMTA) for the first 13.7 miles of a 53-mile transit system have revealed weaknesses in both UMTA's administration of the grant and MARTA's management of the grant. In some instances, more thorough UMTA review and guidance could have eliminated, or at least lessened, MARTA's management weaknesses.

FAA HAS NOT GONE FAR ENOUGH WITH  
IMPROVEMENTS TO ITS PLANNING AND  
ACQUISITION PROCESSES  
(PSAD-80-42, 6/04/80)

Improvements are still needed in FAA's agencywide planning and acquisition process. While the concepts set forth in FAA's directives were sound and represented improvement over what existed in the past, the agencywide planning directive was not fully implemented and the acquisition directive did not provide sufficient guidance and needs to be revised.



LETTER REPORT TO NEIL E. GOLDSCHMIDT,  
SECRETARY OF TRANSPORTATION RE:  
DEVELOPMENT STATUS OF THE RAPID  
TRANSIT SYSTEM OF METROPOLITAN  
DADE COUNTY, FLORIDA  
(PSAD-80-49, 6/05/80)

The Urban Mass Transportation Administration (UMTA) authorized capital assistance grants for the development of the fixed-guideway rapid transit system of Metropolitan Dade County (MDC), Florida. GAO's review of the development status of this project identified significant cost increases and a problem with the project development sequence which will require close coordination between UMTA and MDC. Because MDC has been concentrating on the acquisition of properties for its right-of-way toward the southern part of its line and starting construction at that point, it has not acquired many parcels for the north line section. If those parcels are not acquired according to schedule, that section of the line will not be constructed in a timely manner to allow cars access to the entire line from the maintenance and test track facility area.

LETTER REPORT TO NEIL E. GOLDSCHMIDT,  
SECRETARY OF TRANSPORTATION RE:  
MASSACHUSETTS BAY TRANSPORTATION  
AUTHORITY'S TERMINATION OF CONTRACT  
FOR LIGHT RAIL VEHICLES  
(PSAD-81-11, 11/10/80)

Massachusetts Bay Transportation Authority (MBTA) awarded a contract on May 1, 1973, to Boeing Vertol Company (Boeing) for 175 light rail vehicles (LRV) to be manufactured using the standard LRV specification developed by MBTA and funded and approved by UMTA (Urban Mass Transportation Administration). Because of the operational problems experienced after placing these vehicles into passenger revenue service, the contract was terminated. UMTA's lack of project monitoring and involvement contributed to its being unable to assist in resolving the LRV problems. UMTA needs an effective involvement policy to insure that project objectives are achieved within allocated Federal funds.

CONTROLLING FEDERAL COSTS FOR COAL  
LIQUEFACTION PROGRAM HINDERS ON  
MANAGEMENT AND CONTRACTING IMPROVEMENTS  
(PSAD-81-19, 2/4/81)

Two pilot plants, H-Coal and Exxon Donor Solvent, established to demonstrate direct liquefaction processes for producing synthetic liquids and solids from coal became operational during 1980. Both operational pilot plants encountered design and construction problems attributable to the Department of Energy (DOE) premature commitment to contracting and to poor construction and contract administration by the contractor. The problems greatly increased cost and schedule slippages. Also, DOE's plans for two more larger demonstration plants need careful review in light of their escalating cost and risks.

FINANCIAL STATUS OF MAJOR FEDERAL  
ACQUISITIONS, SEPTEMBER 30, 1980  
(MASAD-81-13, 3/20/81)

Major acquisitions are estimated to cost \$776.6 billion at completion--an increase of \$325.8 billion, or 72 percent, over baseline estimates. Cost estimates are shown for each of the 1,040 civil and military acquisitions currently in development, test, production, or construction phases.

STAFF STUDIES, REPORTS, AND OTHER EFFORTS OF THE  
CIVIL GROUP FROM INITIATION IN 1974 TO MARCH 31, 1981

STAFF STUDIES

<u>Title</u>	<u>Number</u>	<u>Date</u>
Space Transportation System (NASA)		6/74
Procurement of Locomotives and Rail Passenger Cars (National Railroad Passenger Corporation (AMTRAK) Federal Railroad Administration, Department of Transportation)		9/74
Fast Flux Test Facility Program (Atomic Energy Commission)		1/75
Space Transportation System (NASA)		2/75
Sequoyah Nuclear Plant (Tennessee Valley Authority)		3/75
Viking 1975 Project (NASA)		3/75
Harry S. Truman Dam and Reservoir (Dept. of Army, Corps of Engineers)		4/75
Personal Rapid Transit System, Morgantown, West Virginia (DOT)		4/75
Polar Class Icebreaker Ships (Coast Guard, DOT)	PSAD-75-104	6/75
Eisenhower Memorial Tunnel	PSAD-76-85	2/17/76
Bellefonte Nuclear Plant	PSAD-76-86	3/ 1/76

REPORTS

<u>Title</u>	<u>Number</u>	<u>Date</u>
Financial Status of Major Civil Acquisitions, December 31, 1973	PSAD-75-58	2/24/75
Evaluation of the Capital Estimate for the METRO Rapid Rail Transit System	PSAD-75-85	5/08/75
Letter Report Re: Review of Proposed Additional Federal Assistance to METRO	PSAD-75-107	6/27/75
Letter Report Re: Review of the Adequacy of the Proposed Additional Federal Assistance to METRO	PSAD-75-108	6/27/75
Letter Report Re: Washington Metropolitan Area Transit Authority (WMATA) Cost and Financing	PSAD-76-38	11/04/75
Financial Status of Major Acquisitions, June 30, 1975	PSAD-76-72	2/27/76
Impact of Shortages of Processed Materials on Programs of Vital National Interest	PSAD-76-14	2/27/76
Letter Report to Congressman T. Rees Re: Operational Safety of METRO	PSAD-76-143	5/28/76
METRO Construction Safety and Cost Impact of Labor Strikes	PSAD-76-147	6/25/76
Status of the Grand Coulee-Raver Transmission Line Project	PSAD-76-167	8/13/76
Difficulties of the Federal Aviation Administration in Acquiring the ARSR-3 Long Range Radar System	PSAD-76-169	8/25/76
METRO Status Report	PSAD-76-165	8/27/76

REPORTS (Continued)

<u>Title</u>	<u>Number</u>	<u>Date</u>
Cost, Schedule, and Performance Problems of the Lake Pontchartrain and Vicinity, Louisiana, Hurricane Protection Project	PSAD-76-161	3/31/76
Status and Financing of the District of Columbia's New Courthouse	PSAD-76-176	10/12/76
The Appalachian Development Highway System in West Virginia: Too Little Funding Too Late?	PSAD-76-153	11/ 2/76
Suggested Reporting Formats for Washington Metropolitan Area Transit Authority (WMATA) Bus and Rail Operation	PSAD-77-16	12/ 2/76
Reporting of Selected Major Civil Projects Needs Improvement - FEA	PSAD-77-5	12/29/76
Letter Report Re: Coast Guard Procurement of Medium Range Surveillance Aircraft	PSAD-77-63	1/17/77
Financial Status of Major Acquisitions, June 30, 1976	PSAD-77-62	1/18/77
The Status and Problems in Constructing the National Visitor Center	PSAD-77-93	4/ 4/77
The District of Columbia's New Detention Center: Careful Planning Essential for Adequate Addition	PSAD-77-86	6/13/77
Need to Resolve METRO Funding	PSAD-77-123	6/29/77
Clarence Cannon Dam and Reservoir: Cost, Schedule, and Safety Problems	PSAD-77-131	7/18/77
Letter Report Re: Construction Progress and Problems of the Darien Gap Highway	PSAD-77-154	8/15/77

REPORTS (Continued)

<u>Title</u>	<u>Number</u>	<u>Date</u>
Letter Report Re: Bill S-1313, Proposed Legislation to Require the Enactment of Special Legisla- tion to Continue Funding on Any Major Acquisition Whenever Cost or Estimated Costs Increase by 50% or More	PSAD-77-160	9/14/77
Palmetto Bend Dam and Reservoir: Need for Improved Analysis of Alternatives and Cost Data	PSAD-78-43	12/16/77
Financial Status of Major Federal Acquisitions, September 30, 1977	PSAD-78-60	1/20/78
Linking the Americas - Progress and Problems of the Darien Gap Highway	PSAD-78-65	2/23/78
Consistent and Uniform Treatment of Inflation Needed in Program Cost Estimates Provided Congress	PSAD-78-8	3/20/78
Metropolitan Chicago's Combined Water Cleanup and Flood Control Program: Status and Problems	PSAD-78-94	5/24/78
Construction Management Problems Have Delayed Completion of the New Plutonium Facilities at Rocky Flats, Colorado	PSAD-78-90	6/ 2/78
Status of the Tokamak Fusion Test Reactor Project	PSAD-78-129	7/10/78
Status of the Federal Aviation Administration's Microwave Landing System	PSAD-78-149	10/19/78
Matters Relating to FAA's Procurement of a Microwave Landing System	PSAD-79-3	10/27/78
Washington Metropolitan Area Transit Authority (WMATA) Process for Developing the Estimated Cost of METRO Can Be Improved	PSAD-78-141	12/ 8/78

REPORTS (Continued)

<u>Title</u>	<u>Number</u>	<u>Date</u>
Financial Status of Major Federal Acquisitions, September 30, 1978	PSAD-79-14	1/11/79
The 140-Foot Harbor Tugboat: Does the Coast Guard Need It on the East Coast?	PSAD-79-17	1/15/79
Congress Needs Reliable Cost Estimates and Established Priorities for Allocating Funds for Water Resources Projects	PSAD-79-13	1/29/79
Better Management of METRO Subway Equipment Warranties Needed	PSAD-79-41	2/27/79
Tennessee Valley Authority Can Improve Estimates and Should Reassess Reserve Requirements for Nuclear Power Plants	PSAD-79-49	3/22/79
Letter Report Re: Purchase of Nonessential or Duplicative Equipment for Advanced Design Bus	PSAD-79-87	6/07/79
Unnecessary Procurement of an Aviation Weather and Notice to Airmen System by the FAA	PSAD-79-94	8/ 8/79
FAA's Program to Automate Flight Service Stations: Status and Needs	PSAD-80-1	10/31/79
Letter Report Re: Need for More Effective Management of Warranties on Water Waste Treatment Facilities	PSAD-80-11	11/16/79
Transit Equipment Warranties Should Be Enforced	PSAD-80-12	12/ 7/79
Financial Status of Major Federal Acquisitions, September 30, 1979	PSAD-80-25	2/12/80

REPORTS (Continued)

<u>Title</u>	<u>Number</u>	<u>Date</u>
Letter Report Re: Need for Controls by the Urban Mass Transportation Administration Over No-Prejudice Authorization	PSAD-80-36	3/14/80
Metropolitan Atlanta's Rapid Transit System: Problems and Progress	PSAD-80-34	4/ 9/80
FAA Has Not Gone Far Enough with Improvements to Its Planning and Acquisition Processes	PSAD-80-42	6/ 4/80
Letter Report Re: Development Status of the Rapid Transit System of Metropolitan Dade County, Florida	PSAD-80-49	6/ 5/80
Letter Report Re: Massachusetts Bay Transportation Authority's Termination of Contract for Light Rail Vehicles	PSAD-81-11	11/10/80
Controlling Federal Costs for Coal Liquefaction Program Hinges on Management and Contracting Improvements	PSAD-81-19	2/C4/81
Financial Status of Major Federal Acquisitions, September 30, 1980	MASAD-81-13	3/20/81



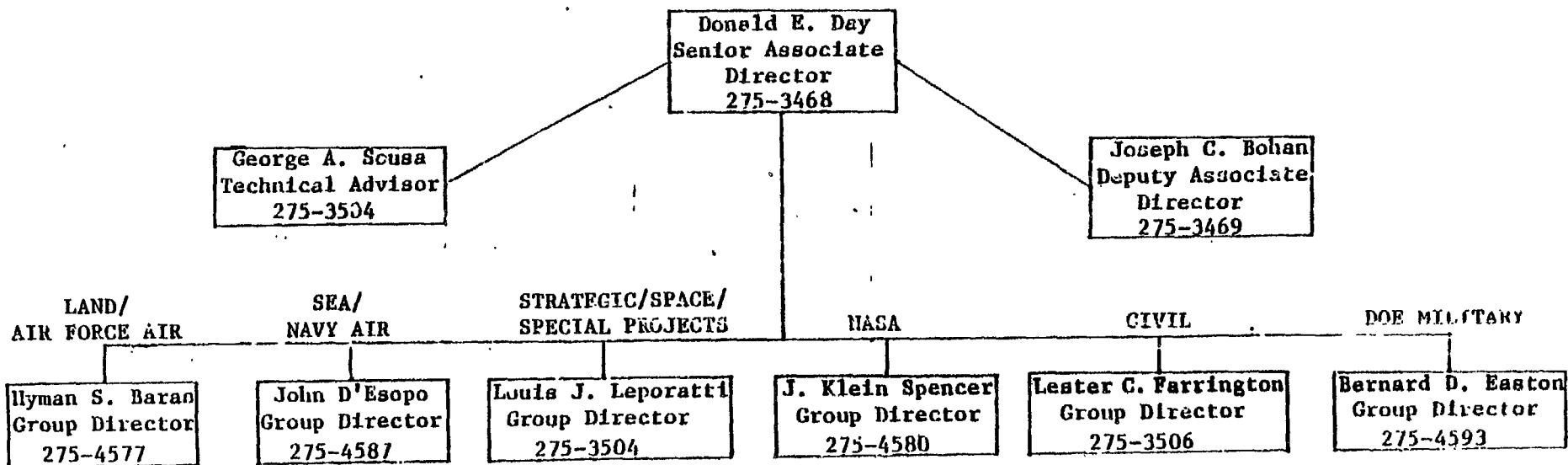
TESTIMONY

<u>Subject</u>	<u>Date</u>
METRO Rapid Rail Transit System (Richard Gutmann)	11/18/75
Federal Aviation Administration's Long Range Radar System ARSR-3 (J. H. Stolarow)	11/28/77
The National Visitor Center (J. H. Stolarow)	02/23/78

OTHER

<u>Subject</u>	<u>Date</u>
Letter to the Chairman and Ranking Minority Member, Subcommittee on Coast Guard and Navigation, House Committee on Merchant Marines and Fisheries regarding questions they asked us to investigate and to provide a brief summary of the results	2/10/80
Talking Paper on the Department of Energy's Solvent Refined Coal Demonstration Plants I and II which was read into hearings by the Subcommittee on Environment, Energy, and Natural Resources, House Committee on Government Operations	2/17/81

SYSTEMS DEVELOPMENT AND ACQUISITION



For Internal GAO Use Only

# **Program Plan For The Systems Development And Acquisition Issue Area (3000)**

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**Program Plan - MASAD**

## PREFACE

This document provides overall direction in GAO's efforts in the systems development and acquisition issue area. It replaces the October 1979 program plan for the procurement of major systems issue area.

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## CHAPTER 1

### DIRECTOR'S SUMMARY

This is the program plan for the Systems Development and Acquisition Issue Area. The essential elements of this plan were in the Procurement and Systems Acquisition Division program plan for "The Procurement of Major Systems--Issue Area 3000". That plan was approved by the Program Planning Committee on August 2, 1979. This new plan updates that plan for major civil and defense programs and reflects organizational changes to better emphasize certain acquisition activities related to defense work.

On December 22, 1980, the Comptroller General approved a reorganization which, among others, realigned responsibilities of PSAD and of the Logistics and Communications Division (LCD). Revised divisions were formed and the Mission Analysis and System Acquisition Division replaced PSAD. In essence, MASAD gave up the "General Procurement" function and acquired the full "Communications, Intelligence and ADP work related to tactical, non-tactical, and data communications". This function was formerly in the LCD.

MASAD consists of three subdivisions:

Systems Development and Acquisition. This subdivision combines the responsibilities formerly carried out by two Groups; namely the Acquisition Management Group and the Research and Development Group. (Issue Area 3000)

Mission Analysis. This is a new subdivision whose responsibility is to ascertain that DOD's new systems acquisitions do, in fact, address deficiencies in perceived and postulated threats. It deals with longer term capability of new acquisitions to fill current and future gaps in DOD mission requirements. This function was formerly carried out in the Acquisition Management Group. GAO's ability to perform such analyses has been growing in recent years and it was considered timely to recognize this by setting up group to specialize in such analyses. A new issue area is being established to deal with this area and is scheduled to be presented to the PPC on September 28, 1981.

Communications, Command, Control, and Intelligence.  
This subdivision was composed by the transfer from LCD of the groups responsible for Issue Area 3700 (Communications and Intelligence) and Defense related ADP (0100). This issue area plan is to be presented on July 20, 1981.

This plan reflects the foregoing reorganization and identifies areas-of-concern and the lines-of-effort and related project assignments which we believe will best address the Systems Development and Acquisition work during the next 18 months.

#### SYSTEMS DEVELOPMENT AND ACQUISITION

This can be described briefly as the sequence of activities starting with an agency's exploration of alternative systems to fill a void and extends through to the introduction of a system into operational use or otherwise successful achievement of program objectives. (See major acquisition cycle, p. 13.) We believe that systems development and acquisition activities are synonymous with system acquisitions as carried out by the former Acquisition Management Group. Therefore, this SDA program plan will use the previously approved PSAD program plan lines-of-effort on system acquisitions. Through a crosswalk table, depicting each of the previously approved lines-of-effort (see p. 16), this plan furnishes the transition to the proposed Systems Development and Acquisition LOEs.

Major defense programs are defined as those with an estimated research, development, test, and evaluation cost exceeding \$100 million or an estimated production cost exceeding \$500 million. Civil agency definitions of major acquisitions vary in each agency, but the dollar expenditures are significant in relation to the agency's budget.

#### TRENDS AND FUTURE OUTLOOK

For the past several years about 20 percent of the annual Federal budget has been spent through the procurement process. The original fiscal year 1982 budget anticipated spending about \$69 billion on research, development, and acquisition to support our military posture. This included about \$50 billion for the procurement of weapon systems and other military equipment and supplies. (See Appendix I.) Subsequent to preparation of the FY82 budget, the new administration added \$26 billion, of which \$20 billion is for the development and acquisition of additional quantities of weapons.

Civil agencies, State, and local grantee agencies also use significant amounts of Federal funds to acquire major programs. In a recent report (MASAD-81-13, March 20, 1981) some 1040 major acquisitions (military and civil) then in various acquisition phases were estimated to cost \$777 billion at completion.

The new administration has identified its number one priority as improving the posture of U.S. military forces. To this end, a substantial increase in defense spending, including funds for new or additional major weapon, is expected to take place during the next four years. Along with the emphasis on increases in defense spending, is an all-out effort to identify areas, including major civil and defense acquisitions, where budget cuts can be efficiently made.

The Department of Defense announced on February 18, 1981, some goals to achieve efficiencies, economies and management improvements. Specific areas cited by DOD include:

- Elimination of any waste and unnecessary activities.
- Purchasing efficiencies.
- Elimination, cancellation or reduction of marginal weapons systems whether operational, under procurement, or under development.
- Elimination or reduction in marginal support programs.

These same goals are inherent in our planned work and any specific programs initiated by Defense to achieve or measure progress to these goals would be included in our future work. We believe that this announcement was influenced by the Comptroller General's letter of January 21, 1981, to the Secretary of Defense which proposed 15 agenda items for significant management improvements and cost reduction opportunities. (See p. 37.)

MASAD's role is that of an independent evaluator of major agency acquisitions. Although most federal agencies conduct internal evaluations, they tend to be parochial, bounded by the objectives and limitations of the agency concerned. Our role includes the surfacing of issues by reviewing major acquisitions and providing this information in a timely and useful manner to the Congress. Major



program acquisitions are by no means routine procurements. Each is a unique complex enterprise accompanied with its own arguments, considerations, opinions, and acquisition strategy. Most are susceptible to unique and unanticipated management, technology, or funding problems. We believe that the GAO must provide full disclosure of these issues to the Congress on a case by case basis. Generalizations on the other hand are of little value to the Congress.

MASAD also independently selects many of the major acquisitions or issues on which it reports. Again, many are based on standing commitments, specific congressional requests, and the perceived needs of the Congress. Whether our product is in written or oral form, its purpose is to provide the Congress and agency officials with timely and objective information, conclusions, and recommendations that will aid them in carrying out their responsibilities in an efficient and effective manner. Making our evaluations available to the public whenever possible is another benefit of our presence in the major acquisitions area. The details of GAO's role in this issue area are made plain in the objective(s) of each line-of-effort in this program plan together with the specific areas to be addressed in achieving our objective(s).

SDA's objectives, for the next 18 months, are designed to concentrate on four current areas-of-concern. They are to (1) evaluate Federal agency acquisitions, (2) determine the adequacy and effectiveness of efforts to reduce cost and increase effectiveness of major systems development and acquisition, (3) determine the effectiveness of management strategies, and (4) determine the adequacy of research programs to support major acquisitions. These are discussed briefly below and fully in chapters 3, 4, 5 and 6.

The portion of the defense budget spent on acquisitions dictates that we continue to closely scrutinize individual major acquisitions in military departments and civil agencies. In calendar year 1981 we categorized 23 assignments associated with military programs as individual major weapon reviews, i.e. that group of reports issued in January or February 1981. Future efforts would approximate our 1981 level of effort. This work has been most useful to the Congress and it provides the press and the public with an assurance that major programs are being examined by an independent agency. In past years this work has carried a priority #1.

It should be noted that while our individual systems work constitutes a major portion of our work and is treated as a package or block of reports, the specific assignments in that package are carried out under various LOEs and various areas-of-concern. The reason for this is that as a system progresses in the acquisition cycle our work becomes more specific and can be carried out under an LOE which addresses the problem being pursued during a particular year. For example of the 20 individual weapon reports we plan to issue in early 1982, 17 are under this area-of-concern, five are under one LOE and 12 are under a second LOE.

We plan to spend 48 percent of our effort in this area-of-concern.

A second area of major concern deals with what we believe is a severe unbalance between performance of equipment on one side and utility--reliability, availability, maintainability, and human operability--on the other side. This trend was announced in our October 1979 plan and, while GAO and many others have performed work in this area, serious problems remain and are expected to continue for some time in the future. Our planned efforts center on revised LOEs designed to (1) help insure adequacy of program trade-off decisions and (2) stress importance of tests and evaluations to make sure that reliability, availability, maintainability, and human factors have been adequately considered.

We plan to spend 19 percent of our effort in this area.

A third major area of SDA work deals with the management of the development and acquisition of major systems. Existing policies--Circular A-109--provides a sound framework for successful identification, development, and acquisition of programs to fill specific needs. Recent events, however, casts some doubt on how forcefully the executive branch may be in further implementation of these policies. We believe it is critical for SDA to monitor events and make sure that efforts of the past years are not abandoned under pressure. On the other hand, the trend is clear that innovative processes must be pursued to help reduce cost, complexity, and the timeframes inherent in current acquisitions. In addition to existing LOEs, SDA has established two new LOEs to deal with the trends to implement innovative acquisition strategies.

We plan to spend 12 percent of our effort in this area.

Our last area-of-concern in this plan deals with the adequacy of technology development programs to support the timely development and acquisition of major programs in the Departments of Defense, Energy, Transportation, and the National Aeronautics and Space Administration. Based on current trends we expect to concentrate efforts on areas such as the capability of the DOE nuclear weapon complex to develop and produce materials to meet projected needs, multi-agency technology development programs, and adequacy of technology programs to support agency needs.

We expect to spend about 12 percent of our effort in these areas.

The balance of our efforts, approximately 9 percent, will be spent on non-LOE assignments primarily related to planning assignments.

#### Strategy for selecting assignments and LOEs

For the upcoming planning period our strategy for selecting programs/projects for review is based primarily on known Congressional interest. We also anticipate Congressional needs by selecting acquisitions using a variety of factors such as high cost, multi-agency participation, technical sophistication, and anticipated usage. After completing research on the program/project we make a professional judgement as to which assignment can be accomplished within time and resource constraints. We determine which LOE is to be used in an assignment based on the particular acquisition phase the program or project is in, the issues developed in previous reports, and the objectives of the LOE. We believe that our research, professional judgement and work on previous assignments provide a reasonably disciplined approach for selecting a specific LOE for a particular assignment. Additional information used for selecting each LOE is addressed under each LOE in this plan (see pp. 24, 25, 31, 39, 44, 46, 51, 54, 56, 59, and 63.)

#### Planning Future SDA Work

Our program plan is the basis for initiating most of our systems development and acquisition work over the next 18 months. Our planned work will focus on current areas-of-concern. Each area-of-concern contains one or more lines-of-effort and they, in turn, are addressed by individual assignments.

Planning work on major acquisitions has historically been one of joint planning between headquarters and regional offices. Much of the time this included assembling representatives from the regions and headquarters at annual conferences to discuss the direction of effort and specific assignments. Many times there was participation by agency personnel and others. Our work plan is coordinated annually with staff members from key committees and they are kept advised of events as work progresses.

Our April 1979 annual conference included participation by representatives from our regional offices and sister agencies CRS, CBO, and OTA. Our April 1980 conference was attended by representatives from involved Regional Offices. At that conference we convened a panel of Defense experts who critiqued our work and offered suggestions as to how we could improve our work in the future.

Selected LOEs were also the subject of discussion by the Comptroller General's consultant panel for defense at a meeting on February 28, 1981. The proposed plan reflects the concerns of the panel which center on reliability, maintainability, operability, inflation and the acquisition process.

Although involved Regional Offices have always participated in planning it has not always been in a formal manner. Nevertheless, we rely heavily on the expertise of Regional Offices and headquarters personnel to contribute ideas based on their evaluation and analysis of existing assignments. As a result of past and present assignments, they have developed an expertise at the management and evaluator levels in the regions that we believe will continue to help provide the right focus to our planned work.

We have also held conferences below the subdivision level in which the regional offices were heavily involved. At these conferences specific assignments and plans for future assignments at the group or organizational area of responsibility are discussed. During calendar year 1980 four such conferences were held concerning:

--Strategic Missions and Systems Group Conferences,  
August 11-15, 1980.

--Tactical Sea Missions and Subsystems Group  
Conference, October 15, 1980.

--Tactical Land Warfare Group Conference, November  
18 & 19, 1980.

--Tactical Air Warfare Planning Group Conference,  
December 9 & 10, 1980.

The foregoing conferences provided the planning necessary for our current assignments as shown in this plan.

In preparing this plan we contacted those Regional Offices where front end goals were established and they have provided the following suggestions.

#### Regional Office Suggestions

There are a number of Regional Offices which have always made a major commitment to GAO's work on the development and acquisition of major systems. As indicated earlier, these regions have been deeply involved in planning work and their contributions over the past 10 years is a matter of record. Recently, actions have been initiated which are designed to better capitalized on the strengths of the field staff in program plan development. As part of these actions most of the involved Regional Offices have established front-end staff day goals and designated key regional people to be responsible for program planning and work related to the SDA issue area. These regions anticipate that even greater contributions can be made in the future particularly at the line-of-effort and above level of planning. Several recurring themes related to defense work were noted in the Regional Offices input.

Of these, the themes which came up most frequently are (1) increasing complexity of weapon systems, (2) need to increase reliability/maintainability of weapon systems, (3) increased attention to man/machine interfaces, and (4) shortages of critical materials possibly impacting the development and acquisition of weapon systems.

Specific suggestions include the following.

(1) Suggest the following question be included in LCE 3054 which deals with adequacy of testing and evaluation.

"Do test objectives provide for testing and evaluation of man/machine interfaces including evaluation of (1) skill levels needed by operational personnel, (2) reliability, and (3) maintainability (simplicity of design and accessibility)?"

(2) Suggest the following questions be added to LOE 3006 which deals with improvements in the acquisition process to reduce cost of ownership of systems.

"Do decision and contractual documents explicitly require consideration of man/machine interfaces to reduce system complexity and increase reliability and maintainability?"

"Is program management structured to provide oversight and assure that man/machine interfaces are considered during development, test and evaluation, by all acquisition levels--user, contractor, and program personnel?"

"Is adequate consideration given, early in the acquisition process, to manpower and logistics needs to assure development and deployment of effective systems?"

(3) Suggest consideration be given to establishing a LOE on the adequacy of planning and management of critical materials to support the development and acquisition of military systems.

(4) Suggest a new line-of-effort (LOE) be established to address adequacy of the management of development and acquisition of software and related equipment for weapon systems.

Except for the last suggestion, all have been incorporated in the proposed plan. We will address software and related equipment as an integral part of our scheduled reviews.

Regarding civil acquisitions we asked all regions for their ideas as to potential work in their regions. Input was received from seven. It is our plan to achieve a level of coordination in this area at least equal to that expected on defense work.

#### STATISTICS

Resources (staff years) expended by Division in the Procurement of Major Systems issue area in the 18 months ending March 31, 1961 were:

<u>Division</u>	<u>Primary</u>	<u>Secondary</u>
CED	-	8.6
EMD	-	3.1
FGMSD/AFMD	-	0.9

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GGD	1.7	-
IPE	-	1.4
LCD/PLRD	-	6.9
PSAD/MASAD	<u>319.9</u>	<u>12.3</u>
Total	<u>321.6</u>	<u>33.4</u>

In the 18-month period approximately 49 percent of our work was in the basic legislative responsibilities category, about 35 percent in the standing commitments category, and 16 percent in Committee Chairman category. The reason that requests from Committee Chairmen is not higher is that our coordination process with the committees' staff precludes the need for specific requests. As mentioned earlier our individual systems are priority #1 based on a standing commitment to the Congress.

#### Specific Accomplishments of SDA

During the period October 1, 1979 to March 31, 1981, we have issued 102 reports relating to the Procurement of Major Systems issue area. Recipients of these reports are summarized in the following table. In addition to the reports issued, we closed 24 Congressional requests by testimony, oral, or informal communications during the same period.

<u>Reports</u>	<u>October 1, 1979 to March 31, 1981</u>
To the Congress	47
To Committee or Subcommittee Chairmen	28
To individual Members of the Congress	5
To Agency/Department Officials	22

In the systems development and acquisition area we processed 14 accomplishment reports relating to the Procurement of Major System issue area during the period October 1979 thru March 1981. These accomplishment reports are summarized in the following table. (Also, see Appendix II.)

<u>Type of Accomplishment</u>	<u>Number of Reports</u>	<u>Dollar Amount (Million)</u>
Measurable Savings-Recurring	0	N/A
Measurable Savings-Non-recurring	6	\$207.6
Savings not measurable	3	N/A
Other benefits	<u>5</u>	<u>N/A</u>
Total	<u>14</u>	<u>\$207.6</u>

#### Briefings to Staff of Congressional Committees

Our practice for the past several years has been to annually brief staff members on our annual work and other ongoing assignments. Our last such briefing was presented on November 6, 1980, to approximately 25 staff members representing 8 different committees.

#### Questions Presented to Committees

Our practice has been to provide interested committees with pertinent questions for use in authorization and appropriation hearings. Our most recent package containing over 500 questions was furnished in January 1981 to staff directors of the principal committees.

#### Actions Taken on Previous Guidance of the Program Planning Committee

On August 2, 1979, the following PPC guidance/comments relative to Systems Development and Acquisitions were provided.

1. Revise and Coordinate the LOEs on R&D Management and Technology Issues with OPP. This was accomplished before issuing PSAD's October 1979 Program Plan. Further, as a result of Subdivision re-alignment, the three existing LOEs on R&D Management and Technology are consolidated into one LOE in this plan. (See p. 1 and Chapter 6.)
2. Issue Area Boundaries. The potential for overlap in the defense area was minimized as a result of our January 5, 1981 reorganization.



Agreements have been worked out with a number of Divisions. (See Appendix III.)

3. Fine Line Between Auditing Military Requirements and Mission Needs. SDA's Program Plan no longer identifies mission analysis or determination of mission needs as LOEs. The new Mission Analysis Subdivision now has this responsibility. However, SDA will ensure that it does not make judgement on military strategy and tactics or threat assessments. All our work will be in accord with the November 1979 Comprehensive Audit Manual guidance on "Review of Military Programs," Chapter 2, page 13.
4. Multi-Year Contracting. SDA recognizes the benefits of multi-year contracting and will continue to present this message to Congress. We currently have a report in process which presents the benefits of multi-year contracting on Navy shipbuilding programs. PSAD-30-6 dated November 8, 1979 "Impediments to Reducing the Costs of Weapon Systems" also addressed problems resulting from funding instability. Because of increasing interest in this procurement technique on the part of the Congress, testimony on Multi-Year Contracting was presented by the Director, MASAD, on November 17, 1980, March 10, 1981, and March 31, 1981.
5. Development of Nuclear Weapons by DCE. The PPC suggested that PSAD take a quick "new" look at the desirability and feasibility of transferring nuclear weapons development to DOD. We reported to the Comptroller General that such a transfer would not, in our opinion, be in the best National interest. Our study did not identify any significant benefits of transferring the nuclear weapons functions elsewhere. (See p. 84, Appendix IV.)

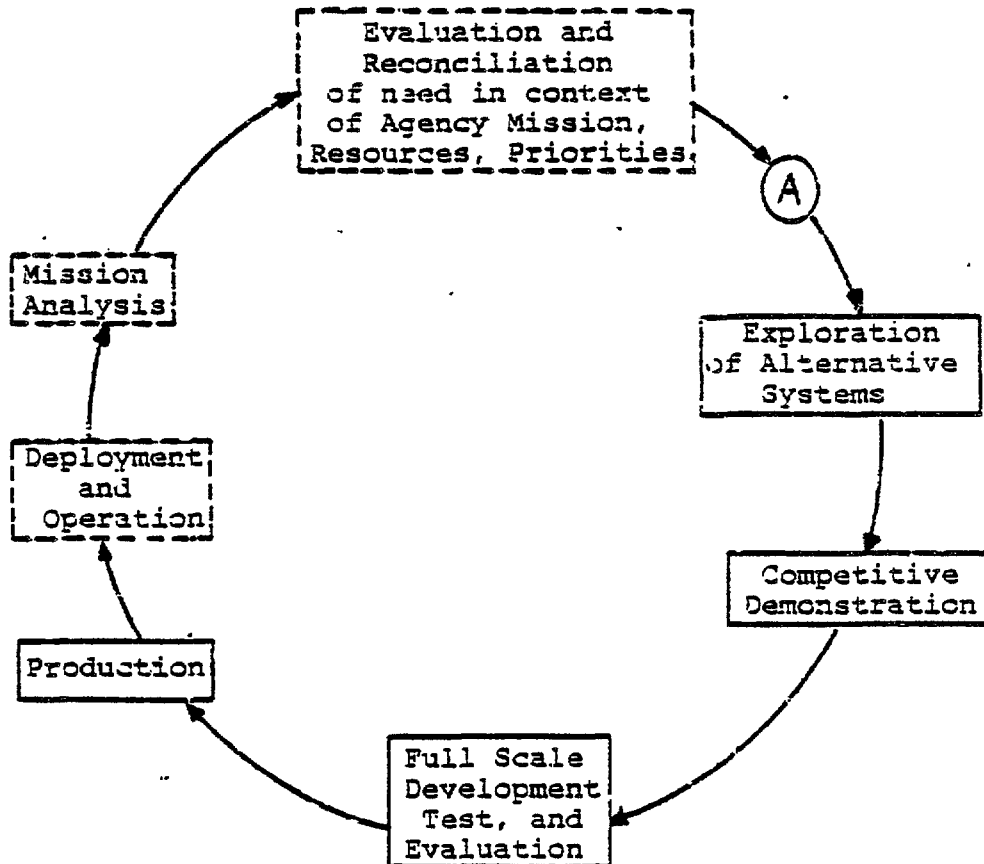
CHAPTER 2

SYSTEMS DEVELOPMENT AND ACQUISITION

ISSUE AREA STATEMENT

The Systems Development and Acquisition (SDA) issue area-- issue area 3000--accounts for all the planned work of the SDA subdivision. The work of SDA is related to the major acquisition cycle as illustrated below in the solid blocks. "Deployment and Operation" activities are usually the responsibility of PLRD. The two remaining activities are Mission Analysis activities.

MAJOR ACQUISITION CYCLE



A Mission Element Needs Statement (Circle A) is submitted for approval at this point in the cycle. Approval of the mission need starts the major system acquisition process by granting authority to explore alternative system design concepts. SDA assignments will normally start at this point. However,

much of our work dealing with new acquisition programs depends on what mission analysis work is done early on in the acquisition cycle. We will, therefore, maintain close coordination with the new Mission Analysis Subdivision which has responsibility for activities related to mission analysis and the evaluation and reconciliation of need.

Further, we believe it may be necessary to do work in this area in individual weapon system reviews. Establishing the mission need for a new acquisition program is one of the most vital areas for improving the systems acquisition process. Therefore, where necessary, we may review documents which reconcile need in terms of mission, resources, and priorities.

"Deployment and Operation" activities are usually the responsibility of PLRD. However, as discussed in this plan, many activities of the acquisition cycle relate to the operability of equipment. Therefore, close coordination between SDA and PLRD will be required. (See Appendix III.)

#### AREAS OF CONCERN

In our October 1979 plan we made several decisions that changed the thrust of our work somewhat during the current 18 month period and for the next several years. Assignments were directed towards:

- Evaluations of the decisions being made during the research, development, and testing phases of major programs that have a major impact on reliability, maintainability, and readiness.
- Macro evaluations of the acquisition process. Recent criticism by congressional committees and complaints from agency managers are directed towards the cost, complexity, and excessive timeframes inherent in current management concepts.
- Evaluations of the scope and purpose of research and development in DOD, NASA, and the DOE weapons complex.

As described in later chapters of this plan, progress has been made in these areas but much remains to be done. We will, therefore, continue to direct significant resources to these areas. In order to highlight their importance, our proposed plan establishes areas-of-concern and new or revised lines-of-effort. Our lines-of-effort have also been revised to reflect organizational changes and to eliminate LOEs designated as non priority.

The thrust of our work for the next program plan period is reflected in the following four areas-of-concern.

- Provide the Congress with independent evaluations of individual acquisition programs and periodic evaluations of agency reporting systems. (See Chapter 3.)
- Determine the adequacy and effectiveness of agency efforts to reduce total costs and increase the effectiveness of major acquisitions. (See Chapter 4.)
- Determine the effectiveness of the management strategies used by Federal agencies for the development and acquisition of major programs. (See Chapter 5.)
- Determine the adequacy of technology base <sup>1/</sup> activities to support development of major programs. (See Chapter 6.)

Each SDA area-of-concern is discussed in subsequent chapters of this plan.

The following crosswalk table (Table 1) shows changes to our LOEs due to organizational realignments and those made to recognize changing priorities in our work.

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<sup>1/</sup>The technology base activities encompass the earliest phase of the acquisition process, including basic and applied research programs. Basic research provides the fundamental knowledge and applied research uses this knowledge to determine where it can be applied.

TABLE 1

AREA-OF-CONCERN: PROVIDING THE CONGRESS WITH INDEPENDENT EVALUATIONS OF ACQUISITION PROGRAMS AND PERIODIC EVALUATIONS OF AGENCY REPORTING SYSTEMS

STAFF YEARS USAGE		PLANNED STAFF YEARS	
PLANNED FY 1990	ACTUAL FY 1989	4/01/81 THRU 2/29/91	4/01/81 THRU 2/29/91
19	42	10.3	38
50	43	0.8	-0-
73	51	45.5	55
NON-PLDE	3	1.0	-0-
		<u>73.0</u>	<u>100</u>

ACTUAL  
10/01/80-  
03/31/81

Previous LOE

Proposed LOE

No Change

3001--Is the Congress being provided with accurate, objective, and complete information on the status and significant issues concerning systems for which funds are being requested?

3002--Are mission needs and alternative solutions being adequately defined and analyzed prior to the initiation of a program to acquire a system?

3003--To what extent do the systems currently being acquired satisfy mission needs?

3052--Is the quality of cost estimates adequate to support acquisition program management decisions and budget requests?

Dropped as SDA LOE--Responsibility for broad mission area analysis has been transferred to the new Mission Analysts Subdivision. SDA's involvement relates to analyses supporting individual systems.

Revised LOE--To what extent do the systems currently being acquired satisfy the agency's approved program performance thresholds?

Dropped as SDA LOE --This effort is considered in our work on individual programs.

SUBTOTAL



TABLE 1 (CONTINUED)

**AREA-OF-CONCERN: DETERMINE THE EFFECTIVENESS OF THE STRATEGIES USED BY FEDERAL AGENCIES FOR THE DEVELOPMENT AND ACQUISITION OF MAJOR PROGRAMS.**

STAFF YEARS USAGE					PLANNED STAFF YEARS	
PLANNED FY 1980	ACTUAL FY 1980	ACTUAL 10/01/80- 03/31/81	Previous LOE	Proposed LOE	4/01/81 Thru 9/30/81	FY 1982
18	8	5.7	3004--What has been the impact of ONI Circular A-109 and other management strategies on acquisition programs in terms of helping Federal agencies acquire systems which are affordable, satisfy the need, and which are available on time?	Revised LOE--Eliminate "and other management strategies." Separate LOEs have been developed in order to place emphasis on other strategies.	3.5	10
NON- PLOE	0	0	3053--Have the advantages and disadvantages of concurrent development and production of acquisitions been properly addressed?	Dropped as SDA LOE--This effort will be considered in individual system work and in the above LOE.	0	0
18	0.3	0.2	3005--How are US acquisitions and procurement problems affected by cooperating with foreign countries in the development, production, or sale of systems?	Equivalent LOE--How is the development and acquisition of major programs affected by cooperating with foreign countries in the development, production, or sale of systems?	0.3	5
				New LOE--Is the Defense Department and its components requesting multiyear contracting authorization for weapon systems where advantageous to the Government and have results been beneficial to the Government?	-	5
				New LOE--What has been the impact, or potential impact, of acquisition strategies such as Preplanned Production Improvements, which provide for planned efficient growth in capabilities?	-	5
36	8.3	5.9		SUBTOTAL	3.8	25

TABLE 1 (CONTINUED)

**AREA-OF-CONCERN: DETERMINE THE ADEQUACY OF TECHNOLOGY  
BASE PROGRAMS TO SUPPORT DEVELOPMENT  
OF MAJOR PROGRAMS.**

*STAFF YEARS USAGE					PLANNED STAFF YEARS	
PLANNED FY 1960	ACTUAL FY 1980	ACTUAL 10/01/80- 03/31/81	Previous LOE	Proposed LOE	4/01/81 Thru 9/30/81	FY 1982
14	7	5.0	3008--How can the management and oversight of technology base activities be improved?		0.9	
12	17	6.4	3009--Are technology base programs adequately supporting mission agency needs?	<b>Revised LOE--Does the management and oversight of technology base programs insure that technology resources are being used in the most efficient and effective manner and support the development and acquisition of agency programs?</b>	7.3	26
10	8	3.8	3010--Are mission agency technology base resources being used in the most efficient and effective manner?		8.6	
<u>36</u>	<u>32</u>	<u>15.4</u>			<b>SUBTOTAL</b>	<u>16.7</u>
NON-PLOE	13	10.2	3051--Non-LOE assignments.	No Change	11.9	20
<u>258</u>	<u>232.1</u>	<u>90.7</u>		<b>TOTAL</b>	<u>129.2</u>	<u>210</u>

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### CHAPTER 3

AREA-OF-CONCERN: Providing the Congress with independent evaluations of acquisition programs and periodic evaluations of agency reporting systems.

GAO annual reviews of major weapon programs began in 1969, when the Congress called upon GAO to report on the progress of various individual major weapons acquisition programs. The purpose was to fill a void which existed and was to provide committees and members of the Congress with more reliable information on which to base judgment concerning issues involving its oversight and legislative functions. This annual recurring work has been performed as priority #1 work. As indicated in Chapter 1, work on this group of reports which numbers about 20-25, is carried out under this and various other LCEs. In 1973, we began reporting similar information on civil agency programs as priority 2 work. All of our other major acquisition work has been priority 2 unless a specific congressional request is received.

The magnitude of these acquisitions is shown in MASAD-61-13 which identified 186 major programs in defense having a total cost of \$437 billion and 854 programs in 30 other Federal agencies which have an estimated cost of \$340 billion. In that report defense programs are classified as major if acquisition cost exceeded \$300 million and civil program if they exceeded \$25 million.

Obtaining objective information on the status, progress, and issues of individual programs for which funds are being requested is still a key concern of the Congress. The Congress' need for this information is time sensitive and it must be available prior to the annual authorization or appropriation requests by the executive agencies for funds to begin new programs or continue existing programs.

Since we began reporting annually on major defense systems, there has been considerable improvement in DOD's external reporting systems. For DOD programs this includes Selected Acquisition Reports, Congressional Data Sheets, and Descriptive Summaries. In recent work GAO has found most reports to be properly prepared but also found many instances of incomplete, misleading, and/or outdated information in reports submitted to the Congress. The issues involved are the accuracy, validity, timeliness, completeness and value of the information provided to the Congress on the cost, schedule, and performance of major systems.

Two lines-of-effort are included for this area-of-concern:

--Is the Congress being provided with accurate, objective and complete information on the status and significant issues concerning systems for which funds are being requested?

--To what extent do systems currently being acquired satisfy the agency's approved program performance thresholds?

## LOE 3C01

LINE-OF-EFFORT: Is the Congress being provided with accurate, objective, and complete information on the status and significant issues concerning systems for which funds are being requested?

### MAJOR ISSUES

Each year a major portion of the Federal budget is spent on acquiring programs which require years to develop, have high visibility, and have a high total cost. Such programs are the acquisition of multibillion dollar weapon systems as well as acquisition by civil agencies to carry out important national programs, e.g. NASA's Space Transportation System and DOE's coal liquefaction plants.

Our work under this LOE is in three categories.

1. To provide annual reports to the Congress on the status and significant issues concerning selected agency programs to support annual authorization and appropriations deliberations.
2. To provide the Congress with an annual information report on the magnitude of Federal major acquisitions highlighting vital statistics.
3. To periodically review and evaluate the validity and completeness of information provided in agency reports to the Congress.

Our work on individual acquisitions is designed to concentrate on systems/projects and to highlight key issues as the programs mature. Work on new major acquisitions is usually performed under this LOE. As the programs successfully pass critical acquisition decision points, our work is directed to new issues and that individual system work is performed under other LOEs which address the issues being developed. By anticipating the needs of the Congress in this area, GAO has helped to ensure adequate Congressional visibility on major acquisitions. Staff on these assignments, whether in the field or headquarters, are always prepared to brief staff of Congressional committees on request. The key committees have made extensive use of our reports and have indicated a continuing need for this type of assistance. They have also expressed appreciation for the questions on major programs which we also provide on an annual basis.

This work is of a recurring nature and the issues center on the soundness of the underlying analysis and resultant decisions at all points of the 5-10 or 15-year acquisition cycle. These individual reports also serve as a basis for identifying and disclosing not only the issues on an individual system or

project, but also broader issues such as the adequacy of planning, potential for changes in planning, and other changes that may be needed in acquisition practices.

The quality of information presented in reports prepared by various agencies on a quarterly or annual basis and provided to the Congress to support budget requests is another issue under this LOE.

The third issue is our annual report on the financial status of major civil projects and defense systems being acquired by Federal agencies and departments. This is the only document in the Government which presents statistics on all major acquisitions and we have been told by Congressional staff members that it allows them to quickly determine the reason and magnitude of cost increases in Federal acquisitions. In the past this effort required about one staff year of effort annually.

#### Objectives Under Existing Plan

The objective of the existing LOE was to examine the accuracy, validity, completeness, timeliness, and value of data reported to the Congress on systems being acquired. The specific questions to be addressed in achieving this objective were:

1. Are the congressional committees satisfied with the reports being provided to them? What, in their opinion, are the major shortcomings in the reports?
2. In what form is the information being presented to the Congress?
3. What acquisitions have had shortcomings in performance, experienced excessive cost growth, and/or experienced significant schedule slippage? Are changes in cost, schedule, and performance substantiated?
4. Are original estimates for program baselines, schedules, and performance adequately disclosed to the Congress?
5. Is the baseline information adequate to explain the primary characteristics of the system?
6. Do the reports submitted to the Congress reflect all changes that have occurred from the baseline?
7. Are deficiencies adequately explained, and are they reported in a timely manner to the Congress?
8. Are adjustments in the data made after it is originally prepared and before submission to the Congress?

9. Is the information relevant? Does it provide information on the real issues?
10. Is the information presented in a concise and clear manner?
11. Is the information presented misleading or incorrect?
12. What improvements could be made in presenting information to the Congress?

Results achieved under  
the existing program plan

Of 24 individual weapon system reports provided to Congress early in 1981, five were performed under this LOE. The issues presented in each of the 24 reports, and our recommendations to the agencies or the Congress, are summarized in MASAD 81-26, May 14, 1981, entitled "Acquiring Weapon Systems In A Period Of Rising Expenditures: Implications For Defense Management". The report points out that rapid growth in defense expenditures in the next few years makes it especially important for the DOD to exercise tight control over the development and acquisition of weapon systems. The programs, issues, and recommendations from that summary report are presented in table 2 (See pp. 27 and 28.)

Concerning report systems, the specific issues involved were the validity and completeness of information in reports submitted to the Congress to support the agency's positions on major programs. For example, we completed a review of the adequacy of test information presented to the Congress--"Need For More Accurate Weapon System Test Results To Be Reported To Congress" (PSAD-79-46). In that report we pointed out that Congressional Data Sheets reporting test results on 15 weapon systems were incomplete, misleading and/or outdated. Corrective actions were initiated by DOD.

In our report, "SARs-Defense Department Reports That Should Provide More Information To the Congress" (PSAD-80-37, May 9, 1980), we pointed out that DOD had reported incomplete information to the Congress on major weapon systems. In our classified report "DOD Information to the Congress on Major Weapon Systems Could Be More Complete and Useful" (C-PSAD-80-25, May 9, 1980), we reported on a number of reporting systems on major weapon systems.

Subsequent to our work corrective actions were initiated by Defense. However, Defense did not act on some of our recommendations some of which we were repeating for the second time. Therefore, in a March 1981 report (MASAD-81-7) we recommended that the Congress require the Secretary of Defense make certain changes to the reporting systems which would result in improved congressional oversight of major weapons systems and

overall better management. At this writing we are not able to determine if Defense made the changes we recommended or if the Congress will adopt our recommendations.

#### WORK REMAINING UNDER THE LOE

Individual programs, as appropriate, will continue to be examined under this LOE. As a result of our completed work on improving the quality of agency reporting, actions taken by agencies on our recommendations, and our recent recommendations to the Congress, we plan no work on reporting systems used by the Department of Defense in this planning period.

#### Strategy for the upcoming Planning period

For this 18 month planning period our assignments in support of this LOE will focus on individual acquisitions or projects in order to highlight key issues to the Congress as the programs mature. Our work will be directed, as needed, to emerging program acquisitions and will support the annual authorization and appropriation process. We also plan to provide the Congress with our annual information report on major Federal acquisitions.

In order to identify systems for review we continually research individual programs to determine which critical issues should be developed in reports to the Congress. We then select individual major programs for review with the intent of providing the resultant reports to Congress early in the next year for use in authorization and appropriation hearings. Depending upon a variety of factors such as the stage of development of the system and the thrust of the audit work planned, the assignment may or may not be achieved under this LOE.

#### Specific Considerations to be Addressed in Achieving the Objectives of this LOE

Executive agencies provide in their directives, regulations, circulars, guidelines, etc., very specific instructions on acquiring major systems. In the Department of Defense these require rigid determinations/evaluations of:

- mission analysis
- operational requirements
- threat
- acquisition strategy
- management
- planning and budgeting

- cost estimates (Previously an LOE)
- cost-effective solutions
- thresholds for cost, schedule, performance
- supportability
- design-to-cost
- affordability
- survivability and vulnerability (Previously an LOE)
- resources to acquire and operate
- timeliness
- concurrency (Previously an LOE)
- joint programs
- competitive development
- alternative concept solutions
- standardization

Such determination/evaluations must be made at four major milestones during the 5 - to 10 or 15 year period it takes to acquire major systems. These have been identified as follows:

- ~~Milestone Zero~~ - Program Initiation Decision
- ~~Milestone I~~ - Demonstration and Validation Decision
- ~~Milestone II~~ - Full Scale Development/Initial Production
- ~~Milestone III~~ - Production/Deployment Decision

Preceding milestone zero and at each milestone in the cycle there are specific phase objectives, activities, policy guidelines, system issues, and management issues concerning the above evaluations/determinations.

Our work is directed to the particular phase an acquisition is in or about to enter at the time of our work and whether critical phase objectives, activities, management issues etc., have been adequately validated/demonstrated before proceeding to next phase of the cycle.

#### Ongoing assignments

Of the twenty priority #1 individual weapon system reports we plan to issue early in 1982, five are included under this LOE. These assignments, shown below, were selected to help achieve the objectives of this LOE. The assignments represent relatively new development programs or current acquisitions where little recent audit work was performed. As such our work is concerned with activities/objectives normally associated with program initiation decisions (milestone 0), demonstration and validation decisions (milestone I), and some milestone II decisions. While we do not have a hard and fast rule for selecting assignments to help meet

LOE objectives. We believe that our research, judgement, and past work assignments provide a reasonably disciplined approach for selecting systems for review under this LOE.

The five are:

1. Review of Trident program
2. Review of the Advance Light Weight Torpedo
3. Review of the C-X aircraft program
4. Review of Anti-Submarine Warfare Standoff Weapons
5. Review of MX missile program

Others underway include a survey of San Francisco's \$2.0 billion Wastewater program; survey of NASA's Space Transportation System Operations Cost and User Prices; and a review of NASA's Landsat-D Program.

Some anticipated results of this work include identifying system effectiveness and program acquisition management issues and making recommendations to the Congress or Agency head to minimize development risks, ensure effectiveness, or reduce costs of major programs. In some cases we expect that our reports will also improve the disclosure of system issues not previously considered by the Congress.

#### Planned Assignments

Individual systems will be identified as early as practical in CY 1982 and programmed for work during the balance of 1982 with report issuance dates of January/February 1983. Command, control and communication systems included in this work would use experts from the our subdivision responsible for that type work.

Surveys are also planned of the \$320 million acquisition of the Next Generation Weather Radar by the National Oceanic and Atmospheric Administration; of the Corps of Engineers \$2.1 billion Central and Southern Florida Flood Control Project; and NASA's role in space shuttle operations.

Attachment IAttachment I

LOEs To Be Approved for MASAD's  
Systems Development and Acquisitions  
Issue Area (3000)

- Is the Congress being provided with accurate, objective, and complete information on the status and significant issues concerning systems for which funds are being requested?
- To what extent do the systems currently being acquired satisfy the agency's approved program performance thresholds?
- What is being done during the development and acquisition process to achieve the proper balance by trade-offs between development and acquisition costs, design to cost constraints, and ownership costs yet maintain adequate system performance and operational effectiveness?
- To what extent is testing and evaluation of acquisitions effectively planned, conducted, reported and considered in decision making? And, what is being done in Development Test and Evaluation and Operational Test and Evaluation to insure that reliability, availability, maintainability, and human reliability requirements are being met?
- Does planning for major acquisitions adequately consider potential critical material shortages on system cost, schedule, and performance goals?
- What has been the impact of OMB Circular A-109 on acquisition programs in terms of helping Federal agencies acquire systems which are affordable, satisfy the need, and which are available on time?
- How is the development and acquisition of major programs affected by cooperating with foreign countries in the development, production, or sale of systems?
- Is the Defense Department and its components requesting multiyear contracting authorization for weapons systems where advantageous to the Government and have results been beneficial to the Government?
- What has been the impact, or potential impact, of acquisition strategies such as Preplanned Production Improvements which provide for planned efficient growth in capabilities?



Attachment IAttachment I

--Does the management and oversight of technology base programs insure that technology resources are being used in the most efficient and effective manner and support the development and acquisition of agency programs?

- Unit cost report. “(3) ‘Procurement program’ means a program for which funds for procurement are authorized to be appropriated in a fiscal year.
- Ante. p. 739 “(b) The program manager for a defense acquisition program that as of the end of a fiscal-year quarter is a major defense acquisition program (other than a program not required to be included in the Selected Acquisition Report for that quarter under section 139a(b)(3) of this title) shall, not more than 7 days after the end of that quarter, submit to the Secretary concerned a written report on the unit costs of the program. The program manager shall include in each such unit cost report the following information with respect to the program (as of the last day of the quarter for which the report is made):
- Information “(1) The program acquisition unit cost.
- “(2) In the case of a procurement program, the procurement unit cost.
- “(3) Any cost variance or schedule variance in a major contract under the program since the baseline Selected Acquisition Report was submitted.
- “(4) Any changes from program schedule milestones or program performances reflected in the baseline Selected Acquisition Report that are known, expected, or anticipated by the program manager.
- “(c)(1) If the program manager of a major defense acquisition program for which a unit cost report has previously been submitted under subsection (b) determines at any time during a fiscal-year quarter that there is reasonable cause to believe—
- “(A) that the program acquisition unit cost for the program has increased by more than 15 percent over the program acquisition unit cost for the program as shown in the baseline Selected Acquisition Report;
- “(B) in the case of a major defense acquisition program that is a procurement program, that the current procurement unit cost for the program has increased by more than 15 percent over the procurement unit cost for the program as reflected in the baseline Selected Acquisition Report; or
- “(C) that cost variances or schedule variances of a major contract under the program have resulted in an increase in the cost of the contract of at least 15 percent over the cost of the contract as of the time the contract was made;
- and if a unit cost report indicating an increase of such percentage or more has not previously been submitted to the Secretary concerned during the current fiscal year (other than the unit cost report under subsection (b) for the last quarter of the preceding fiscal year), then the program manager shall immediately submit to the Secretary concerned a unit cost report containing the information, determined as of the date of the report, required under subsection (b).
- “(2) If in any fiscal year the program manager for a major defense acquisition program has submitted to the Secretary concerned a unit cost report (other than the unit cost report under subsection (b) for the last quarter of the preceding fiscal year) indicating an increase of 15 percent or more in a category described in clauses (A) through (C) of paragraph (1) and subsequently determines that there is reasonable cause to believe—
- “(A) that the current program acquisition unit cost of the program has increased by more than 5 percent over the current program acquisition unit cost as shown in the most recent

report under this subsection or subsection (b) submitted to the Secretary concerned with respect to that program;

“(B) in the case of a major defense acquisition program that is a procurement program, that the current procurement unit cost for the program has increased by more than 5 percent over the current procurement unit cost as shown in the most recent report under this subsection or subsection (b) submitted to the Secretary concerned with respect to that program; or

“(C) that cost variances or schedule variances of a major contract under the program have resulted in an increase in the cost of the contract of at least 5 percent over the cost of the contract as shown in the most recent report under this subsection or subsection (b) submitted to the Secretary concerned with respect to that program;

the program manager shall immediately submit to the Secretary concerned a unit cost report containing the information, determined as of the date of the report, required by subsection (b).

Report.

“(d)(1) When a unit cost report is submitted to the Secretary concerned under this section with respect to a major defense acquisition program, the Secretary shall determine whether the current program acquisition unit cost for the program has increased by more than 15 percent, or by more than 25 percent, over the program acquisition unit cost for the program as shown in the baseline Selected Acquisition Report.

“(2) When a unit cost report is submitted to the Secretary concerned under this section with respect to a major defense acquisition program that is a procurement program, the Secretary concerned shall, in addition to the determination under paragraph (1), determine whether the current procurement unit cost for the program has increased by more than 15 percent, or by more than 25 percent, over the procurement unit cost for the program as reflected in the baseline Selected Acquisition Report.

“(3) If the Secretary concerned determines (for the first time since the beginning of the current fiscal year) that the current program acquisition unit cost has increased by more than 15 percent, or by more than 25 percent, as determined under paragraph (1) or that the current procurement unit cost has increased by more than 15 percent, or by more than 25 percent, as determined under paragraph (2)—

Unit cost increase: notification to Congress.

“(A) the Secretary shall notify Congress in writing of such determination and of the increase with respect to such program within 30 days after the date on which the unit cost report that is the basis for such determination was submitted to him and shall include in such notification the date on which the determination was made; and

“(B) except as provided in subsection (e), additional funds may not be obligated in connection with such program—

Obligated funds, prohibition.

“(i) after the end of the 30-day period beginning on the day on which the Secretary makes such determination, in the case of a percentage increase of more than 15 but less than 25 percent; or

“(ii) after the end of the 60-day period beginning on the day on which the Secretary makes such determination, in the case of a percentage increase of more than 25 percent.

“(e)(1) The prohibition in subsection (d)(3)(B) on the obligation of funds for a major defense acquisition program does not apply in the case of a program to which it would otherwise apply in the case of a

determination of a 15 percent increase (as determined under subsection (d)) if the Secretary concerned submits to Congress, before the end of the 30-day period referred to in such subsection, a report containing the information described in subsection (g).

"(2) The prohibition in subsection (d)(3)(B) on the obligation of funds for a major defense acquisition program does not apply in the case of a program to which it would otherwise apply, in the case of a determination of a 25 percent increase (as determined under subsection (d))—

"(A) if the increase was due to termination or cancellation of the acquisition program; or

"(B) if the Secretary of Defense submits to Congress, before the end of the 60-day period referred to in such subsection—

"(i) a written certification stating that—

"(I) such acquisition program is essential to the national security;

"(II) there are no alternatives to such acquisition program which will provide equal or greater military capability at less cost;

"(III) the new estimates of the program acquisition unit cost or procurement unit cost are reasonable; and

"(IV) the management structure for the acquisition program is adequate to manage and control program acquisition unit cost or procurement unit cost; and

"(ii) if a report under paragraph (1) has been previously submitted to Congress with respect to such program for the current fiscal year but was based upon a different unit cost report from the program manager to the Secretary concerned, a further report containing the information described in subsection (g), determined from the time of the previous report to the time of the current report.

Waiver.

"(3) The prohibition in subsection (d)(3)(B) on the obligation of funds for a major defense acquisition program shall cease to apply in the case of a program to which it would otherwise apply if, after such prohibition has taken effect, the Committees on Armed Services of the Senate and House of Representatives waive the prohibition with respect to such program.

"(f) Any determination of a percentage increase under this section shall include expected inflation.

"(g)(1) Except as provided in paragraph (2), each report under subsection (e) with respect to a major defense acquisition program shall include the following:

"(A) The name of the major defense acquisition program.

"(B) The date of the preparation of the report.

"(C) The program phase as of the date of the preparation of the report.

"(D) The estimate of the program acquisition cost for the program as shown in the Selected Acquisition Report in which the program was first included, expressed in constant base-year dollars and in current dollars.

"(E) The current program acquisition cost in constant base-year dollars and in current dollars.

"(F) A statement of the reasons for any increase in program acquisition unit cost or procurement unit cost.

"(G) The completion status of the program (i) expressed as the percentage that the number of years for which funds have been appropriated for the program is of the number of years for

which it is planned that funds will be appropriated for the program, and (ii) expressed as the percentage that the amount of funds that have been appropriated for the program is of the total amount of funds which it is planned will be appropriated for the program.

“(H) The fiscal year in which information on the program was first included in a Selected Acquisition Report (referred to in this paragraph as the ‘base year’) and the date of that Selected Acquisition Report in which information on the program was first included.

“(I) The date of the baseline Selected Acquisition Report.

“(J) The current change and the total change, in dollars and expressed as a percentage, in the program acquisition unit cost, stated both in constant base-year dollars and in current dollars.

“(K) The current change and the total change, in dollars and expressed as a percentage, in the procurement unit cost, stated both in constant base-year dollars and in current dollars.

“(L) The quantity of end items to be acquired under the program and the current change and total change, if any, in that quantity.

“(M) The identities of the military and civilian officers responsible for program management and cost control of the program.

“(N) The action taken and proposed to be taken to control future cost growth of the program.

“(O) Any changes made in the performance or schedule milestones of the program and the extent to which such changes have contributed to the increase in program acquisition unit cost or procurement unit cost.

“(P) The following contract performance assessment information with respect to each major contract under the program:

“(i) The name of the contractor.

“(ii) The phase that the contract is in at the time of the preparation of the report.

“(iii) The percentage of work under the contract that has been completed.

“(iv) Any current change and the total change, in dollars and expressed as a percentage, in the contract cost.

“(v) The percentage by which the contract is currently ahead of or behind schedule.

“(vi) A narrative providing a summary explanation of the most significant occurrences, including cost and schedule variances under major contracts of the program, contributing to the changes identified and a discussion of the effect these occurrences will have on future program costs and the program schedule.

“(2) If a program acquisition unit cost increase or a procurement unit cost increase for a major defense acquisition program that results in a report under this subsection is due to termination or cancellation of the entire program, only the information specified in clauses (A) through (F) of paragraph (1) and the percentage change in program acquisition unit cost or procurement unit cost that resulted in the report need be included in the report.”

(2) The table of sections at the beginning of such chapter is amended by inserting after the item relating to section 139 the following new items:

Contract performance assessment information.

Report exclusions.

10 USC 139.

"139a Oversight of cost growth in major programs: Selected Acquisition Reports.  
"139b. Oversight of cost growth in major programs: unit cost reports."

Repeal.

(b) Section 811 of the Department of Defense Appropriation Authorization Act, 1976 (10 U.S.C. 139 note), is repealed.

Effective dates.  
10 USC 139a  
note.  
*Ante*, pp. 739,  
741.

(c) Sections 139a and 139b of title 10, United States Code, as added by subsection (a), shall take effect on January 1, 1983, and shall apply beginning with respect to reports for the first quarter of fiscal year 1983. The repeal made by subsection (b) shall take effect on January 1, 1983.

#### OVERSIGHT OF DEFENSE EXPENDITURES

Report to  
congressional  
committees.

SEC. 1108. (a) Concurrent with the submission of the budget to Congress for fiscal year 1984, the Secretary of Defense shall submit to the Committees on Armed Services of the Senate and House of Representatives a report concerning the strength requested in such budget for civilian personnel for the Defense Contract Audit Agency, the Defense Audit Service, and the Defense Criminal Investigative Service. Such report shall state the number of such personnel at the end of fiscal year 1982, the number at the time the report is submitted, and the number requested in that budget and shall include a justification for the number requested. The report shall also include the opinion of the Secretary of Defense on whether the number requested is sufficient for those agencies to accomplish their functions with respect to the reduction of waste, fraud, and abuse in defense expenditures during the next fiscal year, particularly in light of any increases (in real terms) in the levels of appropriations requested in that budget for operations, procurement of new equipment, and for research, development, test, and evaluation.

Personnel data.

(b) The Secretary shall include in the report under subsection (a) information concerning the savings in defense expenditures achieved by the Defense Contract Audit Agency, the Defense Audit Service, and the Defense Criminal Investigative Service during fiscal year 1982, including a statement for each agency of the amount of such cost savings achieved as a percentage of the number of dollars spent by such agency during such year.

#### CONTINUATION OF TEST PROGRAM TO AUTHORIZE PRICE DIFFERENTIAL TO RELIEVE ECONOMIC DISLOCATIONS

10 USC 2392  
note.

SEC. 1109. (a) The Secretary of Defense should conduct a test program during fiscal year 1983 in accordance with this subsection to test the effect of exempting certain contracts of the Department of Defense from the provisions of section 2892 of title 10, United States Code, and paying a price differential under such contracts for the purpose of relieving economic dislocations. Under such test program, the Secretary of Defense may exempt from the provisions of such section any contract (other than a contract for the purchase of fuel) made by the Defense Logistics Agency during fiscal year 1983 if the contract is to be awarded to an individual or firm located in a Labor Surplus Area (as defined and identified by the Department of Labor) and if the Secretary determines—

Contract  
provisions.

(1) that the awarding of such contract will not adversely affect the national security of the United States;

(2) that there is a reasonable expectation that bids will be received from a sufficient number of responsible bidders so that



OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

25 January 1982

RESEARCH AND  
ENGINEERING

As you already know, a major objective of this Administration is to make substantial improvements in the acquisition process within the Department of Defense.

When the Department developed the 32 initiatives which comprise the Acquisition Improvement Program last April, we solicited the advice of individuals familiar with all aspects of the procurement system from both within and without government. We would like to encourage your continued participation in improving our management of the acquisition process.

The attached document represents a high-level review of our progress after six months. We have gone a long way toward our stated objectives, but have met some barriers. We believe that this Report identifies those barriers in a manner which will allow us to overcome them.

Deputy Secretary Frank C. Carlucci has directed that the permanent Acquisition Improvement Steering Group be charged both with monitoring progress and taking appropriate actions to assure rapid implementation of the initiatives. We welcome your continued comments and suggestions, and will give careful consideration to each. If you have any questions, my Executive Secretary of the Steering Group, Mr. Jim Wolbarsht, may be reached at (202) 695-1097.

I hope to have the chance to meet with as many of you as possible on a personal basis in the near future, and will also welcome your thoughts directly. Thank you again for your interest in acquisition management at the Department of Defense.

William A. Long  
Deputy Under Secretary  
(Acquisition Management)

Att.

# DEPARTMENT OF DEFENSE




## ACQUISITION IMPROVEMENT TASK FORCE

DECEMBER 23, 1981

THIS COPY AUTHORIZED FOR  
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JAMES L. WOLBARSHT  
Executive Secretary  
January 25, 1982





OFFICE OF THE UNDER SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

23 DEC 1981

RESEARCH AND  
ENGINEERING

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

SUBJECT: Final Report of the Task Force on Acquisition Improvement

On November 17, the Deputy Secretary of Defense directed the Council on Integrity and Management Improvement to establish a Task Force on Acquisition Improvement. The Task Force was directed to conduct a comprehensive review of progress to date on the Acquisition Improvement Program, and to present an implementation plan. On November 19, the Under Secretary of Defense for Research and Engineering held the initial meeting of the Task Force members, with the DUSDRE (Acquisition Management) as chairman. A listing of the Task Force membership is attached. The Task Force was divided into four teams to review progress on each of the 32 initiatives, coordinating work throughout with the permanent action officers in OUSDRE, the Services and DLA and others as appropriate. The report, attached as Tabs 1-32, is submitted in accordance with these directions.

The purpose of this report is to: (a) provide a detailed description of what has been accomplished to date, (b) identify significant barriers to implementation, and (c) make specific recommendations to overcome those barriers and to achieve prompt implementation of the initiatives. The principal focus of the Task Force has been on "implementation."

The key theme of the Task Force has been "enhanced management" of the acquisition process. This means management with, for example, better planning, more effective competition, more realistic cost estimates, adequate and stable funding, more economic production rates, greater use of multiyear contracting and improved readiness and support. Application of these basic management improvements to any individual program requires increased near-term funding in order to make the overall program less costly. Hard choices are necessary to identify funding offsets. The magnitude of our current affordability and prioritization problems constitutes an underlying barrier to effective implementation. Yet, the scarcer the resources, the better we must manage not only with respect to acquisition, but in all aspects of DoD's national defense responsibilities.

The Defense Guidance for Fiscal Years 1984-88 must articulate this issue and take positive steps to solve the mismatch between requirements and resources if we expect to make acquisition improvements. Actions currently underway to reconcile defense strategy and available resources are of paramount importance.

Effective implementation also depends upon proper application of decentralized management to the overall acquisition process. SecDef guidance has stated that "responsibility, authority, and accountability" for programs should be at the lowest levels of the organization at which a total viewpoint of the program rests. However, varying interpretations concerning how this guidance should apply have created some uncertainty and misunderstanding. In order to have any real effect,

decentralization must result in establishment of the decision maker for each program at as low a level as practicable and reductions in the multiple reviews now held at each decision point. Some success has been achieved, for example, by reducing the number of major programs reviewed by the DSARC. Similar actions have been taken by the Services. However, although it may be a bit early with respect to many programs, the perception from program and field level managers is that not enough reduction in review requirements has occurred. We recognize there are significant problems inherent in the implementation of decentralized management in the context of a political environment which sometimes encourages centralized decision making. Nevertheless, the Task Force believes it necessary to increase emphasis on implementation of this principle, including taking the necessary steps to remove any misunderstanding or uncertainty.

Overall, the Task Force concluded that considerable effort has been expended and that meaningful progress has been made in implementing the Acquisition Improvement Program since its initiation on April 30, 1981. In some areas, however, accomplishments have been limited. Ultimately, success will depend upon the dedication of those who believe that the program can and will work. More visible results must be accumulated and utilized as an effective tool to convert those who remain skeptical. Those initiatives not clearly understood must be clarified. In addition, we must leave no doubt that we are serious and must make day-to-day decisions in greater conformity with the initiatives.

In addition to these general observations, there are specific areas which merit special attention.

Program Stability: A major portion of the ultimate success of the Acquisition Improvement Program can be directly related to the degree to which programs are stabilized. Although some progress has been made, significant problems remain.

To achieve greater program stability, we must also achieve a greater degree of stability in the Service "topline" budget guidance. Many factors influence the topline guidance including ones outside of DoD. If this guidance changes significantly during the year as programming and budgeting decisions are being made, each Service must continually make adjustments and rebalance its program. Greater stability in topline guidance will help substantially to alleviate the problem. This is a key element of the Acquisition Improvement Program and, because it is largely outside the control of the Services, the highest levels within the Department of Defense must address this matter on a continuing basis.

Effective implementation of the initiatives connected to stabilization requires their immediate incorporation into the planning process. The Fiscal Year 1984 Defense Guidance must reflect the thrust of the Acquisition Improvement Program. In the near future, OUSDRE and MRA&L will brief the Defense Resources Board on the mismatch between requirements and the resources in the Draft Guidance. Solutions must be found which are consistent with the Acquisition Improvement Program. Otherwise, problems are certain to arise in the Fiscal Year 1984 POMs and full implementation of the initiatives may be slowed.

Important procedural steps toward near-term stabilization such as improved guidance, a stable programs list, and a special Defense Resources Board meeting on new starts and economical production rates were implemented during the Fiscal Year 1983 program and budget review. But the outcome of some of these actions has been disappointing. The stable programs list, for example, is not yet definitive. Recognizing that not all programs can be "stable," nonetheless difficult choices with respect to matters such as vertical cuts will have to be made. Skepticism exists that OSD will or can execute a stable programs concept by providing the long-term commitment of funding at levels required to achieve stability even though this may inhibit flexibility.

Unforeseen reductions during development of the Fiscal Year 1983 budget contributed to destabilization of a number of acquisition programs. Some programs which had been restored to more economical production rates through the Fiscal Year 1981-82 Budget Amendment subsequently were proposed for cancellation, reduction, or stretchout in order to meet the new fiscal constraints. Follow-on action by the Defense Resources Board to restore economical production rates only partially compensated for the cutbacks. The balance between across-the-board responses to threats and program stability is difficult to strike, but unless we reduce the number of programs, and at the same time preserve the required funding for our "stable" programs, our Acquisition Improvement Program will not succeed.

The Defense Resources Board met recently to consider all of the "new start" major programs for Fiscal Year 1983. Eleven were approved, three were not approved, and two were restructured. The "new start" review is an important addition to the programming phase and should be retained for numerous reasons. Although care must be taken to review new starts from a variety of mission standpoints and not to overstate the linkage between new starts and program stability, there is some relationship between the two.

Multiyear Contracting: The Fiscal Year 1982 Authorization Act approved three programs for 1982 multiyear contracts (C2A, F-16, and AN/TRC-170). The Fiscal Year 1983 budget submission will include additional candidates, while the Secretary of Defense requires production and advance procurement to be fully funded for FY 1982, economic order quantity (EOQ) purchases are funded to termination liability out of a special multiyear contracting increment to TOA.

Nevertheless, due in part to the inherent tension between the desire for savings and the need for flexibility, formidable barriers remain to wider implementation of the multiyear concept. In addition, the Services do not believe that TOA requirements in excess of the "annual buy" TOA are special additions to TOA added by OSD. In other words, the Services believe that such additional TOA should be available to the Services for other programs if not committed to multiyear programs. The Task Force, therefore, recommends clarification of this issue and that alternative funding concepts which require less front-end funding be considered in the Fiscal Year 1984 Guidance.

Preplanned Product Improvement: Initial progress has been made in implementing the Preplanned Product Improvement Initiative (P<sup>3</sup>I). A P<sup>3</sup>I implementation plan has been issued to the Services and a list of candidate

systems has been received. The Task Force, however, could not identify a DSARC milestone review or program review which has considered a P<sup>3</sup>I alternative since initiation of the Acquisition Improvement Program in April. Further, the Task Force could not identify an instance in which a program has been reduced in scope with a view toward future enhancement via a P<sup>3</sup>I approach.

The Fiscal Year 1984 POMs should be reviewed to ensure that all P<sup>3</sup>I candidates and their funding alternatives are clearly identified.

Cost Growth: Despite some initial steps, controlling cost growth (both real and perceived) remains a major problem. The solution must include more realistic estimates accurately reflecting future costs and difficult choices to reduce requirements when costs grow. The November 20 Defense Resources Board decision which requires the Services to explicitly choose between the program manager's estimate and independent ones while explaining the choice is a useful step. The direction that the Assistant Secretary (Comptroller) and the CAIG (Cost Analysis Improvement Group) ensure that cost estimates reflect assessed risk is also a step forward. But until agreement is reached with the Office of Management and Budget on budgeting for inflation more realistically, unbudgeted inflation will continue to generate massive program instability and perceived cost growth. Although initial discussions have been held with OMB, the Task Force recommends that the Department continue its strong position on this issue and aggressively pursue the matter further. In addition, little has been accomplished with respect to the incentives called for in the 30 April 1981 Memorandum on this element of the Acquisition Improvement Program.

Improving Support and Readiness: As directed by DepSecDef in his memorandum dated June 13, initial steps have been taken to improve support and readiness, but lack of priority by management has hindered implementation. Programs continue to be structured to give precedence to acquisition cost, schedule or performance objectives, while support and readiness are left to be accommodated within these program constraints. Major programs continue to reach DSARC reviews without well-defined and consistent reliability, readiness and support objectives, or the resources to achieve them. The Task Force recommends as an agenda item for each DSARC milestone or program review, an assessment of readiness objectives, the risks in achieving them, options to reduce the risk, and the test and evaluation efforts to provide verification of support and readiness. The Milestone I review should address acquisition strategy including front-end funding, contractor incentives, design and supportability tradeoffs, test and evaluation plans, and alternative schedule and funding approaches and their effect on readiness achievement. Resultant contracts should also be assessed to determine whether support and readiness have been given appropriate priority vis-a-vis cost and schedule considerations.

Competition: Several important steps toward making more effective use of competition have been taken, and others are ongoing. In response to the DepSecDef memorandum of July 27, the Services and the Defense agencies have submitted management objectives to increase the benefits of competition. Additional plans with specific management actions are due to OUSDRE in January. An outside study to be completed next June will focus on optimum program/commodity opportunities for increased competition. On the other hand, program reviews conducted in recent months have shown graphically that the extra

near-term costs of maintaining an additional contractor in the process are a real barrier to sustained competition in system development. Continued monitoring and assessment of progress will be required to determine the overall effectiveness of this initiative.

The Task Force Reports on each initiative identify specific barriers to implementation and propose actions intended to overcome those barriers. The single largest barrier to implementation at this juncture is the assumption that complete implementation can occur without extraordinary management action on a systematic, or systems, approach. We must start to view the initiatives as an integrated, comprehensive package or program and decision makers must demonstratively act in accord with the principles of the Acquisition Improvement Program. Individual responsibility for application of the concepts in day-to-day decision making must be stressed. The policies of the improvement program are clear. They were enunciated in the April 30 memorandum and will be restated in part in the soon to be issued DoD Directive 5000.1. Derivative directives and instructions must reemphasize both the systems approach and individual responsibility for implementation. But in addition to this channel of communication, we recommend that an ongoing team assume responsibility for implementation. Specifically, we recommend that the Acquisition Improvement Steering Group, which existed before this Task Force was chartered, be continued. The Steering Group is comprised of the Service and OSD offices most directly involved with implementation and is, therefore, able to focus broad management attention on the key issues.

We recommend you accept this report as responsive to the Task Force charter. We also recommend that the Steering Group proceed with the task of implementing the specific ideas contained in, and resolving remaining issues identified in, the report as well as conduct an intensified effort to reconcile PPBS and programmatic decisions with the objectives of the Acquisition Improvement Program. Action-oriented working groups under the auspices of the Steering Group should be created, as necessary, to aid this effort. We must, for example, continue to focus attention on the need for program stability and other management principles which represent a basic cultural change in contemporary attitudes toward decision making.

As is the case with any multi-faceted program, there are a small number of especially critical elements to the Acquisition Improvement Program, which in this instance, include the elements specifically referred to above. These critical elements deserve special emphasis by the Steering Group. Of particular importance, however, is sustained management emphasis on these elements, and others requiring involvement of offices outside the Department, at all levels within the Department of Defense.

Even though a Steering Group may be charged to direct overall implementation of the improvement program, final responsibility ultimately lies with the decision-maker(s). Each decision-maker who impacts programs should ensure that his actions are consistent with the objectives of the improvement program. This idea must be foremost in mind. After having institutionalized the actions identified by the Task Force, our emphasis should shift to more qualitative assessments to determine and measure meaningful improvement in the DoD acquisition process.



WILLIAM A. LONG  
DEPUTY UNDER SECRETARY  
(ACQUISITION MANAGEMENT)

Attachments

TASK FORCE ON ACQUISITION IMPROVEMENT

Chairman: William A. Long  
Deputy Under Secretary of Defense  
(Acquisition Management)

Members: Army           LTG J. H. Merryman, USA  
                          Deputy Chief of Staff for Research,  
                          Development and Acquisition

          Navy            VADM R. R. Monroe, USN  
                          Director of Research, Development,  
                          Test and Evaluation

          Air Force       Mr. J. E. Williams  
                          Deputy Assistant Secretary  
                          Acquisition Management

          DLA            BG C. F. Drenz, USA  
                          Deputy Director  
                          Acquisition Management

          ATSD(R&O)     Mr. J. W. Melchner  
                          Deputy Assistant to the  
                          Secretary of Defense (R&O)

          ASD(MRA&L)    Dr. R. D. Webster  
                          Deputy Assistant Secretary  
                          Logistics and Material Management

          OSD(C)         Mr. J. T. Kammerer  
                          Director of Special Projects

          DPA&E         Mr. T. P. Christie  
                          Deputy Director  
                          General Purpose Programs

Advisors: OSD(GC)     Mr. D. Trosch  
                          Assistant General Counsel  
                          Logistics

          OSD(LA)       BG B. R. Harris, USA  
                          Deputy Assistant Secretary  
                          Plans and Operations

          OUSDRE        RADM I. Linder, USN (Ret.)  
                          Director, Defense Test and  
                          Evaluation

          DPA&E         Mr. M. A. Margolis  
                          Deputy Director  
                          Resource Analysis

Advisors (Cont.): OUSDRE      Dr. P. J. Berenson  
Special Assistant for  
Assessment

Executive Secretary: OUSDRE      Mr. J. L. Wolbarsht

## ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 1. Title: Management Principles

Task Force Principals: BG C. F. Drenz, USA & Mr. T. P. Christie

### ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

"...the Deputy Secretary of Defense reaffirm the...major acquisition management principles..."

### ACCOMPLISHMENTS TO DATE:

DepSecDef signed 30 April 1981 memorandum to Military Departments, JCS, and OSD staff reaffirming the management principles in Initiative No. 1. DepSecDef signed a second memorandum, 27 July 1981, to all the preceding offices plus the Defense Agencies reaffirming the need for increased competition in the acquisition process. DepSecDef has made statements in testimony before the House and Senate reaffirming the management principles. These principles are also included in the first draft of the DoD Annual Report to Congress. See Enclosure 1 for specifics of follow-on Service/Agency implementation.

### BARRIERS TO IMPLEMENTATION:

1. Although Services/Agencies have been able to take actions to publicize the initiatives and urge "hands-on" personnel to support them, full implementation (i.e., institutionalization) through publication of Service/Agency instructions is held up pending publication of DoDD 5000.1 and DoDI 5000.2. These documents are currently being staffed within DoD. Publication of DoDD 5000.1 is expected by the end of December 1981; DoDI 5000.2 should be ready for publication by 1 March 1982.
2. Full implementation of changes required to enhance the planning process and the issuance of Defense Guidance is being delayed by difficulties encountered (for various reasons) by the Defense Resources Board (DRB) members in making a full examination of major planning issues at the first decision session on the Defense Guidance. Subsequent meetings to resolve difficult issues are planned. The goal for Defense Guidance issuance remains 22 January 1982.
3. Although much progress has been made in disseminating the management initiatives, only action and example at the highest levels will emphasize our real commitment to their implementation. DRB and DSARC members must consider each programmatic and budgetary action in terms of the initiatives and act accordingly. Failure to do so will negate all other efforts.

### SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

Responsibility has been assigned for implementation of remaining actions, both those which are dependent on publication of DoDD 5000.1 and DoDI 5000.2, and those which are not. See Enclosure 2.



ACCOMPLISHMENTS TO DATE

1. Actions common to all Services:

- a. Disseminated initiatives to subordinate commands for action.
- b. Emphasized initiatives through briefings to acquisition commands/managers.

2. Defense Systems Management College (DSMC) actions:

a. Incorporated principles into curriculum; currently teaching in appropriate classes.

b. Provided 30 April 1981 DepSecDef memo to each student.

c. Provided students with briefing package on initiatives for use at home stations.

d. Submitted article on the initiatives to "Concepts" magazine, which is distributed to all Project Managers and other appropriate acquisition personnel. Publication expected in December 1981.

e. Presented briefings on the initiatives to personnel in Services' acquisition headquarters and field activities, other government agencies, and industrial and professional associations.

3. Actions on paragraph 1 of Initiative No. 1 concerning improved Defense Guidance:

a. Established an independent group at the National War College to explore innovative concepts for application across the full spectrum of Defense Department organization, strategy, and forces. This group will provide advice to SecDef/DepSecDef who will decide what further development should be taken.

b. Changed the planning process significantly to incorporate a major DRB review of DoD policy, strategy, and options prior to issuance of Defense Guidance (DG). The new goal is to issue the DG in late January, about two months earlier than was done in recent prior years, to permit fuller reflection of long-range planning concerns in the Service POMs.

INIT 1  
Encl 1

### SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION

The offices/individuals indicated are responsible for implementation of the actions shown below. Overall responsibility for monitoring Initiative No. 1 will be carried out by OUSDRE(AM).

<u>Action</u>	<u>Target Date</u>	<u>Responsible Office</u>
1. Incorporate the acquisition management principles in the draft Defense Guidance.	16 Dec 81	DPA&E
2. Put up-front policy declaration in DoDD 5000.1 listing the management principles and stating that these are the basic DoD acquisition principles for adherence by all activities.	31 Dec 81	OUSDRE(AM)
3. Publish DoDD 5000.1	31 Dec 81	OUSDRE(AM)
4. Publish DoDI 5000.2	1 Mar 82	OUSDRE(AM)
5. As an Information Item in a Defense Acquisition Circular (the process by which changes to the DAR and related important information are distributed), publish the 30 Apr 81 DepSecDef memo, subj: Improving the Acquisition Process. This will inform contracting officers and acquisition personnel at the operating level of the thrust of the acquisition management principles.	15 Feb 82	OUSDRE(AM)
6. Publication of Service/Agency regulations implementing DoDD 5000.1:		
a. Ensure that subordinate activities publishing acquisition regulations review management principles for inclusion in their publications, determine changes required to align their publications with the management principles, and publish revised regulations by D+120. Report status to OUSDRE(AM) by D+120; continue to submit status reports until action is completed (reporting mechanism indicated below in Action #8 may be used.)	D+120*	Services, Agencies
b. Review reports for suitability of progress; initiate corrective action where appropriate.	D+120* monthly until completion	OUSDRE(AM)

INIT 1  
Encl 2  
Page 1

<u>Action</u>	<u>Target Date</u>	<u>Responsible Office</u>
7. Request that schools/colleges responsible for acquisition related instruction incorporate the management principles in their curricula and report actions taken to initiative monitor.	D+30*	Services, DSMC
8. Organizations responsible for acquisition activities were previously required to implement the principles in the near term, to the extent possible, pending publication of DoD or Service directives/instructions, DAR, etc. Reports were required of scheduled actions and accomplishments. Continuing actions required:		
a. Continue to submit monthly reports of accomplishments/problems.	Monthly	Services
b. Review reports for suitability of progress; initiate corrective action where appropriate.	Monthly	OUSDRE (AM)
9. Prepare video tape outlining the management principles and make it available to the Services/Agencies for continuing orientation of new acquisition personnel.	Mar 82	DSMC
10. Publish a special issue of "Concepts" magazine providing detailed information on those 10-15 initiatives that program office personnel should consider in preparing their acquisition strategies.	Mar 82	DSMC
11. Reassess the status of implementation of Initiative No. 1 after one year and take appropriate action.	Jan 83	OUSDRE (AM)
12. DSARC and DRB members examine and decide each programmatic and budgetary action in terms of the management principles.	Continuing	DepSecDef

• For Target Dates shown as "D+" a number of days, "D-Day" is the date of publication for DoDD 5000.1.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 2. Title: Pre Planned Product Improvement (P<sup>3</sup>I)

Task Force Principals: LTG J. H. Merryman, USA & Mr. J. W. Melchner

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

1. USDRE, working with the Services, develop within 30 days a plan for implementing Preplanned Product Improvement including definitions and criteria for application.
2. USDRE request the services to evaluate ongoing programs to determine potential for payoff from the application of Preplanned Product Improvement, and to present results at the next DSARC.
3. USDRE assure Services have fixed the responsibility for review of opportunities for product improvement after any system reaches the field, and to develop a product improvement plan.

ACCOMPLISHMENTS TO DATE:

1. P<sup>3</sup>I implementation plan (6 Jul 81) developed and issued to Services.
2. Services have established focal points at HQs level and provided OUSDRE with list of candidate systems.
3. Changes to DoDD 5000.1/DoDI 5000.2 have been developed and are being coordinated. OSD will attempt to alleviate inconsistencies between the directives and the implementation plan.
4. Services have identified Service Regulation changes needed for implementation.
5. The Services have taken steps to identify specific funding requirements in the FY 84-88 program development process.

BARRIERS TO IMPLEMENTATION:

1. Question of emphasis: P<sup>3</sup>I is presently regarded as requiring more early funds for incorporation of provisions for future changes. What is completely missed is that P<sup>3</sup>I should reduce initial system costs, because the more advanced capabilities have been deferred to future improvements. The most significant barrier is lack of understanding and acceptance of this view.

2. Question of definition: P<sup>3</sup>I vs Product Improvement Program (PIP) - relationship/visibility. The Services need a clear position on what is included in the term P<sup>3</sup>I. The stated definition could possibly be used to describe every change that comes along. Does the initiative really mean Pre Planned? Specific criteria for changes need to be developed so that each of the Services understands the initiative's purpose and intent. The Implementing Instructions of 6 July 81 have created some confusion in that each of the Services has a different interpretation of where P<sup>3</sup>I should be applied and whether or not it overlaps their established PIPs.

3. The Implementation Plan requested a list of P<sup>3</sup>I Candidate Systems. Reason - to let Industry know where the Services are heading. Presently the AITF feels providing a list or lists to Industry is premature. The Services need to focus actions or we will be guilty of sending out false signals to Industry.

4. Question of execution: During current budget review, OSD staff occasionally seemed unaware of - or violated - precept of this initiative.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

Recognizing that P<sup>3</sup>I is on schedule, a number of steps must be accomplished for P<sup>3</sup>I to succeed.

a. OSD must recognize the different management practices of each of the Services with regard to PIPs.

b. Reemphasize the reference point of reducing risk and reducing dollars. (This will be done in Defense Guidance.)

c. The Services will develop an education plan to create an atmosphere where P<sup>3</sup>I is accepted by the user as well as the developer.

d. In order to institutionalize P<sup>3</sup>I, each of the Services should continue to develop a decentralized structure for implementation. Report results to USDRE by 1 Mar 82.

e. OSD will incorporate P<sup>3</sup>I position into Defense Guidance.

f. OSD should define P<sup>3</sup>I to include specific criteria necessary for a P<sup>3</sup>I initiative.

g. Do not release candidate list at this time. Additional guidance on criteria for P<sup>3</sup>I initiative is required.

h. DepSecDef issue strong guidance on P<sup>3</sup>I to OSD staff.

i. The Services must move smartly to make the FY 84 POM, since P<sup>3</sup>I must be implemented through the PPBS.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 3. Title: Multiyear Procurement (MYP)

Task Force Principals: Mr. J. E. Williams & Mr. J. T. Kammerer

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

1. General Counsel response to H.R. 745.
2. USDRE and ASD(C) to brief Appropriations and Armed Services Committees on procedures and concepts.
3. USDRE to prepare policy memorandum to Military Departments and request identification of FY 83 candidates.
4. USDRE modify DAR 1-322 as required: ASD(C) modify DODD 7200.4; USDRE and ASD(C) interface with OMB to modify budget circular A-11.
5. SecDef to present FY 83 budget containing multiyear candidates.

ACCOMPLISHMENTS TO DATE:

1. Completed 5 June 1981.
2. Completed April 1981.
3. Completed 1 May 1981.
4. The DAR Council established a subcommittee to revise DAR 1-322 and began its effort by 27 November 1981.
5. Multiyear candidates submitted to Congress with savings of about \$400 million. It appears the Congress will approve 3 of our candidates for FY 82 with savings totalling \$325 million. (C-2A, F-16, AN/TRC-170 radio). The FY 83 budget submission will include at least nine other candidates for multiyear, including the Defense Meteorological Satellite Program, the SM-1 missile, the NATO Seasparrow Ordalt and the Multiple Launch Rocket System.
6. FY 82 Authorization Act provides the Statutory base for enhanced use of multiyear procurement.
7. Services have briefed large numbers of Government and industry personnel on new DoD MYP policies and procedures.
8. The current DoD policy has been published, through budget decisions and otherwise, as follows: "While the Secretary of Defense requires production and advance procurement to be fully funded for FY 82, economic order quantity (EOQ) purchases are funded to termination liability from a special multiyear contracting increment to TOA."

BARRIERS TO IMPLEMENTATION:

1. The Military Departments perceive that the additional TOA provided by OSD for FY 83 is at the expense of their other valid requirements and this continues to be the most serious problem affecting wide-spread implementation.
2. The Appropriations Committees, OMB and the DOD Comptroller community (and the DepSecDef, to date,) have a preference for "full funding" (policy stated above) which, in the perception of many, ties up TOA when the possibility of cancellation or termination is remote.
3. Many in the acquisition communities in OSD, the Services and industry are of the opinion that, if we continue with MYP as presently directed, i.e., full funding, MYP initiatives beyond FY 83 will not be pursued.
4. Fluctuations in top-line TOA create much the same problems with multiyear procurement as with program stability (see Initiative No. 4 report).

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. USDRE revise DAR 1-322 as recommended by DAR Subcommittee.
2. ASD(C) revise DODD 7200.4 in January 1982 after the passage of legislation.
3. Services should consider other programs for FY 83.
4. The acquisition communities in the Services and OSD recommend that the SecDef, in consultation with USDRE, ASD(C), the Services and Congressional Committees, revisit existing policies and, in that connection, consider alternative funding concepts such as unfunded termination liability and incremental funding for MYP.
5. SecDef guidance for FY 84 POM should include policy on MYP.
6. Whatever the ultimate policy on multiyear may be, continued information and education of Service acquisition staffs on policy and actions to date in respect to multiyear procurement must be ongoing.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 4. Title: Program Stability

Task Force Principals: BG C. F. Drenz, USA & Mr. T. P. Christie

**ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:**

SecDef direct that during program and budget reviews by OSD (DRB) the Service Secretaries explain and justify differences between program baselines established at Milestone II and the quantity and funding in the program or budget under review.

ASD(C) and ASD(PA&E) include above direction in FY 83 POM and Budget Guidance.

**ACCOMPLISHMENTS TO DATE:**

1. Planning and programming guidance to the Services has emphasized program stability and termination of low priority programs. However, the results to date in developing the FY 82 and FY 83 Defense programs are not impressive.

2. Prior to the DepSecDef memorandum of April 30, 1981, the FY 81/82 Budget Amendment had restored stability to several programs that had been subjected to turbulence under the previous administration, e.g., the M-1 tank, Fighting Vehicle System, Patriot missile system, AH-64, HARM missile system, P-3C, AV-8B, A-6E, F-15, F-16, and A-10. For the most part, the Services continued their support for this initiative in their FY 83 POMs. The multiyear contracting initiatives proposed by the Services should also contribute to the stability of specific programs (e.g., F-16 production). More attention, however, needs to be devoted to stability of Research, Development, Test and Evaluation programs.

3. An USDR&E memorandum to the Services on the subject of Program Stability, dated July 31, 1981, requested the Services identify candidate programs for a DoD stable programs list and cancel or truncate other programs to fit the remaining requirements within budget constraints. The Services have made a major effort to respond to this initiative. For example, the Army has identified a number of programs with sufficient funding in FY 83-87 for program stability and has forwarded a list of 12 candidate programs to OSD for stable funding. Four of these are still under consideration: M-1 tank, Fighting Vehicle System, H-60 Blackhawk and CH-47D modification. The Navy also provided OSD with a list of programs proposed for stable funding; however, final action awaits the final FY 83 budget decision. The Navy did terminate some 32 projects in attempting to carry out this initiative. The Air Force provided OSD with 13 candidates for stable funding including the B-1, as well as eight programs that were cancelled or deferred during the POM development program.

4. As part of the 31 July request, the USDRE placed particular emphasis on new system starts, and the OSD staff prepared issue papers recommending the cancellation of several new starts in order to provide resources for the stable funding of other programs. Care must be taken not to overstate the linkage between



new starts and program stability because a host of other factors are involved in each issue, and the two have only an indirect relationship to each other. These issue papers also served as a mechanism for consideration of new starts as a part of the PPBS process - another DepSecDef initiative in the April 30, 1981, memorandum. These "new start" issues have been brought, in one form or another before, the DRB several times during the FY 83 program and budget review. The outcome on these issues will depend on the final deliberations of the DRB on the FY 83 budget.

5. An unforeseen budget reduction during the development of the FY 83 program had a major impact on the progress made up to that point. Just prior to completion of the FY 83-87 program review in September 1981, reductions in the FY 82 request as well as planned funding in FY 83 through FY 84 resulted in perturbations in several procurement and R&D programs. In many cases the very programs that had been restored to previous levels in the FY 81/82 Budget Amendment were proposed by the Services for termination, reduction and/or stretchout.

6. The programming and budgeting process for calendar year 81 has not been completed. The FY 82 Defense Appropriation Bill has just been passed by the Congress, and the FY 83 budget review by the DRB is still underway at this time. Until this latter action is completed, a final assessment of the implementation of this initiative cannot be made.

#### BARRIERS TO IMPLEMENTATION:

1. The major barrier to implementation of this initiative has been continued fluctuation in the DoD budget. Even as the total DoD budget has gone up and down during this past year, it has been clear that even the higher levels have not been sufficient to fully fund all the programs deemed deserving of stable funding.

2. The Services, OSD and Congress have all been reluctant to cancel major lower priority programs in order to provide for fully funding others. Part of this reluctance--at least on the part of the Services and OSD, if not Congress--can be attributed to the lack, of agreement on which programs are of the highest priority and should therefore be stabilized.

3. Cost growth and technical problems continue to plague major acquisition programs. When programs are funded based on low cost estimates, budgeting for higher actual costs inevitably leads to program stretchout--both development and procurement--particularly in an environment of budget constraints. Likewise, unforeseen technical problems increase cost and schedule uncertainty resulting in further--and often unavoidable, yet adviseable--stretches in programs.

4. Another factor causing the Services, OSD and even Congress to embrace the concept of program stability with less than great enthusiasm is the desire to maintain some flexibility in the programming and budgeting cycle. This need for flexibility is based on a natural desire to be able to deal effectively in programming and budgeting with a rapidly changing environment - change in the threat, technological opportunities, budget fluctuations, economic perturbations, etc.

5. The tendency to postpone programming decisions until well into the budget process, or alternatively, to revisit programming issues during the budget process, also has an adverse effect on both procurement and R&D program stability.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. The Defense budget is always going to be subject to some fluctuation. To minimize the impact of those changes, however, it is important that future TOA projections be as realistic as possible. During the DRB reviews of the draft FY 84-88 Defense Guidance, now scheduled for 14 and 21 January 82, the DUSD(P) and ASD(C) should insure that both top-line and Service projections of future resource availabilities are realistic.

2. The most critical action needed is implementation of the first management principle reaffirmed in the DepSecDef memorandum of April 30, 81. The importance of Defense Guidance for FY 84-88, to be issued early 82, providing a clear and explicit statement of Defense policy regarding strategy and the resources required to accomplish that strategy is well recognized. Within the bounds of this strategy, programs of highest priority must then be stabilized. The lists of candidate programs for stabilization previously submitted by the Services, augmented with OSD staff proposals, could serve as a starting point for the development of such guidance. The OSD staff should pay particular attention to stabilizing those high priority programs that involve the participation of two or more Services.

3. Better control of cost growth will require the use of more realistic estimates of cost on the part of managers at all levels, and better estimates of inflation. The USDRE, in conjunction with the Services, should continue to improve the methods used in predicting technical risk.

4. The desire for maximum flexibility is a management fact of life. This aspect of the stability problem can be minimized only to the extent that frequent and large fluctuations in guidance (strategy, forces, resource availability, inflation indices, etc.) can be avoided, as discussed above.

5. During the program and budget review processes, the DepSecDef must insure that decisions are neither delayed, nor re-visited.

6. The steering groups should continue to give the highest level of attention to this initiative, including the continued development of the stable programs list--both as to its meaning and consequences--with the objective of upgrading program stability at all levels.

7. Successful implementation of this initiative is also dependent on the effective implementation of several other initiatives, particularly: (3) Multiyear Procurement; (6) Budget to Most Likely Costs; (12) Front End Funding for Test Hardware; and (18) Budgeting for Inflation.

ACQUISITION IMPROVEMENT TASK FORCE

Report on Initiative No. 5. Title: Encourage Capital Investment to Enhance Productivity

Task Force Principals: BG C. F. Drenz, USA & Mr. T. P. Christie

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

USDRE should have the prime responsibility to implement the following actions working closely with General Counsel, Legislative Affairs, and the Service Material Commands. (There are eight "following actions". These are listed separately in the attached items 5a-5h.)

ACCOMPLISHMENTS TO DATE:

Specific results on each subinitiative are shown in items 5a-5h.

BARRIERS TO IMPLEMENTATION:

Barriers to implementing subinitiatives are shown in items 5a-5h.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

Implementation plans for each subinitiative are shown in items 5a-5h.

Report on Initiative No. 5a. Title: Cost Accounting Standard 409

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

General Counsel should support legislative initiatives to permit more rapid capital equipment depreciation and to recognize replacement depreciation costs by amending or repealing Cost Accounting Standard (CAS) 409, "Depreciation of Tangible Assets."

ACCOMPLISHMENTS TO DATE:

1. OMB is currently staffing (internally) its legislative package transferring the CAS function to OMB.
2. OMB has been verbally assured by USDRE(AM) of DoD support for proposed legislation to transfer CAS. DoD previously provided OMB with draft proposed legislation to this effect.
3. Joint Logistics Commanders supported change to CAS 409 in a 9 October 1981 letter to the Deputy Secretary of Defense and requested DepSecDef assistance in implementing this subinitiative.

BARRIERS TO IMPLEMENTATION:

1. Industry may oppose the extent of CAS authority being transferred to OMB.
2. Increase in costs chargeable to defense contracts (Comptroller General Bowsher, Congressional testimony).
3. Inconsistency of accelerated depreciation methods with generally accepted accounting principles (Director, Defense Contract Audit Agency in memorandum to USDRE(AM)).
4. Revisions to or repeal of CAS 409 will impact other standards. Extent of impact unknown without input from Government agencies, Industry, and academia.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. If OMB legislative proposal is not submitted to Congress by the end of December 1981, USDRE(AM) should advise the Director, Office of Federal Procurement Policy (in writing) of high level DoD interest in the transfer of the CAS function to OMB. USDRE(AM) should also urge immediate submission of the OMB legislative package on CAS for Congressional action.
2. USDRE(AM) should continue support for OMB proposal once it is submitted to Congress. This support should include testimony before the Banking, Housing & Urban Affairs Committee. Committee expected to take action by late Spring 1982.

3. By February 1982, USDRE(AM) should develop a concept plan establishing DoD objectives regarding recognition of costs related to consumption of physical assets in sufficient detail so that reasonably accurate estimates of cost impact to DoD can be determined.

4. By April 1982, USDRE(AM) should complete an assessment of the financial impact on DoD funds of planned revisions or alternate approaches to achieving the objectives.

5. Within 30 days of final Congressional action transferring CAS function to OMB, USDRE(AM) should submit a proposal to OMB incorporating the desired revisions to CAS 409.

6. On a continuing basis, after CAS transferred to OMB, DoD should support OMB in any efforts to review CAS Standards, rules and regulations for appropriate modification.

Report on Initiative No. 5b. Title: Return On Investment (ROI) - Productivity Investments

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Structure contracts to permit companies to share in cost reductions resulting from productivity investments. Modify the Defense Acquisition Regulation (DAR) profit formula. Allow for award fees inversely proportional to maintainability costs.

ACCOMPLISHMENTS TO DATE:

1. The DAR Pricing Subcommittee explored improvements in contract financing and profit policy and issued a report to the DAR Council on 22 September 1981. The Subcommittee recommended no DAR changes at this time, but suggested the DAR Council commission a comprehensive study (with Industry input) to determine what additional contractual incentives would be required to motivate contractors to invest in facilities. The DAR Council has not yet decided to accept the Subcommittee's recommendation regarding the need for an indepth study.

2. The DoD Task Force for Improving Industrial Responsiveness has prepared a draft DoD Guide entitled "Improving Productivity". It provides instructions to contracting officers on tailoring existing contract incentive clauses within the authority of existing DAR policies to provide motivation for DoD contractors to make productivity enhancing capital investments. The Guide has been distributed to interested groups for comment. On 9 December 1981, the Task Force briefed the Director, Industrial Resources (OUSDRE(AM)) regarding the Guide. If approved, the Guide should be published by 15 March 1982.

BARRIERS TO IMPLEMENTATION:

1. Reluctance of Contracting Officers to tailor existing clauses to achieve the objectives of this sub-initiative.
2. Subjective nature of measuring productivity increases and auditing resulting cost reductions.
3. Motivational factors (financial and other) which drive or influence contractor capital investment decisions are presently uncertain.
4. DoD productivity policy must be flexible enough to accommodate the myriad of motivational factors driving contractor capital investment decisions.
5. Insufficient data available to determine effect of other recent DoD policies on contractor investment decisions (e.g., flexible progress payments, increased standard progress payment rates, milestone billings, source selection procedures).

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. By January 1982, USDRE(AM) should decide if the Productivity Guide will be published. Publication of the Guide, and follow-through to ensure acceptance at the contracting officer level, will overcome Barrier number 1 above.
2. If a decision is made to publish the Guide, OUSDRE(AM) Staff should assure publication by 15 March 1982.
3. By January 1982, USDRE(AM) should decide if an Ad Hoc Committee (or permanent DAR Subcommittee) should be established to perform the study recommended by the DAR Pricing Subcommittee. The Ad Hoc Committee would require broad authority to contract with outside consultants and, if necessary, to conduct interviews and investigations at the Contracting Offices and Contract Administration level of the acquisition process. The Ad Hoc Committee should address Barriers 2-5 above in their study efforts. The Committee should also consider ways to improve logistic productivity by providing incentives for advanced buys of spares and components.
4. By January 1982, USDRE(AM) should direct the DAR Council to consider the potential for providing contractual incentives to DoD contractor employees, permitting them to share in savings from significant productivity increases attributable to enhanced workforce performance (as differentiated from productivity increases related to investments in new capital equipment). USDRE(AM) should also consider the merits of a SecDef letter to major defense contractors and labor groups citing the importance of contractor and labor union programs to encourage improved employee productivity.

Report on Initiative No. 5c. Title: Milestone Billings and Expediting Payment

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Increase use and frequency of milestone billings and advanced funding. Expedite paying cycle.

ACCOMPLISHMENTS TO DATE:

1. Milestone Billings: Flexible progress payment procedures and increased standard progress payment rates issued by USDRE(AM) on 28 August 1981 and published by DAR Council in Defense Acquisition Circular (DAC) 76-31 dated 30 October 1981. These changes in progress payment policy are intended to limit the need for increased use and frequency of milestone billings. This notwithstanding, the DoD Contract Finance Committee is reviewing milestone billing coverage for revisions in support of subinitiative 5c.

2. Expedite Paying Cycle:

a. The DAR Council has prepared for USDRE(AM) signature a draft memorandum to ASD(C) regarding DoD payment policy and applicable Treasury regulations. This memo is for ASD(C) use in responding to an OMB request for efforts to improve the Government's bill paying practices.

b. USDRE(AM) has requested that the DoD Contract Finance Committee review DoD payment procedures and correct any impediments to accomplishing the DoD policy of expedited payments.

BARRIERS TO IMPLEMENTATION:

1. Milestone Billings: None

2. Expedite Paying Cycle: The DoD Contract Finance Committee has not completed its review of payment policies and procedures, and, therefore, barriers to implementation have not been identified.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. Milestone Billings:

a. By 15 February 1982, DoD Contract Finance Committee complete review of milestone billing procedures and approve revised coverage for DAC publication.

b. By 30 April 1982, Chairman, DAR Council arrange for publication of revised milestone billing procedures in DAC.

2. Expedite Paying Cycle:

a. By 24 December 1981, USDRE(AM) transmit approved memo to ASD(C).



2. Expedite Paying Cycle:

a. By 24 December 1981, USDRE(AM) transmit approved memo to ASD(C).

b. By 31 July 1982, DoD Contract Finance Committee identify any impediments to expeditious payment and advise USDRE(AM) of changes in regulations or procedures necessary to eliminate those impediments.

c. By 30 September 1982, USDRE(AM) issue those changes necessary to expedite the paying cycle.

Report on Initiative No. 5d. Title: Profit Levels

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Provide for negotiation of profit levels commensurate with risk and contractor investment; ensure that recent profit policy changes are implemented at all levels.

ACCOMPLISHMENTS TO DATE:

By memorandum dated 19 June 1981, USDRE(AM) stated that use of Weighted Profit Guidelines will result in reasonable profits if the proper type contract has been selected and directed that contracting activities select the type of contract most appropriate to the risks involved. The memorandum requested the Services and DLA to forward such guidance to field elements. The Services and DLA have complied with the request. Separate action under Initiative No. 8, Assure Appropriate Contract Type, emphasizes the importance of selecting the proper contract type, risk and other factors considered, to assure adequate profit motivation for DoD contractors.

BARRIERS TO IMPLEMENTATION: None.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

None, other than continued monitoring to assure appropriate follow-through.

Report on Initiative No. 5e. Title: Economic Price Adjustment

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Instruct the Services of the need to grant equitable Economic Price Adjustment (EPA) clauses in all appropriate procurements. Contract price adjustments made in accordance with EPA provisions should recognize the impact of inflation on profits. Ensure that these clauses are extended to subcontractors.

ACCOMPLISHMENTS TO DATE:

1. The DAR Council's EPA Ad Hoc Committee proposed revisions to current EPA coverage in a report dated 28 October 1981.
2. Proposed DAR coverage: (i) extends use of EPA clauses to fixed-price incentive contracts; (ii) provides a less restrictive clause for use in contracts based on established market or catalog prices; (iii) provides revised EPA coverage on formally advertised procurements to permit more equitable bid evaluations; and (iv) provides more definitive and uniform provisions for economic price adjustment methods. The coverage is designed to provide greater assurance that contractors and subcontractors are not penalized by unpredictable cost fluctuations. In its present version, the proposed coverage does not contemplate adjustment of profit.
3. The DAR Council released the Ad Hoc Committee's proposed DAR coverage for Industry and Service/Agency comments on 7 December 1981 under DAR Case No. 81-144. Comments are due by March 1982.

BARRIERS TO IMPLEMENTATION: None.

SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:

1. DAR Council receive Industry and Service/Agency comments by 7 March 1982.
2. By July 1982, DAR Council review comments and issue revised coverage for immediate implementation.

Report on Initiative No. 5f. Title: Manufacturing Technology Program

ACTION REQUIRED BY DEPSECDEF MEMORANDUM OF APRIL 30:

Increase emphasis on Manufacturing Technology Programs.

ACCOMPLISHMENTS TO DATE:

1. The Army has initiated an Industrial Productivity Improvement (IPI) Program with final Army approval by the Under Secretary of the Army. Programs are underway at Rockwell's HELLFIRE plant (Atlanta) and AVCO Lycoming. Potential plants are Martin Marietta (Orlando, FL) and Chrysler (Lima, OH). Army's request for funds stretches from a low in FY 83 of \$86.9 million to a high in FY 87 of \$269.9 million.

2. During the past five years the Navy has invested \$77 million in Manufacturing Technology (MANTECH) and has budgeted \$8 million for FY 82 and up to \$70 million per year in the out years. The Navy's MANTECH Program for the next five years will emphasize four areas of interest, namely, shipbuilding technology, aircraft and air combat systems, ship combat systems and electronics. A briefing has been scheduled in January 1982 to Dr. DeLauer in response to his memo of early September to the Service Secretaries. That briefing will go into detail on the four areas in the MANTECH Program.

3. The Air Force has developed a Technology Modernization (TECHMOD) Program with the F-16 TECHMOD Program as the first demonstration of an effort to reduce Government costs of acquiring the F-16 weapons systems. The initial success with the F-16 has prompted the Air Force to consider the concept for other systems that will have long production runs. The objectives of the Air Force Industrial Facilities Program (which includes TECHMOD) will be accomplished through four interrelated approaches, i.e., Industrial Preparedness Planning, Facilities, MANTECH, and Industrial Productivity and Responsiveness activities. A new initiative of the MANTECH Program is underway to provide productivity and production efficiency improvements for the B-1B industrial base. Initial assessments indicate that a payoff of at least 5 to 1 is projected.

4. Industry and Government participated in a MANTECH Conference in San Diego 1-3 Dec 81. Industry's critique of the DoD MANTECH program revealed no significant problem areas. There was a strong Industry recommendation to more clearly discriminate between the MANTECH program and the TECHMOD or Industrial Productivity program. TECHMOD/IPI is an acquisition strategy which must be tailored to fit each specific factory and DoD program(s) to include development of special manufacturing processes through the MANTECH program. Primary emphasis of TECHMOD/IPI should be to strike a "business deal" between Government and Industry using appropriate contract types and other means addressed in this Initiative.

5. Increasing emphasis on multiyear procurement (Initiative No. 3) should have a significant motivational impact on contractors' participation in MANTECH programs.

**BARRIERS TO IMPLEMENTATION:**

1. The complexity of implementing a program to provide incentives for contractor investment in severable equipment (machinery such as lathes, millers, grinders, etc.) and to allow sufficient return on investment for Government contracts.
2. The availability of appropriated funds for MANTECH.
3. Conflicting priorities (i.e., need to trade-off funding for operational weapons systems at the expense of funding for MANTECH).
4. Lack of stability in major DoD weapons systems programs.

**SPECIFIC ACTIONS TO ENSURE IMPLEMENTATION AND IMPLEMENTATION SCHEDULE:**

1. On a continuing basis, OUSDRE(AM) Staff followup with Services on actions taken related to this subinitiative and provide periodic briefings for USDRE regarding Services' funding for MANTECH.
2. USDRE assure that high level support is provided for companion Initiative No. 3 (Multiyear Procurement). Such support will assist in alleviating the Barriers noted above.

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.

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

i. 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 (i)).

j. Quality. A quality program shall be implemented in accordance with the criteria and procedures set forth in DoD Directive 4155.1 (reference (j)) to ensure user satisfaction, mission and operational effectiveness, and conformance to specified requirements.

k. 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 (k)).

9. 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, nuclear and nonnuclear survivability and endurance, 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.

a. R&M goals shall be realistically achievable in service. When possible, operational R&M deficiencies shall be precluded by design of 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 Milestone III. Thresholds approved in the SDDM at Milestone III shall be achieved during initial deployment.

c. R&M growth shall be predicted and graphically displayed in the IPSs prepared for Milestones II and III. The SDDM shall include threshold

values, with specified confidence levels, at interim review points. A threshold breach shall be reported at these points if these 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 III have been achieved in service or approved by waiver.

10. Test and Evaluation. Test and evaluation shall commence as early as possible. An estimate of operational effectiveness and operational suitability, including logistic supportability, shall be made prior to a full-scale production decision. The most realistic test environment will be chosen to test an acceptable representation of the operational system. Refer to DoD Directive 5000.3 (reference (l)).

11. Logistics. Integrated logistic support plans and programs, including NATO or bilateral allied support, shall be structured to meet peacetime readiness and wartime employment system readiness objectives tailored to the specific system. Beginning early in the system development process, both Department of Defense and industry shall consider innovative manpower and support concepts. Alternative maintenance concepts shall be assessed during concept development and at other appropriate points of the life cycle. Readiness problems and support cost drivers of current systems shall be analyzed to identify potential areas of improvement to be addressed during concept formulation. Program goals shall be based on quantitative analysis and established by Milestone II. Detailed support planning shall be initiated during full-scale development, and firm requirements shall be established before Milestone III. The supportability of a system's nuclear hardness design shall receive explicit consideration. Logistics and manpower planning shall be adjusted based on follow-on T&E and other appropriate reviews. Before Milestone III, the acquisition strategy shall be updated to include follow-on support in accordance with DoD Directive 4100.35 (reference (m)).

12. 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.

a. Requirements for interfaces between computers and plans to achieve that interface must be identified early in the life cycle. Plans for software development, 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.

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

### 13. Command and Control Systems

a. The major characteristics of command and control systems that require special management procedures are a rapidly evolving technological base, multiple requirements for internal and external interfaces, and reliance on automatic data processing hardware and related software. Such command and control systems differ from other weapon systems: they are acquired in small numbers, in some cases only one of a kind; their operational characteristics are largely determined by the users in an evolutionary process; and commercial equipment exists that can emulate the function. For command and control systems meeting the above criteria, acquisition management procedures should allow early implementation and field evaluation of a prototype system using existing commercial or military hardware and software.

b. Upon the recommendation of the appropriate using command, the DoD Component or the ASD(C<sup>3</sup>I), an alternate acquisition procedure shall be presented for approval by the Secretary of Defense. Following the documentation of a command and control major system requirement in a MENS approved by the Secretary of Defense in a SDDM, the design and testing of such systems should, in most cases, be accomplished in an evolutionary manner. These command and control systems shall be configured initially as prototypes using existing military or commercial equipment to the maximum extent possible and with a minimum of additional software. The designated users should be tasked to test various configurations in an operational environment using prototype and laboratory or test bed equipment and to assume the major responsibility for the Demonstration and Validation phase. In these cases, it shall be necessary for the DoD Component to recommend in the MENS that the Concept Exploration phase be combined with the Demonstration and Validation phase. The end result of combining these phases shall be a definition of a command and control system, including operational software, tailored to meet the commander and user needs and the documentation necessary for operational employment. When these objectives are achieved, the DoD Component shall normally recommend that the system be procured in sufficient numbers for initial fielding. In other cases, the DoD Component may decide to use the results of the test bed to initiate a competitive Full-Scale Development phase.

c. The procedures described in this paragraph are equally applicable to those non-major command and control systems that meet the criteria described above. Developers of such systems should be encouraged to pursue these alternative procedures when appropriate.

14. International Programs: NATO Rationalization, Standardization and Interoperability (RSI). DoD Components shall take action on the following areas and report progress at all milestone reviews.

a. Consider NATO country participation throughout the acquisition process. This includes standardization and interoperability with other NATO weapons systems.



b. Consider NATO doctrine and NATO member threat assessments. In development of MENS, mission needs of NATO members shall be considered. In general, data that cannot be disseminated to foreign nations shall not be included in MENS.

c. Solicit NATO member contractors for bids and proposals on U.S. systems and components when such an opportunity is not precluded by statute or by the National Disclosure Policy.

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

(1) Consider all existing and developmental NATO member systems that might address the mission need. Identify any performance, cost, schedule, or support constraints that preclude adoption of a NATO system.

(2) Determine testing requirements for NATO member candidate systems recommended for further development or acquisition.

(3) Determine whether a waiver of "Buy American" restrictions is appropriate, when a Secretary of Defense determination has not been made.

(4) 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.

(5) Recommend U.S. position on third-country sales, recoument of research and development costs or sharing research and development costs, and release of technology.

e. In subsequent phases of the acquisition cycle, DoD Components shall:

(1) Continue to expand and refine plans for international cooperation.

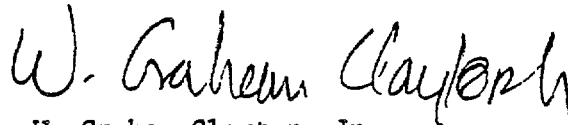
(2) Develop plans for host nation initial or joint logistics support, if applicable.

#### F. ORDER OF PRECEDENCE

The provisions of DoD Directive 5000.1 (reference (b)) and this Instruction are first and second in order of precedence for major system acquisition except where statutory requirements override. Any Department of Defense issuance in conflict with DoD Directive 5000.1 (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.

**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.



W. Graham Claytor, Jr.  
Deputy Secretary of Defense

**Enclosures - 5**

1. References
2. Mission Element Need Statement (MENS) - Format
3. Decision Coordinating Paper (DCP) - Format
4. Integrated Program Summary (IPS) - Format
5. DoD Policy Issuances Related to Acquisition of Major Systems

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) DoD Instruction 4120.19, "Department of Defense Parts Control System," December 16, 1976
- (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, and Maintenance," December 1, 1976
- (l) DoD Directive 5000.3, "Test and Evaluation," December 26, 1979
- (m) DoD Directive 4100.35, "Development of Integrated Logistic Support for Systems/Equipments," October 1, 1970
- (n) DoD Instruction 5010.19, "Configuration Management," May 1, 1979
- (o) DoD Directive 5000.34, "Defense Production Management," October 31, 1977
- (p) DoD Directive 5000.19, "Policies for the Management and Control of Information Requirements," March 12, 1976
- (q) DoD Directive 4120.21, "Specifications and Standards Application," April 9, 1977
- (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

MISSION ELEMENT NEED STATEMENT (MENS)  
FORMAT

Prepare MENS in the format shown below. Do not exceed 5 pages, including annexes. Reference supporting documentation.

A. MISSION

1. Mission Areas. Identify the mission areas addressed in this MENS. A need can be common to more than one mission area. When this is the case, identify the multiple mission areas.

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.

B. THREAT OR BASIS FOR NEED

Summarize the basis for the need in terms of an anticipated change in the projected threat, in terms of an exploitable technology or in terms of nonthreat related factors (e.g., continuing requirements for new pilots). When the need is based on a threat change, assess the projected threat over the period of time for which a capability is required. Highlight projected enemy force level and composition trends, system capabilities or technological developments that define the quantity or quality of the forecast threat. Include comments by the DIA and provide specific references from which the threat description is derived. Quantify the threat in numbers and capability. 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.

C. 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.

D. ASSESSMENT OF NEED

The most important part of the MENS 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. Vulnerability 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. The order of magnitude of resources the DoD Component is willing to commit to satisfy the need identified. This resource estimate is for initial reconciliation of resources and needs. It is not to be considered as a program cost goal or threshold.
4. Logistics, safety, health, energy, environment, and manpower considerations.
5. Standardization or interoperability with NATO, and among the DoD Components.
6. Potentially critical interdependencies or interfaces with other systems, and technology or development programs.

F. RESOURCE AND SCHEDULE TO MEET MILESTONE I

Identify an approximate schedule and an estimate of resources to be programmed along with the approach proposed for developing alternative concepts for presentation to the Secretary of Defense at Milestone I.

DECISION COORDINATING PAPER (DCP)  
FORMAT

Prepare DCP in the format shown below. Do not exceed 10 pages, including annexes. Reference supporting documentation.

Part I: State the direction needed from the Secretary of Defense, including deviations from the acquisition process contained in DoD Directive 5000.1 (reference (b)) and this Instruction.

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

Part III: Revalidate the need for the program.

Part IV: Summarize system and program alternatives considered and the reasons why the preferred alternative was selected.

Part V: Summarize the program schedule and acquisition strategy with emphasis on the next phase. The degree of competition should be addressed.

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

**ANNEXES**

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

DCP ANNEX A  
GOALS AND THRESHOLDS

Mar 19, 80  
5000.2 (Annex A to Enc13)

	Last Approved by SECDEF 1		Current Estimate	Recommended to SECDEF At This Milestone 2	
	Goal	Threshold		Goal	Threshold
	(a)	(b)	(c)	(d)	(e)
<u>COST 3 4</u> RDT&E 5 Procurement Flyaway					
<u>SCHEDULE 4 6</u> Next Milestone IOC					
<u>PERFORMANCE 7</u> Operational Availability 8 9 Mission Survivability and Reliability 9 10 Weight Range Speed Sortie Rate 11					
<u>SUPPORTABILITY AND MANPOWER 7</u> Manning 12 Maintenance-related R&M 9 13 Petroleum, Oil, Lubricant Consumption Spares 14					

- 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.
- 4 Add additional stubs as appropriate. The stubs indicated are mandatory.
- 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 Operational 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 combat utilization rate if different from peacetime utilization rate.
- 12 Include both operators and maintenance personnel.
- 13 Include separate parameters for depot maintenance.
- 14 Use logistic-related R&M parameters, if appropriate.

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

Mar 19, 80  
 5000.2 (Annex B to Encl 3)

	FY 19 PRIOR	FY 19__	FY 19__	FY 19__	FY 19__	FY 19__	FY 19__	TO COMPLETION	TOTAL PROGRAM
Acquisition Quantities Development Production Deliveries									
DEVELOPMENT Validation Phase Full-Scale Development Total Development Cost 1 RDT&E Funding (Approved FYDP)									
PRODUCTION System Cost 2 (Long Lead Requirements) Initial Spares Total Procurement Cost 1 Procurement Funding (Approved FYDP)						( )	( )	( )	( )
MILCON During Development During Production Total MILCON MILCON Funding (Approved FYDP)									
Total Program Acquisition Cost 1 RDT&E, Procurement and MILCON Funding (Approved FYDP) (Difference)									
Estimated Other Resources Requirements 3 During Development During Production									
OPERATING AND SUPPORT O&M MILPERS Procurement 4 Total Operating and Support Cost 1									
Total Life Cycle Requirements									

1 Definitions should be in accordance with DoD Instruction 5000.33 (reference (u)).

2 Equal to Weapon System Cost as defined in DoD Instruction 5000.33 (reference (u)); 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 operating and owning a weapon system such as modifications, replenishment spares, ground equipment, etc.



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 the complete acquisition cycle with emphasis on the phase the program is entering. Limit the IPS to 60 pages (inclusive of all annexes except Annex B) with no more than two pages required per topic. When further detail is available in a published study or plan, reference these documents in the IPS and provide them for inclusion in the Milestone Reference File (MRF). 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
- E. Logistics

Include the topics indicated below in the IPS. If a specific item cannot be discussed due to the nature or timing of the acquisition process, provide a statement and explanation to that effect.

1. Program History. Summarize previous milestone decisions and guidance, PPBS decisions, and significant Congressional actions affecting the program.
2. Program Alternatives. In addition to the program proposed by the DoD Component in the DCP, briefly describe each DCP alternative program, including its advantages and disadvantages. Do not duplicate data in the IPS annexes.
3. 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.
4. Threat Assessment. Provide an up-to-date summary of the threat, including discussion of CIPs. At Milestones I, II, and III, a reaffirmation of program need shall be included.
5. System Vulnerability. Describe vulnerability to detection, interference, and attack and program actions to minimize these vulnerabilities. Nuclear and nonnuclear survivability and endurance information shall be summarized.

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

7. Overview of Acquisition Strategy. Describe the overall strategy to acquire and deploy a system to satisfy the mission need, referring to but not repeating other sections of the IPS. Discuss the rationale for any deviations from acquisition process prescribed in DoD Directive 5000.1 (reference (b)) and this Instruction. Emphasis should be on the next phase of the acquisition process.

8. Technology Assessment. Summarize the degree to which technology planned for use in this program has been demonstrated. Identify technology risks and activities planned to reduce these risks. Discuss nuclear hardening technology and associated risks, as appropriate.

9. Contracting. Provide a summary of information in the contracting plan. At a minimum, include: (a) the overall 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 workscope, 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 documents in the MRF for additional detail. Do not include contractor sensitive data in this paragraph.

10. Manufacturing and Production. Summarize the system's production plan concentrating on those areas appropriate to the next phase. Refer to DoD Directive 5000.34 (reference (o)). Additionally:

a. At Milestone I. Identify new manufacturing technology needed for each concept considered for demonstration and validation. Also identify deficiencies in the U.S. industrial base and availability of critical materials.

b. At Milestone II. Describe areas of production risk and provisions for attaining a producible design during the Full-Scale Development phase and identify requirements for parts control, long lead procurement, and limited production.

c. At Milestone III. Summarize the results of the production readiness review and address the existence of a manufacturing design. Include nuclear hardening design in the summary, if appropriate. If the review is not complete at the time the IPS is submitted, describe the tasks remaining and provide a schedule for completion prior to the scheduled DSARC meeting.

11. Data Management. Discuss how general engineering and data requirements imposed on contractors shall be selected and tailored to fit the particular needs of the program and the program manager and the degree of configuration management that shall be applied to the program.

a. Application. Identify exceptions to use of approved specification, standards, their related technical and engineering data, special reports, terminology, data elements and codes to be used for program management. Refer to DoD Directive 5000.19 (reference (p)) and to DoD Directive 4120.21 (reference (q)).

b. Work Breakdown Structure (WBS). Identify and explain any deviations from MILSTD 881A (reference (r)).

c. Contractor Data Base. Discuss how the contractor's internal data base shall be validated and used to provide essential information. Discuss also whether or not contractor data products can be used as substitutes for DoD required reports.

d. Levels of Details. Discuss how reporting burdens shall be minimized by using the highest level of the WBS that can serve management needs.

12. 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 (n)).

13. Test and Evaluation. Describe test results to date and future test objectives. Based on the Test and Evaluation Master Plan, include a narrative description of the overall test strategy for both Development Test and Evaluation and Operational Test and Evaluation. Refer to DoD Directive 5000.3 (reference (l)).

14. Cost. Address the elements listed below. Make the discussion consistent with Annexes A, B, and C and address such displays in expanded detail, if appropriate.

a. Life-Cycle Cost. Discuss the underlying assumptions pertaining to the life-cycle cost estimates, including the impact of Foreign Military Sales, cooperative development or production, planned production rates, and learning curves for each of the alternatives in the DCP.

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 goals and how they shall be implemented at the contract level. Refer to DoD Directive 5000.34 (reference (o)) and to DoD Directive 5000.28 (reference (s)).

(3) Exceptions to implementation of Cost/Schedule Control Systems Criteria and alternative cost control procedures to be used. Refer to DoD Instruction 7000.2 (reference (t)).

c. Production

(1) Milestone I. Discuss the economics for establishing a second production source for the preferred alternative. Estimate the increased costs or savings from competitive production sources. Production quantities and production rates for this estimate shall be determined at the Milestone Planning Meeting.

(2) Milestones II and III. Provide an analysis of variation in unit cost with production rate which identifies efficient production rates.

d. Programing and Budgeting. Discuss the sources and applications of funds, as necessary, to explain IPS Resource Annex C.

15. Logistics. Summarize information contained in the Integrated Logistics Support Plan and present related management issues and risk areas. Display backup data in Annex E. Refer to DoD Directive 4100.35 (reference (m)). Additionally:

a. At Milestone I

(1) Identify mission requirements (including any NATO member requirements) that significantly impact upon system design features and support concepts.

(2) Identify subsystems and logistic elements that drive support cost and readiness of similar current systems and identify areas for improvement in new system design efforts.

(3) Identify subsystems and major items of equipment that are common to other programs and systems and describe standardization approach.

(4) Define the support concept alternatives to be considered, including the levels of maintenance for each alternative.

(5) Identify major support equipment requiring new development.

(6) Identify new technology items that require advances in repair technology.

(7) Identify all estimated RDT&E funding to be allocated to support planning and analysis by program phase.

b. At Milestones II and III. Update the information provided at the previous milestone. Additionally:

(1) Identify R&M test results to date and the quantitative effect on support resource requirements, such as manpower, spares, depot maintenance, to meet readiness objectives.

(2) Estimate the capability of current and planned support systems to meet logistic objectives, such as resupply time, maintenance turn-around-time, and automatic test equipment production rate and capacity.

(3) Identify contract provisions for logistics support, such as parts control and interim contractor support. Do not repeat information contained in the Contracting section of the IPS.

(4) Identify any subsystems considered for long-term contractor support and the analysis leading to contractor support decisions.

(5) Provide a reference to the document that includes the leadtimes and activation dates for each level of organic support capability.

16. Reliability and Maintainability. Define each R&M parameter that applies to the system proposed in the DCP and summarize R&M achievements of the preceding phase. Describe R&M requirements for the next phase. Additionally:

a. At Milestone I. Establish a tentative design goal (or a range of values) at the system level for each applicable R&M parameter. These goals shall be responsive to projected needs of the mission area and realistic in comparison to measured R&M values of similar systems.

b. At Milestone II

(1) Show that operational R&M problems, typical of similar systems, have been addressed in design, by careful selection of GFE, and by tailoring operating and support concepts.

(2) Identify major GFE elements of the new system and provide some indication of how reliable and maintainable they are in similar applications. State the source of this information.

(3) Establish a specific goal and threshold for each applicable R&M parameter to be attained prior to Milestone III.

(4) Display predicted R&M growth as a series of intermediate points associated with thresholds for full-scale development.

c. At Milestone III. Display predicted R&M growth as a series of intermediate points associated with thresholds for production and deployment.

17. Quality. Summarize the independent quality assessments required by DoD Directive 4155.1 (reference (j)) and provide the status of action taken or in process as a result of the recommendations contained in the independent quality assessments.

18. Manpower. Specify the system activity level used to estimate and compute the system manpower requirements presented in the annex. Indicate whether this activity represents a combat surge, sustained combat, pre-combat readiness, or other posture (specify). Also specify the available hours per person, per month used to compute numbers of people from workload estimates (not required at Milestone I). List any other critical assumptions that have a significant bearing on manpower requirements. Discussion of manpower requirements shall be consistent with Annex D and provide supporting detail as appropriate. Additionally:

a. At Milestone I

(1) Summarize manpower sensitivity to alternative employment concepts being considered.

(2) Identify parameters and innovative concepts to be analyzed during the next phase such as: new maintenance concepts and organization; new concepts or technologies to improve personnel proficiency and performance.

b. At Milestone II

(1) Summarize the significant manpower implications of trade-offs conducted among hardware design, support characteristics, and support concepts.

(2) Explain briefly significant manpower differences in comparison with a reference system, considering design, support concept, and employment objective. The reference system should be one that is being replaced by the new system, performs a similar function, or has similar technological characteristics.

(3) Quantify the sensitivity of manpower requirements to the proposed maintenance related reliability and maintainability goals and to system activity rates.

(4) Describe the sources of manpower for the new system. Summarize projected requirements versus projected DoD Component assets in critical career fields. Identify new occupations that may be required.

(5) Include schedules for:

(a) Further trade-off analyses among design and support elements impacting manpower,

(b) Job task identification,

(c) The manpower analyses planned during full-scale development, and

(d) Planned T&E to verify the manpower estimates and underlying assumptions.

c. At Milestone III

(1) Explain changes from manpower estimates presented at the previous milestone. Quantify manpower sensitivity to the maintenance related reliability and maintainability levels demonstrated, to those proposed, and to system activity levels (including wartime surge).

(2) Identify shortfalls in meeting requirements by occupation. Assess the impact on system readiness of failure to obtain required personnel. Identify new occupations not yet approved and programed into DoD Component personnel and training systems.

(3) Summarize plans for evaluating manpower requirements during follow-on test and evaluation.

19. Training

a. At Milestone I. Identify any significant differences in the training implications of the alternative system considered.

b. At Milestone II and III

(1) Summarize plans for attaining and maintaining the required proficiency of operating and support personnel, quantifying the scope and duration of formal training, time in on-the-job and unit training, use of simulators and other major training devices in formal and unit training and use of other job performance and training aids. Identify anticipated savings from use of simulators or other training devices.

(2) Provide a summary by fiscal year and occupation of all formal training requirements for the proposed system, identifying numbers of personnel trained and training costs (including facility modifications). Separately identify the net impact on special emphasis training programs such as undergraduate flight training.

c. At Milestone III Also

(1) Summarize plans and additional resources required to train the initial component of operating and support personnel for unit conversion to fielded systems.

(2) 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.

20. Facilities. Describe any new government or industry facilities required for production or support of the system. Summarize how these facilities are to be made available. Identify cost and schedule constraints, such as training, testing or maintenance, imposed by facilities limitations.

21. Energy, Environment, Health and Safety. Summarize the environmental and energy impacts of developing, producing, and operating the DCP systems alternatives.

a. Specifically, for energy considerations:

(1) At Milestone I. Establish tentative design goals, or range of values, for energy efficiency and substitution at the system level that are responsive to projected needs of the mission area. These goals should be shown in comparison to energy efficiency and substitution capability of similar systems.

(2) At Milestone II. Establish firm energy related goals when appropriate and state trade-offs made between the design, operating concepts, simulators, and any substitution objectives.

(3) At Milestone III. Review energy consumption projections and efficiencies and their sensitivities to system populations.

b. Additionally, prior to the Milestone II and III decisions, summarize the results of system health and safety analyses and assessments and specify actions pending on any unresolved significant system health or safety hazards. Cite management decisions, if any, to accept the risks associated with significant identified hazards.

c. List environmental documentation prepared in accordance with DoD Directive 6050.1 (reference (i)).

22. Computer Resources. Address the following factors:

(a) Interface requirements.

(b) Computer programs and documentation required to support the development, acquisition, and maintenance of computer equipment and other computer programs.

(c) Plans for maintenance and update of software after initial system operating capability has been achieved.

23. International Programs. Summarize action taken with regard to NATO RSI considerations listed in paragraph E.14. of the basic Instruction and identify approved, pending, and potential Foreign Military Sales.

RESOURCES - COST TRACK SUMMARY 1  
(Millions of Dollars)

	FY Constant (Base Year) \$			Escalated \$
	Planning/ Development/ Estimate 2	SDDM (Date) 3	Current Estimate 4	Current Estimate 4
<b>DEVELOPMENT PHASE</b>				
RDT&E Validation Phase Full Scale Development Contractors (Provide one level of WBS indenture based on program requirements) In-House (Provide one level of WBS indenture based on program requirements) Contingency (Service) TOTAL RDT&E APPROPRIATION MILCON O&M 5 MILPERS 5 TOTAL DEVELOPMENT PHASE				
<b>PRODUCTION PHASE</b>				
PROCUREMENT System Cost 7 Flyaway (Provide one level of WBS indenture based on program requirements) Other System Costs Initial Spares Other Line Item Procurement 8 TOTAL PROCUREMENT APPROPRIATION MILCON O&M 5 MILPERS 5 TOTAL PRODUCTION PHASE	( ) 6	( ) 6	( ) 6	( ) 6
<b>TOTAL OPERATING &amp; SUPPORT PHASE</b>				
<b>TOTAL LIFE CYCLE REQUIREMENTS</b>				
<b>AVERAGE ANNUAL SYSTEM O&amp;S COSTS</b>				
No. of Systems:	No. of Years:			

- 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 DoD Instruction 5000.33 (reference (u)).
  - 2 Identify basis for estimate and date of SDDM.
  - 3 Add columns as necessary for each SDDM revision.
  - 4 The preferred alternative or the latest approved 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 phase.
  - 6 Enter Quantity.
  - 7 Equal to Weapon System Cost as defined in DoD Instruction 5000.33 (reference (u)).
  - 8 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.
- NOTE:** Reasons for significant variations in estimate should be explained by footnote (e.g., schedule slippage, Congressional funding, etc.).

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 5000.2 (Annex C to Encl 4)

IPS ANNEX C  
 RESOURCES - SUMMARY OF SYSTEM ACQUISITION COSTS <sup>1</sup>

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

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

1 Refer to DoD Instruction 5000.33 (reference (u)).

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5000.2 (Annex D to Encl 4)

IPS ANNEX D  
MANPOWER

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

A. Current manpower estimate for military force structure:<sup>1</sup>

UNIT TYPE	UNIT MANNING <sup>3</sup>			PROGRAM TOTALS <sup>5</sup>		
	PROGRAM ALTERNATIVE <sup>2</sup>	REFERENCE SYSTEM	NO. OF UNITS <sup>4</sup>	ACTIVE MILITARY	RESERVE COMPONENT	OTHER

B. Contractor support and depot workload (Annual manhours per end item deployed)<sup>6</sup>:

DSARC System      Reference System

Contractor Support (below depot)

Depot Level Workload

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

Active Forces      Reserves      DoD Civilians

Number of Authorizations

- 1 Not required at Milestone 1.
- 2 List each unit type that will operate the system/primary system elements, including unit types that provide intermediate maintenance of system components. Examples of unit types are "Tank Battalion," "Munitions Maintenance Squadron," "Avionics Intermediate Maintenance Department."
- 3 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.

- 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, reverse component authorizations, and/or other to be identified in footnote. Unprogramed requirements must be shown as "other."
- 6 Annual man years of below-depot contractor support divided by the planned quantity of the system in the force structure, and the annual man years for depot level maintenance of the system and its components divided by the planned quantity of the system in the force structure. Not required at Milestone I.

IPS ANNEX E  
LOGISTICS

The IPS will have a one-page Logistics Annex. The following provides general format guidance, but should be tailored to meet the needs of each new system.

	New System <sup>1</sup>			Current System <sup>2</sup>
	Alt. 1	Alt. 2	Alt. 3	
1. System Readiness Objectives				
Peacetime Readiness 3				
Wartime Employment 4				
<hr/>				
2. Design Parameters				
Reliability 5				
Maintainability 6				
Built-in-test Effectiveness 7				
<hr/>				
3. Logistics Parameters				
Resupply Time				
Spares Requirement 8				

- 1 Include one column for each program alternative. For each parameter provide an estimate at system maturity based on analyses and tests to date.
- 2 Identify a comparable system in current operation.
- 3 Appropriate peacetime measures such as Operational Readiness at peacetime utilization rate, supply and maintenance downtime rates.
- 4 Appropriate wartime measure for the system such as sortie generation rate, operational availability at combat utilization rate, station coverage rate.
- 5 Appropriate logistic-related reliability parameters such as mean time between maintenance actions or removals.
- 6 Appropriate maintainability measures for the system such as mean time to repair, maintenance manhours per maintenance action.
- 7 If applicable to the system, include fault detection, fault isolation, and false alarm rates.
- 8 Estimate of spares investment required to meet system readiness objectives at stated logistic-related reliability levels. May be stated as requirement per site or operating unit, or for entire fleet, as appropriate.

DOD POLICY ISSUANCES RELATED  
TO ACQUISITION OF MAJOR SYSTEMS

A. DEFENSE ACQUISITION REGULATION  
(FORMERLY ARMED SERVICES PROCUREMENT REGULATION)

B. ADMINISTRATION - GENERAL

- 4105.55 (D) Selection and Acquisition of Automatic Data Processing Resources
- 4275.5 (D) Acquisition and Management of Industrial Resources
- 5000.4 (D) OSD Cost Analysis Improvement Group
- 5000.16 (D) Joint Logistics and Personnel Policy and Guidance (JCS Publication No. 3)
- 5000.23 (D) System Acquisition Management Careers
- 5000.29 (D) Management of Computer Resources in Major Defense Systems
- 5100.40 (D) Responsibility for the Administration of the DoD Automatic Data Processing Program
- 5220.22 (D) Department of Defense Industrial Security Program
- 5500.15 Review of Legality of Weapons Under International Law
- 7920.1 (D) Life Cycle Management of Automated Information Systems (AIS)
- 7920.2 (D) Major Automated Information System Approval Process

C. ADMINISTRATION - STANDARDIZATION OF TERMINOLOGY

- 5000.8 Glossary of Terms Used in the Areas of Financial, Supply and Installation Management
- 5000.9 (D) Standardization of Military Terminology
- 5000.11 (D) Data Elements and Data Codes Standardization Program
- 5000.33 Uniform Budget/Cost Terms and Definition

D. COMMUNICATION/INFORMATION MANAGEMENT

- 5000.19 (D) Policies for the Management and Control of Information Requirements
- 5000.20 (D) Management and Dissemination of Statistical Information
- 5000.22 Guide to Estimating Cost of Information Requirements
- 5000.32 DoD Acquisition Management Systems and Data Requirements Control Program
- 5230.3 (D) Information Releases by Manufacturers
- C-5230.3 (D) Public Statements on Foreign and Military Policy and on Certain Weapons (U)
- 5230.4 (D) Release of Information on Atomic Energy, Guided Missiles and New Weapons
- 5230.9 (D) Clearance of Department of Defense Public Information
- 5400.4 (D) Provision of Information to Congress
- 5400.7 (D) Availability to the Public of Department of Defense Information

E. CONTRACT MANAGEMENT

- 1100.11 (D) Equal Employment Opportunity, Government Contracts
- 4000.19 (D) Basic Policies and Principles for Inter-service, Interdepartmental and Interagency Support
- 4105.60 Department of Defense High Dollar Spare Parts Breakout Program
- 4105.62 (D) Selection of Contractual Sources for Major Defense Systems
- 4140.41 Government-Owned Materiel Assets Utilized as Government-Furnished Materiel for Major Acquisition Programs
- 4160.22 (D) Recovery and Utilization of Precious Metals



- 5010.8 (D) DoD Value Engineering Program
- 7800.1 (D) Defense Contract Financing Policy

F. INTEGRATED LOGISTICS

- 4100.35 (D) Development of Integrated Logistic Support for Systems/Equipments
- 4130.2 (D) The Federal Catalog System
- 4140.19 Phased Provisioning of Selected Items for Initial Support of Weapons Systems, Support Systems, and End Items of Equipment
- 4140.40 (D) Basic Objectives and Policies on Provisioning of End Items of Materiel
- 4140.42 Determination of Initial Requirements for Secondary Item Spare and Repair Parts
- 4151.7 Uniform Technical Documentation for Use in Provisioning of End Items of Materiel
- 4151.15 Depot Maintenance Programming Policies
- 5100.63 Provisioning Relationships Between the Military Departments/Defense Agencies and Commodity Integrated Materiel Managers

G. INTERNATIONAL COOPERATION

- 2000.3 (D) International Interchange of Patent Rights and Technical Information
- 2000.9 (D) International Co-Production Projects and Agreements Between the U.S. and other Countries or International Organizations
- 2010.6 (D) Standardization and Interoperability of Weapon Systems and Equipment within the North Atlantic Treaty Organization (NATO)
- 2010.7 (D) Policy on Rationalization of NATO/NATO Member Telecommunication Facilities
- 2015.4 Mutual Weapon Development Data Exchange Program (MWDDEP) and Defense Development Exchange Program (DDEP)
- 2035.1 (D) Defense Economic Cooperation with Canada

- 2045.2                    **Agreements with Australia and Canada for  
Qualification of Products of Non-Resident  
Manufacturers**
  
- 2100.3    (D)            **United States Policy Relative to Commitments  
to Foreign Governments Under Foreign Assistance  
Programs**
  
- 2140.1                    **Pricing of Sales of Defense Articles and  
Defense Services to Foreign Countries and  
International Organizations**
  
- 2140.2    (D)            **Recoupment of Nonrecurring Costs on Sales  
of USG Products and Technology**
  
- 3100.3    (D)            **Cooperation with Allies in Research and  
Development of Defense Equipment**
  
- 3100.4    (D)            **Harmonization of Qualitative Requirements  
for Defense Equipment of the United States  
and Its Allies**
  
- 3100.8                    **The Technical Cooperation Program (TTCP)**
  
- 4155.19                   **NATO Quality Assurance**
  
- 5100.27   (D)            **Delineation of International Logistics  
Responsibilities**
  
- 5230.11   (D)            **Disclosure of Classified Military Information  
to Foreign Governments and International  
Organizations**
  
- 5230.17   (D)            **Procedures and Standards for Disclosure of  
Military Information to Foreign Activities**
  
- 5530.3    (D)            **International Agreements**

**H. PLANS - CONSERVATION OF RESOURCES**

- 4170.9                    **Defense Contractor Energy Shortages and  
Conservation**
  
- 6050.1    (D)            **Environmental Effects on the United States  
of DoD Actions**

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## Department of Defense Instruction

ASD(C)

**SUBJECT** The Planning, Programming, and Budgeting System

- Refs:
- (a) DoD Directive 7000.1, "Resource Management Systems of the Department of Defense," August 22, 1966
  - (b) Sec Def Multiaddressed Memorandum, "Interim Operating Procedure (IOP) Number 1," June 21, 1969 (hereby cancelled)
  - (c) DoD Instruction 7110.1, "Guidance for the Preparation of Budget Estimates, Budget Execution Programs and Apportionment Requests and Related Support Materials," August 23, 1968, and Manual (7110.1-M)
  - (d) DoD Instruction 7060.2, "International Balance of Payments Program-Accounting, Reporting, Estimating and Establishing Targets," January 16, 1969
  - (e) DoD Instruction 7041.3, "Economic Analysis of Proposed DoD Investments," February 26, 1969
  - (f) DoD Instruction 7045.7, "Review and Approval of Changes to the Five Year Defense Program," December 22, 1967 (hereby cancelled)
  - (g) DoD Instruction 7045.8, "Updating the Five Year Defense Program (FYDP)," May 23, 1968
  - (h) DoD Instruction 7045.5, "Functional Reviews," August 31, 1965 (hereby cancelled)
  - (i) DoD Instruction 7040.5, "Definition of Expenses and Investment Costs," September 1, 1966
  - (j) DoD Directive 3200.\_\_, "Development Concept Papers (DCP) System" (to be published)
  - (k) DoD Instruction 7250.10, "Implementation of Reprogramming of Appropriated Funds," March 5, 1963

### I. PURPOSE

This Instruction establishes procedural guidance for: (a) processing changes to the approved resources of the Five Year Defense Program (FYDP), (b) submission, analysis, review, and approval of new and revised Department of Defense programs and budgets, and (c) maintenance and updating of the FYDP structure. It authorizes the publication, maintenance, and review of the FYDP Codes and Definitions Handbook (7045.7-H) in support of reference (a).

### II. APPLICABILITY AND SCOPE

- A. The provisions of this Instruction apply to all of the Department of Defense.

- B. The scope of the Five Year Defense Program will include force, manpower and cost data and information covering the prior, current and succeeding fiscal years. The force structure will include data and information for the prior fiscal years, current fiscal year, budget year, and seven succeeding fiscal years. Cost and manpower data will be included for the prior fiscal years, current fiscal year, budget year, and the four succeeding fiscal years.

### III. DEFINITIONS

- A. Approved Program - Resources (Forces, Manpower, Obligational Authority and Materiel) for individual program elements reflected in the FYDP, as modified by Secretary of Defense decisions.
- B. Budget Costs - Costing used in budget submissions as distinguished from costing used in programming documents, hereinafter referred to as programming costs. Budget costs represent the specific TOA requirements for funds in a particular fiscal period and generally represent a refinement of programming costs.
- C. Budget Year - That fiscal year arrived at by adding one to the current fiscal year. In fiscal year 1970, the budget year is fiscal year 1971.
- D. Program/Budget Review Schedule - An annual Secretary of Defense memorandum issued to announce the schedule of significant events impacting on the DoD decision-making cycle.
- E. Cost Category - One of three types of costs into which the total cost of a program element is divided: (1) research and development, (2) investment, and (3) operations. (See DoDI 7040.5, reference (i).)
- F. Development Concept Paper (DCP) - A document prepared by the Director of Defense Research and Engineering (DDR&E) and coordinated with key DoD officials providing a summary management document for the Secretary of Defense. DCPs reflect the Secretary of Defense decisions on important development and engineering modification programs. The document serves as a source of primary information and rationale and for updating the FYDP. (See reference (j).)
- G. Fiscal Guidance - Annual guidance issued by the Secretary of Defense which provides the fiscal constraints that must be observed by the JCS, the Military Departments, and Defense Agencies, in the formulation of force structures and Five Year Defense Programs, and by the Secretary of Defense staff in reviewing proposed programs.



- H. Five Year Defense Program (FYDP) - The official program which summarizes the Secretary of Defense approved plans and programs for the Department of Defense. The FYDP is published at least once annually. The FYDP is also represented by a computer data base which is updated regularly to reflect decisions.
- I. Joint Force Memorandum (JFM) - A document prepared annually by the JCS and submitted to the Secretary of Defense which provides recommendations on the joint force program within the fiscal guidance issued by the Secretary of Defense.
- J. Joint Research and Development Objective Document (JRDOD) - A document prepared annually which provides the advice of the JCS to the Secretary of Defense concerning R&D objectives necessary to carry out the strategy and force recommendations in the JSOP.
- K. Joint Strategic Objectives Plan (JSOP) - A document prepared annually which provides the advice of the Joint Chiefs of Staff to the President and the Secretary of Defense on the military strategy and force objectives for attaining the national security objective of the United States. In addition to recommendations on major forces, it includes the rationale supporting the forces and assessment of risks associated therewith, costs and manpower estimates, and other supporting data. The JSOP is published in three volumes: I - Strategy, II - Analysis and Force Tabulations, and III - Free World Forces.
- L. Program - A combination of program elements designed to express the accomplishment of a definite objective or plan which is specified as to the time-phasing of what is to be done and the means proposed for its accomplishment. Programs are aggregations of program elements, and, in turn, aggregate to the total FYDP.
- M. Program Change Decision (PCD) - A Secretary of Defense decision, in prescribed format, authorizing changes to the Five Year Defense Program. (See Enclosure 3.) (Also see Program/Budget Decision (PBD).)
- N. Program Change Request (PCR) - Proposal in prescribed format for out-of-cycle changes to the approved data in the Five Year Defense Program. (See Enclosure 2.)
- O. Program Decision Memorandum (PDM) - A document which provides decisions of the Secretary of Defense on PDMs and the JFM.
- P. Program Element - A description of a mission by the identification of the organizational entities and resources needed to perform the assigned mission. Resources consist of forces, manpower, material quantities, and costs, as applicable. The program element is the basic building block of the FYDP.

- Q. Planning/Programming/Budgeting System (PPBS) - An integrated system for the establishment, maintenance, and revision of the FYDP and the DoD budget.
- R. Program/Budget Decision (PBD) - A Secretary of Defense decision in prescribed format authorizing changes to a submitted budget estimate and the FYDP. (See Enclosure 3.)
- S. Programming Cost - Cost data for making program decisions. Programming costs are based on sets of factors which will provide consistent cost data under the same or similar circumstances, and which are directly related to the explicit elements of the program decision.
- T. Program Objective Memorandum (POM) - A memorandum in prescribed format submitted to the Secretary of Defense by the Secretary of a Military Department or the Director of a Defense Agency which recommends the total resource requirements within the parameters of the published Secretary of Defense fiscal guidance. (See Enclosure 1.)
- U. Program Year - A fiscal year in the Five Year Defense Program that ends not earlier than the second year beyond the current calendar year. Thus, during calendar year 1969, the first program year is FY 1971.
- V. Total Obligational Authority (TOA) - The total financial requirements of the Five Year Defense Program or any component thereof required to support the approved program of a given fiscal year.

#### IV. CANCELLATIONS

References (b), (f), and (h), are hereby cancelled.

#### V. PROGRAM/BUDGET REVIEW SCHEDULE

The Secretary of Defense will publish an annual memorandum providing a schedule of significant events for the current year. This memorandum will be issued prior to the submission of JSOP, Volume I, and will be revised as necessary. It will identify:

- A. The base program from which all proposed changes will be made by publication of "as of" date.
- B. The schedule for the submission of the Joint Strategic Objectives Plan (JSOP), the Joint Research and Development Objectives Document (JRDOD), and the Joint Force Memorandum (JFM), by the Joint Chiefs of Staff.
- C. Specific dates for the submission of the Program Objectives Memoranda.

- D. Schedules for the issuance of Secretary of Defense Strategic Guidance, Fiscal Guidance, Logistic Guidance, and Program Decision Memoranda.
- E. Dates for the submission of the DoD budget estimates.
- F. Identification of special reviews and studies to be conducted during the calendar cycle and identification of the primary action office.
- G. A date for the inclusion of an additional year to the FYDP.
- H. Date for the Major Budget Issue meetings between the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, and the Military Department Secretaries. Date for similar meeting to discuss Major Force Issues will be announced by the Secretary of Defense as necessary by separate memorandum.
- I. Other items having an impact on the decision-making cycle.

VI. STRATEGIC OBJECTIVES

- A. The Joint Chiefs of Staff will prepare Volume I - Strategy, of the JSOP to be submitted to the Secretary of Defense. Volume I will provide the statement by the JCS of the national security objectives, based on decisions of the President, and the military objectives derived therefrom. It will include military strategic concepts and objectives on a world-wide and regional basis.
- B. The Secretary of Defense will review Volume I, JSOP, and will then issue appropriate guidance on strategic concepts for comment by the JCS. This guidance memorandum may update and/or enlarge upon the strategy in Volume I based on changes in national security objectives or commitments as provided by the President. When a change in national security objectives, commitments, or in strategy is indicated, the variation in risks, if any, will also be addressed. After review and consideration of the JCS comments, the Secretary of Defense will reissue the guidance memorandum which, along with Volume I, will serve as a planning document in the formulation of Volumes II and III, JSOP, the JFM, and the Program Objective Memoranda.

VII. FISCAL GUIDANCE

- A. Annually, the Secretary of Defense will issue tentative Five Year Fiscal Guidance to define the total financial constraints within which the DoD force structure will be developed and reviewed. The fiscal guidance will be by major mission and support category for each Military Department and Defense Agency. The first fiscal guidance will be issued for comment by the JCS, Military.

Departments and Defense Agencies, following the issuance of the final Strategic Guidance Memorandum. The Secretary of Defense will specify in the Fiscal Guidance the nature of the fiscal planning constraints, and the assumptions used in its preparation. After review of JSOP, Volume II, JRDOD, and comments on the general fiscal guidance, the Secretary of Defense will issue revised fiscal guidance. The Secretaries of the Military Departments will participate in the development of the revised fiscal guidance. In developing the revised fiscal guidance, consideration will also be given to the current budget, the FYDP, program deferrals, inflationary trends, gross national product estimates, and other economic considerations.

- B. For planning purposes, the totals of the fiscal guidance for each program year and each Military Department/Defense Agency will be considered firm. To insure increased flexibility in developing balanced programs, reallocations of funds are permitted between major mission and support categories unless specifically stated otherwise in the Secretary of Defense Fiscal Guidance Memorandum. Fiscal guidance will be used by the JCS in the formulation of the JFM and by each Military Department and Defense Agency in the formulation of their PCMs.
- C. Fiscal guidance will normally identify specific major mission and support categories. On a selected basis additional program aggregations may be identified for separate visibility. These will be specifically identified in the Fiscal Guidance Memorandum. Representative examples of the major mission and support categories are: (1) Strategic Offensive and Defensive Forces, (2) Land Forces, (3) Tactical Air Forces, (4) R&D, and (5) Training.

#### VIII. PROGRAM OBJECTIVES

- A. Volume II - Analyses and Force Tabulations of the JSOP - will be published annually by the JCS with analysis, rationale, force tabulations, and program costs and associated manpower requirements as provided by the Services. Volume II will present the requirements and the recommendations for major forces for the mid-range period considered necessary to achieve the military objectives in support of the national security objective. It will be based on Volume I - Strategy - JSOP, and as may be modified by the guidance memorandum on strategic concepts issued by the Secretary of Defense. Also, Volume II will highlight major force issues which require decisions during the current year.
- B. Volume III - Free World Forces of the JSOP - will be published annually by the JCS in the same time-frame as Volume II. Volume III will provide advice on military objectives and guidelines for Free World Forces required, militarily, for the attainment of U.S. national security and military objectives. The analyses and recommendations presented in Volume III will be based on the

strategic appraisals and regional concepts in Volume I and the Strategic Guidance Memorandum, and are designed to provide the basis for a U. S. position on military assistance.

- C. In addition to Volume II, the Joint Chiefs of Staff will develop and submit annually to the Secretary of Defense the Joint Force Memorandum. The JFM will present the recommended force levels and support programs, similar in format to Volume II, all developed within the parameters of the fiscal guidance issued by the Secretary of Defense. The JFM will include program costs and associated manpower requirements as provided by the Military Services. The JFM should be analyzed in accordance with reference (e) prior to submission. A summary will be included of analyses and assessment of risks associated with the forces as measured against the strategy and military objectives in Volume I and the Strategic Guidance Memorandum. Also, the JFM will highlight major force issues which require decisions during the current year. It will compare costs of the recommended forces and the support programs with the approved FYDP program baseline as stated in the annual Program/Budget Review Schedule. The JFM should be considered by the Military Departments and Defense Agencies to assist in the preparation of their POMs.
- D. The Joint Chiefs of Staff will develop and submit annually the Joint Research and Development Objectives Document (JRDOD) to the Secretary of Defense. The JRDOD will provide R&D objectives responsive to the strategy and force recommendations in the JSOP as well as long-range and technological objectives for capabilities expected to be needed in the 10-20 year period. Indicators of relative military importance and appropriate rationale will be included to assist in developing the DoD R&D program and in the preparation of Development Concept Papers (DCPs).
- E. Annually, each Military Department and Defense Agency will prepare and submit to the Secretary of Defense a Program Objective Memorandum (POM). POMs will be based on the Strategic Guidance as stated in the JSOP, Volume I, as modified by Secretary of Defense Strategic Guidance Memorandum. POMs will express total program requirements and should be analyzed and evaluated where applicable in accordance with DoDI 7041.3 (reference (e)). POMs must provide force, manpower cost and materiel recommendations, and rationale for proposed changes from the approved FYDP base and the JFM, and the risk assessment and military advantages to be gained. Costs will be programming costs within the scope of fiscal guidance issued by the Secretary of Defense. Supporting information for POMs will be in program element terms except

that procurement for other than major weapons systems may be provided in form of procurement listings.

- F. POMs may be revised after submission when the originator believes that such a revision will result in a better balanced program. Recommended POM changes should be made only when the change may be completely processed to permit analysis with the originally submitted POM, that is, in advance of a Secretary of Defense decision on a POM. POM revisions will include an identification of equal cost trade-offs within annual Military Department/Defense Agency totals to preclude increases to the fiscal constraints. POM revisions will identify equal or greater effectiveness in addition to cost trade-offs.
- G. When changes cannot be processed in time to be included in a Secretary of Defense Program Decision Memorandum for a specific program, such changes will be processed to the Secretary of Defense using a PCR provided the change will increase military readiness significantly and is considered of such an urgent nature to require Secretary of Defense review out of cycle, or involve inter-Service functional transfers which create manpower authorization increases to end-year strengths. (See paragraph XII.B.2.)
- H. The Secretary of Defense will direct an annual staff review of Volumes II and III, JSOP, JRDOD, the JFM, and POMs. Based on the review, the Secretary will issue appropriate Program Decision Memoranda.
- I. The specific PDM issue dates will be announced by the Secretary of Defense in the revised annual Program/Budget Review Schedule memorandum. Each PDM and DCP will be supported by a "resource annex" which will provide a translation of resources to program elements in the FYDP. Decisions will be transmitted to the JCS, Military Departments and Defense Agencies as appropriate for analysis, the submission of comments, and updating of the FYDP.

#### IX. COMPONENT COMMENTS

- A. Within two weeks after receipt of each Program Decision Memorandum, the JCS, Military Departments and Defense Agencies, as appropriate, will submit comments to the Secretary of Defense. Comments should be basically narrative and will address each issue to insure that the views of the JCS, Service Secretaries, and Defense Agency Directors, are represented.
- B. Comments may be prepared in a manner prescribed by the submitting activity, but will present the extent of program impact that may be expected as a result of the decision. If a dissenting view is expressed, any additional or clarifying information or justification not stated in the POM should accompany the statement to allow a re-evaluation of the issue.

- C. Comments submitted by the JCS will address the total DoD program balance as weighed against the Joint Force Memorandum. JCS would be expected to advise the Secretary of Defense with an assessment of the risks involved and inherent in the tentatively approved programs and provide an evaluation of any strategic implications resulting from the program if adopted.
- D. The Secretary of Defense will direct a staff review of all comments. Program Decision Memoranda will be modified by reissue of page changes to the original PIM to incorporate any new decision.

X. DECISION IMPLEMENTATION

- A. Secretary of Defense decision documents will provide the basis for the updating of the FYDP data file by the Military Departments and Defense Agencies. Military Departments and Defense Agencies will apply the approved forces, manpower and cost data to the FYDP data file, as stated by the decision, by program element. Decisions will be applied to the FYDP data base as outlined by paragraph VI.B of DoD Instruction 7045.8 (reference (g)), even though their comment to the Secretary of Defense may express a dissenting position.
- B. On an "as required" basis, the ASD(C) will issue a PCD which will direct FYDP updates to be submitted. PCD will include any special update and program structure changes necessary for the specific update. Military Departments and Defense Agencies will maintain their FYDP data files as prescribed by DoDI 7045.8 (reference (g)) to insure a rapid response to a specific update request.

XI. BUDGET ESTIMATES

- A. Annually, each Military Department and Defense Agency will submit its budget estimate to the Secretary of Defense in accordance with reference (c), DoDI 7110.1 and 7110.1-M. These budget estimates will include the budget year and the two prior fiscal years in accordance with currently established procedures. Budget estimates will be submitted based on the approved program resulting from incorporating the effects of all decision documents received through a predetermined date to be announced by the annual Program/Budget Review Schedule memorandum. Specific detailed instructions for the submission of budget estimates will be separately prescribed for each year.
- B. The Secretary of Defense will direct a staff review of the budget estimates received from the Military Departments and Defense Agencies. Based on the review and analysis of budgets, the Secretary of Defense will publish a series of Program/Budget Decisions. Budget decisions will address specific budgetary

issues and be related to the appropriations and budget activity structure of the Department of Defense. PBDs will include the budget year and prior years as appropriate. The decision record of the PBD will also include an estimate of the impact of the PBD on the next program year.

- C. PBDs, including the decision record, will be transmitted to the Military Departments and Defense Agencies for insertion of the PBD and decision record into the FYDP. Reclama statements may be submitted to the Secretary of Defense but should be submitted only if the impact is considered to be sufficiently serious to warrant the personal reconsideration by the Secretary of Defense. Budgetary reclama statements must be concise, complete, and based on new facts or justification not previously submitted in order to provide a basis for a re-evaluation of the decision. The Secretary of Defense will direct a staff review of all budgetary reclama statements and will issue a specific decision for each reclama.
- D. In addition to the submission of reclama statements, Service Secretaries will identify major budget issues to the Secretary of Defense after completion of their review of the PBDs. Issues must be of sufficient priority in the opinion of a Service Secretary to warrant a personal Secretary of Defense and Service Secretary discussion. A Major Budget Issue meeting will be scheduled and announced in the Secretary of Defense Program/Budget Review Schedule memorandum. Decisions of the Secretary of Defense resulting from this meeting will be addressed in revisions to previously issued PBDs.

## XII. APPROVED PROGRAM CHANGES

- A. The receipt of a PIM, DCP, PCD, PBD, DD Form 1415, or Secretary of Defense memorandum reflecting the decision of the Secretary of Defense will constitute a new approved program base when entered into the FYDP by the Military Departments and Defense Agencies. Changes to the approved base for the budget and program years will be made only by subsequent PIMs, PCDs, DCPs, or PBDs, or by Military Departments or Defense Agencies within the established thresholds of this Instruction. DCPs will be entered into the FYDP and data reviewed and approved by DDR&E. Data changes will be announced by DDR&E using PCDs or addressed in the R&D PDM.
- B. Subsequent to the receipt of a PIM and prior to the next Military Department or Defense Agency POM submission date, Secretaries of the Military Departments and Directors of Defense Agencies will be permitted to make changes to the FYDP without prior approval by the Secretary of Defense when such changes are confined within the following thresholds, and as further qualified by subparagraph C, below:



1. Forces

Current Year - Only those changes within the approved TOA subject to the limitations imposed by DoDI 7250.10 (reference (k)).

Budget and Program Years - Any force change within or among elements within available inventory not requiring additional TOA or manpower. Forces will be identified as those forces approved by the current Secretary of Defense Program Decision Memorandum.

2. Manpower

Current Year - Only those changes within the total manpower end-year strengths. Includes the transfer of both military and civilian authorizations and drill pay among elements.

Budget and Program Years - Only those changes where the net effect will not increase the total military or civilian end-year strengths. Changes which are the result of inter-Service agreements for functional changes and authorizing manpower in excess of 100 military or 100 civilians for a gaining Military Department, or 25 military or 25 civilians for a gaining Defense Agency, OSD or JCS, will not be accomplished until a confirmation PCR has been submitted by the gaining activity, and the transfer is approved.

3. Costs

Current Year - Any change within the approved TOA subject to the limitations imposed by DoDI 7250.10 reprogramming actions.

Budget Year - During the period July through December changes may be made within the approved TOA by cost category unless such authority has been negated in the annual budget estimate submission instructions or by separate memorandum. During the period January through June, no changes will be made since the President's Budget will have been established and submitted.

Program Year - Except as outlined by specific R&D decision documents or negated by other OSD authority, changes may be made within the approved TOA by appropriation.

- C. FYDP changes for the budget and program years which are accomplished by the Secretaries of the Military Departments and Directors of Defense Agencies are permitted without explanation only when such changes for a program element remains below a cumulative total for a single fiscal year of ten million dollars or, in the case of

manpower, below 300 military or civilian authorizations. Military Departments and Defense Agencies are required to submit a memorandum to OASD(C) to accompany the FYDP update in which the change is recorded explaining the changes which have exceeded the cumulative TOA or manpower change thresholds since the last explanatory memorandum.

XIII. LIMITATIONS

Approval of programs will not constitute authority to either commit or obligate funds.

XIV. FYDP HANDBOOK

The FYDP handbook authorized by this Instruction will be revised quarterly and revisions distributed by ASD(C). The handbook is the official presentation of the DoD Program Structure and will contain approved codes and titles used in updating the FYDP data file.

XV. IMPLEMENTATION AND EFFECTIVE DATE

This Instruction is effective January 1, 1970. Three copies of each Military Department's and Defense Agency's implementing documents will be forwarded to ASD(C) within ninety days after the effective date.

*R. E. Moot*

Assistant Secretary of Defense  
(Comptroller)

Enclosures - 3

1. Preparation and Processing of Program Objective Memorandum (POM)
2. Preparation and Processing of Program Change Request (PCR)
3. Preparation and Use of Program Change Decision (PCD) and Program/Budget Decision (PBD)

INSTRUCTIONS FOR PREPARATION  
AND PROCESSING  
OF THE  
PROGRAM OBJECTIVE MEMORANDUM  
(POM)

A. General

1. Program Objective Memorandums (POMs) will be provided to the Secretary of Defense on an annual basis by each of the Secretaries of the Military Departments and the Directors of Defense Agencies. Submission dates will be announced in the Program/Budget Review Schedule issued by the Secretary of Defense.
2. POMs will be submitted in eight copies to the Director for Program and Financial Control, Office of the Assistant Secretary of Defense (Comptroller).
3. A single POM will be expected from each Military Department and Defense Agency separated for each of the major mission and support categories and special program aggregations identified in the Secretary of Defense Fiscal Guidance Memorandum.
4. POMs must represent a comprehensive and detailed expression of the total resource requirements associated with the total commitment of the submitting activity and will contain as a minimum, that amount of data and information prescribed for a PCR. (See Enclosure 2). POMs must be analyzed and evaluated where applicable in accordance with the guidance established by DoD Instruction 7041.3, "Economic Analysis of Proposed DoD Investments" (Reference (e)).
5. The organization of Military Departments and Defense Agencies individual POMs is left to the discretion of the submitting activity, provided the organization allows separation of the individual segments directed by the mission and support aggregations of the Secretary of Defense Fiscal Guidance Memorandum. For example, a POM must be a single input consisting of as many volumes or parts as there are Major Mission and Support Categories identified in the Fiscal Guidance which impact on the activities' total program. Computer products meeting or exceeding the data and information requirements of a PCR, are encouraged. Additionally each POM must meet the specifics outlined below.
6. POMs will be forwarded as total packages and are not acceptable in increments. POM due dates are not subject to negotiation due to the constraints of the calendar and the impact an extension would have on the remainder of the decision-making.

process. Military Departments and Defense Agencies should initiate the needed discipline in implementing procedures to insure on-time processing.

B. Processing

1. POMs will be forwarded to the Assistant Secretary of Defense (Comptroller) for the further processing within OSD for staff review and the establishment of control records. Primary Action Offices (PAOs) and Collateral Action Offices (CAOs) will be determined by the Office of the Assistant Secretary of Defense (Comptroller) to include Defense Agencies when a direct interest is apparent, i.e. Intelligence, Communications.
2. Once a POM has been forwarded to the Secretary of Defense for decision, the program is considered "locked," that is, no changes should be made pending the outcome of the decision by the Secretary of Defense. If, however, a Secretary of a Military Department or Director of a Defense Agency has reason to change the POM, it is permitted under the following conditions:
  - a. Change must be accomplished by the submission of page changes to the original POM or added inserts as appropriate.
  - b. Change must identify an equal monetary and effectiveness tradeoff to be removed from the original POM, in order to stay within the fiscal constraints on which the original POM was based.
  - c. Change must be initiated timely enough to allow a decision to be made in concert with the total program. Change is not acceptable if a Secretary of Defense decision is imminent or has been issued.
3. Decisions on the POMs and the JFM will be processed in the form of PDMs consistent with the titles of the major mission and support categories and special aggregations identified within the Secretary of Defense Fiscal Guidance Memorandum. For example, all Military Departments may respond to the Strategic Forces aggregation, however, only a single Secretary of Defense PDM will be issued for the total Strategic aggregation.

C. Specific Information

1. POMs should consider the differences between the Joint Forces Memorandum issued by the JCS and the program being submitted.
2. POMs will include a total summary of the economic analysis and assessment of the costs which will provide an analysis and results, including an assessment of the risks associated with the proposed major mission and support programs and the military advantages to be gained as measured against the JFM.

3. POMs must be prepared within the parameters of the stated Secretary of Defense Fiscal Guidance.
4. POMs will normally be prepared within the boundaries prescribed by the planning data provided by both the JSOP - Volume II and the JFM.
5. Individual summaries should be provided by Major Mission and Support Categories and special aggregations as measured against the currently approved program.
6. POMs will include both direct and indirect costs in the major mission and support category to which the costs are relatable. Related support costs reflected in a major mission category will not again be included in a support category.
7. Cost models are encouraged where they will assist in meeting POM schedules.
8. Total summary (See Item Two above) should also include an identification of major issues which in the opinion of the submitting activity are required to be resolved during the year of submission. A comparison between the identified major issues and the major issues in the Joint Forces Memorandum should be discussed when differences are involved.
9. Supporting detail for POMs will be prepared in program element terms except that procurement programs, other than major weapon systems, may be expressed by use of procurement listings, which will be submitted by major mission and support category.
10. POM backup information should be provided by use of existing documentation to preclude excessive administrative workload.

INSTRUCTIONS FOR THE PREPARATION  
AND PROCESSING OF DD FORMS 1570  
PROGRAM CHANGE REQUEST  
(PCR)

A. General

1. PCRs are to be submitted in accordance with the criteria established by paragraph VIII.G. of this Instruction.
2. Sections or specific blocks of the forms that do not apply should be indicated as "not applicable."
3. PCRs may be originated by and submitted to the Secretary of Defense over the signature of the Secretary of a Military Department, Chairman of the Joint Chiefs of Staff, Director of the Defense Research and Engineering, Assistant Secretaries of Defense, Assistants to the Secretary of Defense and the Directors of Defense Agencies.
4. Secretaries of the Military Departments or the Director of a Defense Agency may delegate authority to sign proposals, not considered major issues, to his Assistant Secretary for Financial Management or Defense Agency Comptroller, or an official at a comparable level of authority within a Defense Agency.
5. PCRs will be transmitted in thirty copies to the Director for Program and Financial Control, Office of the Assistant Secretary of Defense (Comptroller).
6. An economic analysis which includes all information relevant to the evaluation of the proposal and documentation of the decision including International Balance of Payments impact (See Reference (d)) will be included on the forms submitted. When such information as procurement objectives and procurement acceptance or "cost to complete" is considered necessary to the evaluation of the proposal, continuation sheets should be used to expand any section, as needed.
7. PCRs will be prepared to confirm Secretary of Defense decisions expressed by other than recognized decision documents when the decision is in insufficient detail to allow FYDP update action. For the purpose of this Instruction recognized decision documents are: Program Decision Memoranda expressing a Secretary of Defense decision in program element terms by means of a "resource annex," Development Concept Papers (DCPs), accompanied by a "resource annex," Program Change Decisions (PCDs), Program Budget Decisions (PBDs), Reprogramming Actions (DD Forms 1415), and Secretary of Defense Memoranda expressing a decision in sufficient detail to allow FYDP update action.

8. FCRs will be prepared using programming costs and will include resources identified to both direct and indirect elements. For the purpose of this Instruction, direct elements are those which contain resources directly affected by the proposal being made whereas indirect elements are those which change because of a change made to a direct element, e.g. base operations, training, command, housing and elements in Programs 7, 8 and 9 when the direct element is a force element.
9. The FCR summary sheets will summarize the total implication of the change. When more than one program element is involved in a proposal, supporting formats for forces, manpower and costs as applicable, are to be appended for each element included in the proposal.
10. FCRs must include all factors or identify standard factors used in the preparation of the FCR. Those submitted without adequate explanation of data and factors used for justification may be returned for resubmission.

**B. Processing**

1. FCRs will be forwarded to the Assistant Secretary of Defense (Comptroller) for the assignment of a Primary Action Office (PAO), the Collateral Action Office(s) (CAO) and the establishment of control records.
2. FCRs meeting the criteria of this Instruction may be submitted to the Secretary of Defense for decision at any time subsequent to the receipt of a FDM and prior to the date of the submitting activities' POM. If the submitting activity is not required to submit a POM, the FCR should be processed timely enough to be decided in advance of the annual submission of the DoD budget estimates.
3. Specific dates will be assigned to both PAOs and CAOs by which action on a FCR must be completed. It is the responsibility of the CAO to insure timely input of comments to the assigned PAO and the responsibility of the PAO to insure that the required date for the preparation and submission of the FCD is met.
4. The DD Forms 1570 series will be used to organize a FCR for submission to OSD unless computer products are available and data meets or exceeds that required by the DD Forms 1570.

**C. Specific Information**

1. Summary Form - DD Form 1570
  - a. FCR Number - Enter appropriate number. Change numbers are assigned by the submitting Military Department or Defense Agency in consecutive sequence starting with one each

calendar year. The Military Departments' or Defense Agencies' identifier code as prescribed by Chapter II of DoD 7045.7-H, and a prefix designating the calendar year will precede each number (e.g. E-9-001). Numbers assigned to proposals that are subsequently withdrawn or cancelled after submission to the Assistant Secretary of Defense (Comptroller) will not be reused.

- b. Program Element Title - Enter the specific program element title as prescribed in Chapter II of DoD 7045.7-H. When an aggregation involving more than one program element is involved, use the most descriptive aggregation of the program structure that will identify the proposal being submitted (e.g. Offensive Forces - Missile Units).
- c. As Of Date - Enter the date of the specific FIDP update used as the current approved program on which proposal is based.
- d. Action Officer/Telephone Number - Enter the name and title of the individual most knowledgeable of the proposed changes and the telephone extension on which he may be contacted.
- e. Program Element Code - Enter the specific element code as assigned by Chapter II, DoD 7045.7-H. When more than one code is involved, indicate by inserting the word "various." Specific elements involved should then be stated in the summary. When element codes and titles have not been assigned, enter the word "new" in this block and indicate in the summary that element code(s) and title(s) are to be assigned in the event of approval. The definitions for new element(s) must accompany the proposal.
- f. Summary - Provide brief rationale for the change, assessment of the risk and explain the benefits to be derived and military advantages to be gained in the event of proposal approval. State the emergency of the proposal which requires its solution during the current cycle or explain the absence of the proposal from the POM, as appropriate. Elaborate on the alternatives being considered. Obtain signature as indicated by A.3. above. Apply date.
- g. Summary (Page 2) - Insert as many 8x10 $\frac{1}{2}$  sheets as needed to insure a complete description of the proposal and its justification. Mark each additional sheet with the same FCR number applied to page 1 of the summary form. Inserts need not be used when page 1 of the summary form contains sufficient information and includes: (1) the impact the proposal will have on the International Balance of Payments (IBP) and (2) the impact on the foreign national employment or U. S. military and civilian strengths in foreign countries. When an IBP impact is reported, it should indicate the estimated amount by fiscal year in accordance



with DoD Instruction 7060.2 (Reference (d)) and should differentiate between force changes and manpower changes. When manpower strengths, major procurements or military construction in foreign countries are involved, the changes should be identified to both countries involved and fiscal year.

2. Summary Form - DD Form 1570-1

- a. FCR Number - Enter same number as applied to page 1 summary form DD Form 1570.
- b. Forces - Specific force detail should be identified by program element either on page 1 of the summary or as an attachment to page 1 summary form DD Form 1570. The forces applied to page 3 are the net change differences only and are not required to be program element oriented.
- c. TOA - Enter only the net change the proposal will cause from the currently approved program. Indicate appropriate appropriations being changed. Do not include the impact on Retired Pay/Homeowners Assistance/Military Family Housing/MAP/ or Special Foreign Currency unless the FCR specifically addresses a change to these appropriations.
  - (1) Research and Development Costs - Enter net changes from the current approved program for both the RDT&E and Military Construction appropriations. Show total Research and Development cost change.
  - (2) Investment Costs - Enter net changes to Military Construction as currently provided by the Military Services Project Listing or equivalent for Defense Agencies. Specific program element detail will be provided as backup to the FCR. Enter net changes to Procurement appropriations. Specific "Line Item" detail such as presently provided by the procurement listing, i.e. cost, quantity, and basis of issue information, will be provided as support to the FCR. When indirect procurement costs are included (not manpower-determined) DD Form 1570-2 should be used and labeled "indirect." Appropriate rationale should be provided to indicate derivation of costs reported. Show total Investment cost change.
  - (3) Operations Costs - Enter net change from approved program. Include Military Pay appropriation based on standard military pay factor which will be periodically updated and published by OSD. Include O&M net changes which will be a combination of both the direct and indirect, whether manpower determined or otherwise. DD Form 1570-4 will be used to identify O&M costs that are totally

manpower-determined in addition to other appropriations that are manpower-determined. DD Form 1570-2 will be used to identify indirect O&M costs that are not totally manpower-determined. Sufficient rationale must be provided to indicate derivation of costs reported. Show total operating cost change.

(4) Total Obligational Authority - Enter appropriate totals.

- d. Manpower - Enter only the net change difference from the approved program. Indicate by military officers and enlisted authorizations and show civilians by U. S. Direct Hire, Foreign Direct Hire and Foreign Indirect Hire. Show Total Military and Total Civilian changes.

3. Cost Detail - DD Form 1570-2

- a. FCR Number - Enter same number as applied to page 1 summary form DE Form 1570.
- b. As Of Date - Enter the date of the specific FYDP update used as the current approved program on which the proposal is based.
- c. Program Element Code - Assign appropriate element code as prescribed by DoD Instruction 7045.7-E, "Codes and Definitions Handbook." DD Form 1570-2 is designed to provide data for two element codes. When an element code has not been assigned indicate "new" in this block.
- d. Approved Costs - Enter the Total Obligational Authority reflected in the Five Year Defense Program identified by the annual Program/Budget Review Schedule as modified by subsequent Secretary of Defense decisions. See 3.b. above.
- e. Change Costs - Enter the net change difference to costs between the approved program and the amount being proposed.
- f. Total Change - Enter the total for all years.
- g. Procurement Costs - When indirect procurement costs are being reported, that are not totally manpower-determined, this form should be used and labeled "indirect" accompanied with appropriate rationale to indicate derivation of cost data.
- h. Operations and Maintenance Costs - DD Form 1570-2 does not require the inclusion of the Military Pay appropriation. Use the DD Form 1570-2 for both the direct and indirect program elements respectively. For indirect costs that are not totally manpower-determined, this form will be labeled "indirect" and accompanied with appropriate rationale to indicate derivation of cost data.

**GLOSSARY:**

"Glossary of Acquisition Management Acronyms and Terms", the Defense Systems Management College, July 1980.

**SERVICE REGULATIONS REGARDING GAO:**

1. Army Regulation #36-20, "U.S. General Accounting Office Audits"
2. SECNAV Instruction 5741.2F, "Relations with the General Accounting Office"
3. Air Force Regulation 11-8, "Air Force Relations with the General Accounting Office (GAO)".

**ACCESS TO RECORDS:**

1. OMB Bulletin #81-14, "Exemptions from GAO Access to Records".
2. U.S. General Accounting Operations Manual 1170.2 (A-80), "Information Requests and the Enforcement of Access to Records Authority Under the Budget and Accounting Act, 1921."

**CONTRACTS:**

1. "Government Contract Principles", Office of the General Counsel, GAO, November 1980.
2. Armed Services Procurement Regulations #1-406, "Contract Administration Functions".

**MASAD SUMMARY REPORTS:**

1. "Digests of Major Weapon System Reports Issued January and February 1979", PSAD-79-64, April 25, 1979.
2. "Issues Identified in 21 Recently Published Major Weapon System Reports", PSAD-80-43, June 12, 1980.
3. "Acquiring Weapon Systems In A Period of Rising Expenditures: Implications for Defense Management", MASAD-81-26, May 14, 1981.

4. Manpower Detail - DD Form 1570-3

- a. FCR Number - Enter same number as assigned to page 1 summary form DD Form 1570.
- b. As Of Date - Enter the date of the specific FYDP update used as the current approved program on which the proposal is based.
- c. Program Element Code - Assign appropriate program element code as prescribed by DoD Instruction 7045.7-H, "Codes and Definitions Handbook." DD Form 1570-3 is designed to provide data for two element codes. When an element code has not been assigned indicate "new" in this block.
- d. Approved Manpower - Enter the end year strength for the element code being reported as stated in the Five Year Defense Program identified by the annual Program/Budget Review Schedule as modified by subsequent Secretary of Defense decisions. See paragraph 4.b. above.
- e. Changed Manpower - Enter the net change difference to end year strengths between the currently approved program and the proposal.
- f. Manyear Data - This form does not require manyear information, however, if manyears are used in the cost calculation, they should be appropriately identified.

5. Cost Detail (Indirect) - DD Form 1570-4

- a. FCR Number - Enter same number as assigned to page 1 summary form DD Form 1570.
- b. As Of Date - Enter the date of the specific FYDP update used as the current approved program on which the proposal is based.
- c. Element Codes - Enter the appropriate program element codes as prescribed by DoD Instruction 7045.7-H, "Codes and Definitions Handbook." DD Form 1570-4 is designed to provide indirect cost data for thirteen program elements. When an element code has not been assigned, enter the word "new" in this block.
- d. Appropriations - Include only appropriations which have been changed by this proposal. Military Pay and PCS should be excluded. Use this form only for O&M indirect costs that are totally manpower-determined. Use DD Form 1570-2 for indirect costs that are not totally manpower-determined and annotate the form for "indirect." Retired Pay/Homeowners Assistance/Military Family Housing and PCS should not be included in FCRs unless the FCR specifically addresses a change to these appropriations.



PROGRAM CHANGE REQUEST SUMMARY						PCR NUMBER		
FORCES (Net Change)	FY	FY	FY	FY	FY	FY	FY	FY

(If more space is needed use plain paper and add "page of " etc.)

**TOTAL OBLIGATIONAL AUTHORITY (in thousands of dollars) (Net Change)**

RESEARCH AND DEV.								
POT&E								
MILITARY CONST								
TOTAL RESEARCH AND DEV.								
INVESTMENT:								
PROC								
MILITARY CONSTRUCTION								
TOTAL INVESTMENT								
OPERATING:								
O & M								
MILITARY PERSONNEL								
TOTAL OPERATING								
TOTAL OBLIGATIONAL AUTH								

**MANPOWER (End Strengths) (Net Change)**

MILITARY:								
OFFICER								
ENLISTED								
TOTAL MILITARY								
CIVILIAN:								
U.S. DIRECT HIRE								
FOREIGN DIRECT HIRE								
FOREIGN INDIRECT HIRE								
TOTAL CIVILIAN								

PROGRAM CHANGE REQUEST COST DETAIL		PROGRAM CHANGE REQUEST NUMBER				FY/1/2 OF			
	PROGRAM ELEMENT CODE	TOA IN \$ THOUSANDS							
		FY	FY	FY	FY	FY	FY		
APPROVED	R & D	RDY & E							
		MIL CON							
	INV	PRGC							
		PROC							
		MIL CON							
	OPER	OPERATIONS, AND MAINTENANCE							
	TOTAL OBLIGATIONAL AUTH.								
	CHANGE	R & D	RDY & E						
			MIL CON						
INV		PRGC							
		PROC							
		MIL CON							
1/ OPER		OPERATIONS, AND MAINTENANCE							
TOTAL CHANGE									

	PROGRAM ELEMENT CODE	TOA IN \$ THOUSANDS							
		FY	FY	FY	FY	FY	FY		
APPROVED	R & D	RDY & E							
		MIL CON							
	INV	PRGC							
		PROC							
		MIL CON							
	OPER	OPERATIONS, AND MAINTENANCE							
	TOTAL OBLIGATIONAL AUTH.								
	CHANGE	R & D	RDY & E						
			MIL CON						
INV		PRGC							
		PROC							
		MIL CON							
1/ OPER		OPERATIONS, AND MAINTENANCE							
TOTAL CHANGE									

1/ Military Pay & PCS Not Required

PROGRAM CHANGE REQUEST MANPOWER DETAIL			PROGRAM CHANGE REQUEST NUMBER				FY OF CP	
PROGRAM ELEMENT CODE			FY	FY	FY	FY	FY	FY
APPROVED	END STRENGTH	OFFICER						
		ENLISTED						
		TOTAL MILITARY						
		U.S. DIRECT HIRE						
		FOREIGN DIRECT HIRE						
		FOREIGN INDIRECT HIRE						
CHANGE	END STRENGTH	OFFICER						
		ENLISTED						
		TOTAL MILITARY						
		U.S. DIRECT HIRE						
		FOREIGN DIRECT HIRE						
		FOREIGN INDIRECT HIRE						
REMARKS								

PROGRAM ELEMENT CODE			FY	FY	FY	FY	FY	FY
APPROVED	END STRENGTH	OFFICER						
		ENLISTED						
		TOTAL MILITARY						
		U.S. DIRECT HIRE						
		FOREIGN DIRECT HIRE						
		FOREIGN INDIRECT HIRE						
CHANGE	END STRENGTH	OFFICER						
		ENLISTED						
		TOTAL MILITARY						
		U.S. DIRECT HIRE						
		FOREIGN DIRECT HIRE						
		FOREIGN INDIRECT HIRE						
REMARKS								





INSTRUCTIONS FOR THE USE  
AND PREPARATION OF PROGRAM  
CHANGE DECISIONS (PCDs) AND  
PROGRAM/BUDGET DECISIONS (PBDs)

A. General

1. Program Change Decisions (PCDs) will be used to announce certain program decisions of the Secretary of Defense. Program/Budget Decisions (PBDs) will be used to announce all budget decisions incident to the annual review of the formal budget submission to the Secretary of Defense.
2. The PCDs are formatted in a manner to make them compatible with the PCR forms thereby allowing the responses to be in the same terms as the submissions.
3. PCDs will be used to announce Secretary of Defense decisions in addition to responding to PCRs, however, they will not be used to confirm decisions made by Program Decision Memoranda (PDMs), Development Concept Papers (DCPs) or reprogramming actions which are decisions in their own form.
4. In order to provide a clear understanding of each decision announced by a PCD, it is necessary that the format contain, as a minimum, the following information in precise and explicit terms.

B. Specific Entries

1. Summary Form (Page 1) - SD Form 428
  - a. PCR Number - Enter the same number assigned by the initiating activity of the PCR. When the PCD is being originated by OSD without benefit of PCR input, the letter Z preceding the year will be assigned (e.g. Z-9-001).
  - b. Implementing Component - Enter the name of the Military Department or Defense Agency designated to implement the decision. When implementation involves more than an Agency or Department indicate by inserting the word "All" or "See Below," and specify in the body of the decision those Military Departments or Defense Agencies that will be required to implement the decision.
  - c. Program Element Code - Enter the specific program element code as assigned by DoD Instruction 7045.7-H, "Codes and Definitions Handbook." When more than one element is involved, insert the word "various" and identify each program element in the body of the decision.
  - d. Guidance - Enter the originator of the PCD by inserting the office origin of the proposed decision (e.g. Assistant,

Secretary of Defense (Systems Analysis), Assistant Secretary of Defense (Comptroller), Assistant Secretary of Defense (Installations and Logistics), Assistant Secretary of Defense (Manpower and Reserve Affairs) or other office or agency) having primary responsibility for the authorship of the decision. If Secretary of Defense memorandum or DoE Instruction state in place of office of origin.

- e. Adjustment Requested - Provide a brief summary of the proposed change as originally submitted or outline the objective of the proposed change and provide summary background information to explain why the change is needed.
- f. Evaluation or Discussion - Include an evaluation of the logic of the proposal discussing as necessary, the variances or alternatives considered. Include all significant information that might influence the decision.

## 2. Decision

- a. Include the actual decision, either approved or disapproved or, as appropriate, alternatives being proposed. If disapproved, the reason for disapproval will be stated.
- b. Also include any International Balance of Payments implications that the decision may cause and additional guidance such as the identification of studies to be performed or on-going having a bearing on the decision. Identify as necessary the need for additional information or follow-on reports on the impact of the decision.
- c. The decision will be announced in program-element terms. When a single page decision is issued both the direct and indirect elements will be identified. When the complexities of the decision involve numerous impacts on program elements both direct and indirect, SD Forms 428 through 428-6 (excluding 1 and 2) will be used and prepared in the same manner as prescribed for the DE Forms 1570 through 1570-4.

## 3. Signature and Date

- a. Changes to the FYDP announced by FCDs will normally be authorized by the Secretary of Defense or Deputy Secretary of Defense.
- b. Signature of the Assistant Secretary of Defense (Comptroller) or his designated representative will be affixed to a FCD when the decision authorizes a change to the FYDP based on:
  - (1) Confirmation changes involving decisions made by the Secretary of Defense by a means other than the recognized decision documentation, or

- (2) Minor adjustments to the structure within the limitations of the criteria established by this Instruction, or
- (3) Changes to the operating budgets of industrial funds, or
- (4) Corrections of errors, or "fact of life" changes, or
- (5) Adjustments involving production acceptance schedules as approved by Assistant Secretary of Defense (Installations and Logistics), and "minor procurement changes or attrition changes.

C. Program/Budget Decision (PBD) - SD Form 428-1 and 428-1c

1. General - The data applied to the PBD, SD Form 428-1 and the continuation sheet 428-1c is variable, and will not normally be confined to a specific pattern. As frequently as possible, the decision will be expressed by use of a single page document SD Form 428-1.
2. Specific Entries - Enter data in accordance with detailed instructions prescribed by DoD Instruction 7110.1 (Reference (c)).
3. Attachments - When an out-year impact, (first year beyond the budget year) is apparent, the "decision record" which accompanies the PBD will express the impact of the PBD in program element terms.

Attachments - 6  
SD Forms 428, 428-1, 428-1c,  
428-3, 428-4, 428-5, and  
428-6



**CONFIDENTIAL** (Not classified unless data entered.)

7045.7, Oct 29, 59  
(Att 2 to Encl)

<b>PROGRAM/BUDGET DECISION</b>		<b>NUMBER</b> 5720
<b>SUBJECT</b>		<b>DDC COMPONENT</b>
<b>DESCRIPTION</b>		
<b>DECISION</b>		

**CONFIDENTIAL** (Not classified unless data entered.)

7045.7, Oct 29, 68  
(Att 3 to Encl 3)

<b>PROGRAM/BUDGET DECISION (Continuation)</b>	<b>NUMBER</b>
<b>SUBJECT</b>	<b>DCD COMPONENT</b>
<b>CONTINUATION OF CONSIDERATION:</b>	

PROGRAM CHANGE DECISION SUMMARY						PCN NUMBER		
FORCE (Net Change)	FY	FY	FY	FY	FY	FY	FY	FY

(If more space is needed use plain paper and add "page of " etc.)

TOTAL OBLIGATIONAL AUTHORITY (In thousands of dollars) (Net Change)								
RESEARCH & DEV								
RDY & E								
MILITARY CONSTRUCTION								
TOTAL RESEARCH AND DEVELOPMENT								
INVESTMENT:								
PROC								
MILITARY CONSTRUCTION								
TOTAL INVESTMENT								
OPERATING:								
O & M								
M. PERSONNEL								
TOTAL OPERATING								
TOTAL OBLIGATIONAL AUTHORITY								

MANPOWER (End Strength) (Net Change)								
MILITARY:								
OFFICER								
ENLISTED								
TOTAL MILITARY								
CIVILIAN:								
U.S. DIRECT HIRE								
FOREIGN DIRECT HIRE								
FOREIGN INDIRECT HIRE								
TOTAL CIVILIAN								



104-1, Oct 1979  
 (Att 5 to B-1)

PROGRAM CHANGE DECISION COST DETAIL		PROGRAM CHANGE REQUEST NUMBER				FYDP OF	
APPROVED	PROGRAM ELEMENT CODE	TOA IN \$ THOUSANDS					
		FY	FY	FY	FY	FY	FY
R & D	RDT & E						
	MIL CON						
INV	PROC						
	PROC						
	MIL CON						
OPER	OPERATIONS & MAINTENANCE						
TOTAL OBLIGATIONAL AUTHORITY							
CHANGE	R & D						
	MIL CON						
INV	PROC						
	PROC						
	MIL CON						
1/ OPER	OPERATION & MAINTENANCE						
TOTAL CHANGE							

APPROVED	PROGRAM ELEMENT CODE	TOA IN \$ THOUSANDS					
		FY	FY	FY	FY	FY	FY
R & D	RDT & E						
	MIL CON						
INV	PROC						
	PROC						
	MIL CON						
OPER	OPERATIONS & MAINTENANCE						
TOTAL OBLIGATIONAL AUTHORITY							
CHANGE	R & D						
	MIL CON						
INV	PROC						
	PROC						
	MIL CON						
1/ OPER	OPERATIONS & MAINTENANCE						
TOTAL CHANGE							

MARKS

1/ Military Pay or PCS Not Required

PROGRAM CHANGE DECISION MANPOWER DETAIL			PROGRAM CHANGE REQUESTS NUMBER				FY OF	
PROGRAM ELEMENT CODE			FY	FY	FY	FY	FY	FY
APPROVED	END STRENGTH	OFFICER						
		ENLISTED						
		TOTAL MILITARY						
		U.S. DIRECT HIRE						
		FOREIGN DIRECT HIRE						
		FOREIGN INDIRECT HIRE						
CHANGE	END STRENGTH	OFFICER						
		ENLISTED						
		TOTAL MILITARY						
		U.S. DIRECT HIRE						
		FOREIGN DIRECT HIRE						
		FOREIGN INDIRECT HIRE						
REMARKS								

PROGRAM ELEMENT CODE			FY	FY	FY	FY	FY	FY
PENDING	END STRENGTH	OFFICER						
		ENLISTED						
		TOTAL MILITARY						
		U.S. DIRECT HIRE						
		FOREIGN DIRECT HIRE						
		FOREIGN INDIRECT HIRE						
CHANGE	END STRENGTH	OFFICER						
		ENLISTED						
		TOTAL MILITARY						
		U.S. DIRECT HIRE						
		FOREIGN DIRECT HIRE						
		FOREIGN INDIRECT HIRE						
REMARKS								



Defense Acquisition Improvement Program (Carlucci Initiatives)

On March 2, 1981, the new administration launched its efforts to improve the DOD acquisition process. On that date Frank C. Carlucci, Deputy Secretary of Defense, issued a memorandum forming a Steering Group to guide a sweeping review of the acquisition process. The Steering Group provided its report on March 30, and on April 30 Mr. Carlucci issued his 31 initiatives (the 32nd regarding competition was added on July 27).

CAO, on several occasions, has testified that we feel the Carlucci Initiatives are logical and timely efforts to improve the acquisition process.

This section contains a copy of the April 30 memorandum and a description of each of the Initiatives.



THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

1. 4411-5. 44-1111

DDPA

5-1-81

April 30, 1981

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS  
CHAIRMAN OF THE JOINT CHIEFS OF STAFF  
UNDER SECRETARIES OF DEFENSE  
ASSISTANT SECRETARIES OF DEFENSE  
GENERAL COUNSEL  
ASSISTANTS TO THE SECRETARY OF DEFENSE

SUBJECT: Improving the Acquisition Process

On 2 March 1981, I directed a 30-day assessment of the Defense acquisition system with the priority objectives of reducing cost, making the acquisition process more efficient, increasing the stability of programs, and decreasing the acquisition time of military hardware. The report, delivered to me on 31 March 1981, provided many specific recommendations and posed a number of major issues for decision.

I have discussed the report with the Steering Group, the Joint Chiefs of Staff, the Service Secretaries, and the Under Secretaries and selected Assistant Secretaries of Defense. Based on the report and those meetings, the Secretary and I have decided to make major changes both in the acquisition philosophy and the acquisition process itself. We are convinced that we have now a historic and unique opportunity to significantly improve the Defense acquisition system. We ask for your cooperation and assistance in carrying out these decisions.

The acquisition decisions are recorded in detail in the attachments to this memorandum. I would like to highlight here the major decisions and their implications for DoD in the following paragraphs.

#### DoD Acquisition Management Philosophy

The DoD management philosophy that I described in my 27 March 1981 PPBS decision memorandum also applies to the acquisition policy and process. Through controlled decentralization, subordinate line executives will be held accountable for the execution of policy decisions and programs as approved. The review of the acquisition process is a good example of participative management where the Services and other DoD staffs, working together, have jointly agreed on

what should be done. All points of view were considered prior to decision. Now that decisions are made, the Secretary and I expect full support of DoD staffs and the Services in implementation.

I affirm the following acquisition management principles:

1. We must improve long-range planning to enhance acquisition program stability.

2. Both OSD and the Services must delegate more responsibility, authority and accountability for programs; in particular, the Service program manager should have the responsibility, authority and resources adequate to execute efficiently the program for which he is responsible.

3. We must examine evolutionary alternatives which use a lower risk approach to technology than solutions at the frontier of technology.

4. We must achieve more economic rates of production.

5. We must realistically cost, budget, and fully fund in the FYDP and Extended Planning Annex; procurement, logistics and manpower for major acquisition programs.

6. Readiness and sustainability of deployed weapons are primary objectives and must be considered from the start of weapon system programs.

7. A strong industrial base is necessary for a strong defense. The proper arms-length relationships with industry should not be interpreted by DoD or industry as adversarial.

#### DoD-OMB and Congress

Many of the decisions announced in this memorandum can be implemented within DoD's legislative authority. Some decisions need to be coordinated with OMB. A number of recommendations will need Congressional action before final implementation can take place. In those latter cases, we will work closely with appropriate Congressional committees and their staffs to explain and justify our recommendations for changes to legislative requirements.

#### DoD-Industry Relationship

While DoD should be tough in contract negotiations as part of the buyer-seller relationship, this does not mean that relationships between management and industry should necessarily be adversarial. Industry and government have a shared responsibility and must assume a new spirit.

cooperation. A healthy, innovative, and competitive industrial capability is a primary national objective. I direct all top DoD management, in CSD, in JCS, and in the Services, to ensure this is understood at all levels.

### Economies, Efficiencies and Savings

A primary objective in streamlining the DoD acquisition process is reducing costs. All DoD staffs and Service managers should keep this uppermost in their minds. We all must be more aggressive and imaginative in looking for ways to save money throughout all phases of the acquisition process. I look to each of you to use your enhanced authority to bring about major savings and improved methods of operation.

### Decisions to Improve Acquisition Policy and Process

The Secretary and I are determined to reduce substantially cost overruns, deploy adequate quantities of needed systems that are operationally effective and ready, and do this in the shortest possible time. We are convinced that the actions directed in the attachment will significantly contribute to achieving these objectives. The major decisions for improvement can be summarized in four categories:

#### Reduce Acquisition Cost

- Increase program stability by fully funding R&D and procurement at levels sufficient to ensure efficient cost, supportability and schedule performance, and minimizing changes to the approved program.
- Implement multi-year procurement to improve production processes, increase economy-of-scale lot buying, decrease financial borrowing costs and reduce administrative burden in contracting.
- Reduce administrative costs by simplifying procedures, seeking relief from costly legislative requirements and reducing the number of DoD regulations and directives.
- Encourage capital investment to increase productivity in the defense industry by improved contracting, more reasonable risk sharing, and increased incentives.
- Promote Services use of economic production rates to reduce unit costs and decrease acquisition time.
- Require Services to budget to most likely cost to reduce cost overruns and provide stability.

### Shorten Acquisition Time

- Implement Preplanned Product Improvement to reduce unit costs and decrease acquisition time.
- Provide adequate "front end" funding for test hardware. ✓

### Improve Weapons Support and Readiness

- Stress acquisition strategies that provide incentives to contractors to attain reliability and maintainability goals.
- Establish readiness objectives early in development programs.

### Improve the DSARC Process

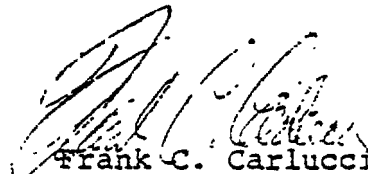
- Move toward controlled decentralization of the acquisition process to the Services. ✓
- Reduce the data and briefings required by the Services and other DoD staffs. ✓
- Tie the acquisition process more closely to the PPBS. ✓

### Implementation of the Decisions

Implementation of the decisions announced in this memorandum is as important as the decisions themselves. Many decisions, even those within DoD's authority, will take time to implement fully. A large number of DoD managers will have to take part on a worldwide basis.

I assign overall responsibility to the Under Secretary of Defense for Research, Engineering and Acquisition for monitoring and follow-up of all decisions in this report. I expect him to establish an appropriate implementing and reporting system. The first report will be submitted to me by the end of May and every month thereafter until further notice. ✓

Both the Secretary and I appreciate the work you and your staffs have provided during this assessment.

  
Frank C. Carlucci

Attachments



Recommendation 1

MANAGEMENT PRINCIPLES

The Steering Group recommends that the Deputy Secretary of Defense reaffirm the following major acquisition management principles:

1. An improved statement of long-range Defense policy, strategy and resources will be provided to the Services in order to establish a framework for military objectives, goals, and mission planning to enhance program stability.

2. Responsibility, authority and accountability for programs should be at the lowest levels of the organization at which a total view of the program rests.

3. Service Program Managers should have the responsibility, authority, resources, and guidelines (goals and thresholds) adequate to efficiently execute the program. This should include the system specific acquisition strategy for attainment of the required operational and readiness capability, and appropriate flexibility to tailor the acquisition strategy to estimates of the development priorities and risks.

4. Evolutionary alternatives which use a lower risk approach to technology must be examined when new programs are proposed. Solutions at the frontiers of technology must provide an alternative which offers an evolutionary approach. Pre-planned Product Improvement (P<sup>3</sup>I) should become an integral part of the Acquisition Strategy.

5. Achievement of economic rates of production is a fundamental goal of the acquisition process.

6. The Services should plan to realistically budget and fully fund in the FYDP and Extended Planning Annex (EPA) the R&D, procurement, logistics and manpower costs at the levels necessary to protect the acquisition schedule established at program approval points, and to achieve acceptable readiness levels.

7. Improved readiness is a primary objective of the acquisition process of comparable importance to reduced unit cost or reduced acquisition time. Resources to achieve readiness will receive the same emphasis as those required to achieve schedule or performance objectives. Include from the start of weapon system programs designed-in reliability, maintainability and support.

8. The proper "arms-length" buyer-seller relationship should not be interpreted by government or industry as adversarial. The DoD should be tough in contract negotiations. But weapons acquisition should be managed on a participating basis using industry as a full constructive team member. A strong industrial base is necessary for a strong defense.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

*[Handwritten signature]*  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Recommendation 2

PREPLANNED PRODUCT IMPROVEMENT

A revolutionary system development approach which uses new and untried technology to meet a military threat can offer dramatic potential payoffs, but frequently ends up with large cost increases and schedule slippages.

An evolutionary approach offers an alternative which minimizes technological risk, and consciously inserts advanced technology through planned upgrades of those deployed subsystems which offer the greatest benefits. In this manner the lead time to field technological advances can be shortened while an aggressive scheduling of fielded performance improvements can be expected during the service life of the systems. This concept is called Preplanned Product Improvement (P3I), and is commonly used in commercial industry.

Recommendation - Most new and existing systems should be partitioned for performance growth through the application of sequential upgrades to key subsystems in order to reduce development risk, and take best advantage of technological advance.

Advantages - Can reduce acquisition time, reduce development risk and cost, and enhance fielded performance through the deployment of upgrades. A revolutionary approach can always be adopted when the demands of the threat or other compelling military needs require such an approach.

Disadvantages - The performance needed to meet a critical threat may dictate the use of distant technology, but the factors involved in such a decision are seldom incisive. Therefore, the choice between alternatives is not likely to be absolutely clear.

Action Required:

- USDRE, working with the Services, develop within 30 days a plan for implementing Preplanned Product Improvement including definitions and criteria for application.

- USDRE request the Services to evaluate ongoing programs to determine potential for payoff from the application of preplanned product improvement, and to present results at the next DSARC.

- USDRE assure Services have fixed the responsibility for review of opportunities for product improvement after any system reaches the field, and to develop a product improvement plan.

Approved: \_\_\_\_\_

Idea Needs More Development: \_\_\_\_\_

Need More Information: \_\_\_\_\_

Disapproved: \_\_\_\_\_

Recommendation 3

MULTIYEAR PROCUREMENT

Recommendation: Encourage extensive use of multiyear procurement based upon a case-by-case benefit/risk analysis.

Advantages: Multiyear procurement could result in average dollar savings of 10 to 20% in unit procurement cost through improved economies and efficiencies in production processes, economy-of-scale lot buying, decreased financial borrowing costs, better utilization of industrial facilities, and a reduction in the administrative burden in the placement and administration of contracts. In addition, the stimulated investment in production equipment will result in lower-defect, higher quality products. The market stability will also enhance the continuity of subcontractor supply lines and thereby decrease acquisition time. Surge capability will also be improved.

Disadvantages: This funding technique fences in money and commits future Congresses. If used to excess, it would significantly reduce the flexibility of the Secretary of Defense to respond to unforeseen changes in the external threat. If a multiyear procurement was used to lock in a border line program, costs would be increased if the program was cancelled. In order to avoid these potential disadvantages, the following criteria are recommended as general guidelines to screen potential multiyear candidates: (1) significant benefit to the Government; (2) stability of requirements, configuration, and funding; and (3) degree of confidence in cost estimates and contractor capabilities.

Action Required:

a. General Counsel must respond in writing to Congressman Daniel's Bill HR 745.

b. USDRE and ASD(Comptroller) should brief Appropriation and Armed Services Congressional Committees on recommended multiyear procurement procedures and concepts.

c. USDRE should prepare special policy memorandum to the Military Departments for SecDef signature defining procedures and requesting identification of potential FY 83 multiyear procurement candidates.

d. USDRE and ASD(Comptroller) should modify DoD Directive 7200.4 and the Defense Acquisition Regulation (DAR) and should interface with OMB to modify Directive A-11 as required.

e. SecDef will present FY 83 President's Budget containing multiyear candidates.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

Recommendation 4

INCREASE PROGRAM STABILITY IN THE ACQUISITION PROCESS

Program instability is inherently costly in both time and money. The 47 major programs covered by the December 31, 1980, Selected Acquisition Reports (SARs) reflected total cost growth of 129 percent over the Milestone II estimates. Reasons for growth are economic or inflation (27 percent), quantity changes (26 percent), estimating changes (18 percent), schedule changes (15 percent), support changes (7 percent), engineering changes (5 percent), and other changes (2 percent). Forty one (41) percent of all cost growth is due to quantity and schedule changes.

Of the 47 programs, 19 have had quantity increases, 20 quantity decreases, and 8 are unchanged. Schedule changes have resulted in reduced costs on 4 programs and increased costs on 41. The most common cause for these changes is financial. The budget levels and relative priorities of competing programs force tough decisions to terminate programs, reduce the number of weapons, stretch the development program, delay planned production or stretch the planned buy.

Recommendation: SecDef, OSD and Services should fully fund the R&D and procurement of major systems at levels necessary to protect the acquisition schedule established at the time the program is baselined, currently Milestone II. Limit stretch-outs due to funding constraints (except when mandated by the Secretary or Congress). Establish procedures which will phase the scheduling of sequential milestones so that manpower "peaks and valleys" can be minimized consistent with balancing the risks. In general, only changes which are directed by changed requirements or development problems should be made.

Advantages: Reduces costs and saves time by stabilizing schedules, quantities, and production rates. Will enhance the ability to plan force modernizations.

Disadvantages: Budget flexibility will be reduced.

Action Required: SecDef directs that during program and budget reviews by OSD (DRB) the Service Secretaries must explain and justify differences between program baselines established at Milestone II and the quantity and funding in the program or budget under review.

ASD(C) and ASD(PA&E) include above direction in FY-83 POM and Budget Guidance.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

ENCOURAGE CAPITAL INVESTMENT TO ENHANCE PRODUCTIVITY

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

Recommendation: Encourage capital investment.

Advantages: Will increase long-term investments which should lead to lower unit costs of weapons systems. Increase productivity.

Disadvantages: Earlier Government disbursements. Some reduction in tax revenues.

Action Required: USDRE should have the prime responsibility to implement the following actions working closely with General Counsel, Legislative Affairs, and the Service Material Commands.

a. General Counsel should support legislative initiatives to permit more rapid capital equipment depreciation and to recognize replacement depreciation costs by amending or repealing Cost Accounting Standard (CAS) 409, "Depreciation of Tangible Assets."

b. Structure contracts to permit companies to share in cost reductions resulting from productivity investments. Modify the Defense Acquisition Regulation (DAR) profit formula. Allow for award fees inversely proportional to maintainability costs.

c. Increase use and frequency of milestone billings and advanced funding. Expedite paying cycle.

d. Provide for negotiation of profit levels commensurate with risk and contractor investment; ensure that recent profit policy changes are implemented at all levels.

e. Instruct the Services of the need to grant equitable Economic Price Adjustment (EPA) clauses in all appropriate procurements. Contract price adjustments made in accordance with EPA provisions should recognize the impact of inflation on profits. Ensure that these clauses are extended to subcontractors.

f. Increase emphasis on Manufacturing Technology Programs.

g. Provide a consistent policy which will promote innovation by giving contractors all the economic and commercial incentives of the patent system. Provide policies to protect proprietary rights and data.

h. General Counsel should work to repeal the Vinson-Trammell Act.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

Recommendation 6

BUDGET TO MOST LIKELY COSTS

Intentionally low initial cost estimates are a prime contribution to apparent cost growth. Program costs are sometimes purposely understated either because DoD is forcing a program to fit available funding rather than the funding it takes to do the job, or because the contractors are purposely lowering their cost estimates in order to win a contract with hopes of recovering costs on follow-on contracts. Either practice is referred to as "buying in." When the actual costs become apparent, DoD is severely criticized for cost overruns and there are insufficient funds available to procure at economic production rates. Also, the negotiated contract cost does not include future engineering changes or post-contract award negotiations which can drive costs higher.

Recommendation: Require the Services to budget to most likely or expected costs, including predictable cost increases due to risk. Provide incentives for acquisition officers and industry to make and use realistic cost estimates.

Advantages: Less cost growth. More realistic long-term defense acquisition budget. Increased program stability.

Disadvantages: Difficulty in determining if a contractor is providing realistic estimates. Political difficulty in rejecting bids that project prices lower than costs. Difficult to budget funding greater than publicly-known contractual funding.

Action Required: ASD(C) require the Services to budget to most likely or expected costs including predictable cost increases due to risk, instead of the contractually agreed-upon cost. USDRE and the Services provide incentives for acquisition officers and contractors to accurately project costs, including financial incentives and performance evaluation considerations to DoD personnel, and profit incentives to industry to reduce costs.

Approved: \_\_\_\_\_  
Idea Needs More Development: JK  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

in file 7

Recommendation -

ECONOMIC PRODUCTION RATES

The cost and time needed to put a weapon system into the field can be reduced by establishing and sustaining economic rates of production (i.e., the rate at which unit cost doesn't decrease significantly with further rate increases). Tight budgets and strong competition between programs have forced many programs to accept funding levels in the budget which will not sustain an economic rate of production.

A commitment to economic production rates cannot rule out sound arguments for lower (or higher) rates. For example, the Services may wish to stretch a program over a number of years in order to preserve a warm production base to permit rapid mobilization to meet a crisis or war. However, this requires stockpiling of materials, parts and subsystems to be effective.

Recommendation: Services must use economic production rates in their program and budget requests, or explain and be prepared to defend the reason why a different rate was selected.

Advantages: Save time and reduce cost of acquiring new systems.

Disadvantages: Will buy out the total system faster (shorter production run for a given quantity) with peak funding competing with other systems, possible workload fluctuations in certain industries with occasional dead time and possible erosion of the industrial base. Can increase cost of correcting support problems.

Action Required: Secretary of Defense establish policy requiring Services to fund programs at economic rates or justify any differences during budget reviews by OSD and the DRB. USDRE and ASD(C) include this requirement in the FY 83 program and budget guidance.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

Recommendation 8

ASSURE APPROPRIATE CONTRACT TYPE

Industry has repeatedly, over a long period, expressed serious concerns about the recurring use of the wrong type of contract. In particular, fixed price contracts are frequently employed for RDT&E and early production, which have legitimate cost uncertainties. This leads to a high risk situation for the contractors and to cost overruns for DoD. Current DoD policies and regulations give guidance as to the use of appropriate contract types; however, this guidance is not being followed in the field.

Recommendation: Give the Program Managers the responsibility to tailor contract types to balance program needs and cost savings with realistic assessment of an acceptable balance of contractor and government risk. Recommendation 1/Management Principle 3 states that the Program Managers be given the authority to determine the specific acquisition strategy.

Advantages: Precludes a company from being forced to assume cost risk beyond their financial ability.

May increase competition if contractor risks are recognized.

Gives the Program Managers more flexibility to accommodate program needs.

Disadvantages: Government assumes more cost risk.

Action Required: USDRE establish an OSD, Service, Industry working group to develop an implementation plan to ensure that appropriate contract types are used. USDRE and the Service Secretaries ensure that Program Managers have the responsibility for determining the appropriate contract type. USDRE should ensure that the regulations are clear on this point.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_



IMPROVE SYSTEM SUPPORT AND READINESS

As a result of recurring problems with weapons system support, the recent revision of acquisition policies includes a major emphasis on support issues, including reliability, maintenance, spares, test equipment, and maintenance manpower. These recent policies are generally sound, are not directly influenced by the major acquisition process options presently under consideration and can be undertaken under any option.

To be effective the policies require Secretary of Defense commitment. The need for this specific commitment results from the competition among the conflicting objectives of high performance, lower cost, shorter schedules, better reliability and maintenance, and support.

Recommendation: Establish readiness objectives for each development program to include estimates of the readiness level to be achieved at early fielding and at maturity. Implement acquisition policy establishing "designed-in" reliability and readiness capabilities. The implementation must emphasize the objectives of shortening the overall time to deliver equipment to the troops which meet mission and readiness needs; the need for improved estimates of the R&D and support resources required; and additionally, ask that some force elements(s) be targeted for a major improvement in designed-in support capability to be less dependent on a support tail.

Advantages: Clarifies that improvement in readiness is a major objective of the Administration, and that implementation must take place.

Disadvantages: Will require additional technical effort and resources early in acquisition programs.

Action Required: MRA&L draft SecDef policy letter to be issued within thirty days, reaffirming weapons support policy and objectives, and tasking the Services to develop implementing guidelines, including procedures for addressing support early in acquisition programs.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

## Recommendation 10

### REDUCE THE ADMINISTRATIVE COST AND TIME TO PROCURE ITEMS

In 1974, less stringent requirements were established for DOD Contract procedures associated with purchases under \$10,000. The purpose was to reduce both the time and paperwork costs to a level commensurate with the value of the item being purchased. Over the years the tendency of a bureaucracy to take precautions has expanded the paperwork associated with a procurement, and inflation has reduced the purchasing power of the dollar until the \$10,000 item of 1974 would cost almost twice that much to purchase today.

A similar inequity exists in the administrative procedures governing contract funding execution. Department of Defense and Service procedures place numerous administrative requirements on the obligation of funds. They provide unnecessarily cumbersome safeguards for the public interest, to a certain extent thereby, thwarting that interest. There is also a general tendency to apply the most burdensome procedures, even if administrative shortcuts are allowed. The DoD is motivating its contract and fund administrators to avoid the least possibility of criticism rather than to use economic procedures.

a. Recommendation: Raise the \$10K limit for purchase order contract use to \$25K to accommodate inflation and reduce unnecessary paperwork and review. Letter is enroute from Joint Logistics Commanders to DEPSECDEF recommending change. Proposal is currently in staffing at OMB for inclusion in the Uniform Procurement System (UPS) and as a legislative initiative.

Action Required: DEPSECDEF recommend that OMB (OFPP) initiate change to 10 USC 2304.

b. Recommendation: Raise threshold for contractor costing data input from \$100K to \$500K to accommodate inflation and reflect current auditing procedures. (Paperwork load is such that only data for contracts over \$500K is actually audited today.)

Action Required: DEPSECDEF recommend that OMB (OFPP) initiate legislative change to USC 2306.

c. Recommendation: Raise threshold for Service Secretary review of Contract Determination and Findings (D&F) for RDT&E from \$100,000 to \$1 million. Current level was set in mid-1960s. Higher level would still cover 90 + % of expenditures (dollars). Higher limit supported by JLC.

PUBLIC LAW 97-252—SEPT. 8, 1982

DEPARTMENT OF DEFENSE  
AUTHORIZATION ACT, 1983

*EXTRACT*  
*OF SECTION 1107*  
*SELECTED ACQUISITION REPORTS*  
*AND UNIT COST REPORTS*

- (1) by striking out "and" after "1982" and inserting in lieu thereof a comma; and
- (2) by inserting ". and may not exceed \$900,000,000 in fiscal year 1984" after "1983".

INCREASE IN DOLLAR THRESHOLD FOR REPORTS TO CONGRESS  
REGARDING TRANSFER OF DEFENSE ARTICLES

Sec. 1104. Section 813 of the Department of Defense Appropriation Authorization Act, 1976 (Public Law 94-106; 10 U.S.C. 133 note), is amended by striking out "\$25,000,000" and inserting in lieu thereof "\$50,000,000".

REPORTS ON FUNDING OF TECHNOLOGY TRANSFER CONTROL POLICY

Sec. 1105. Section 138 of title 10, United States Code, is amended by adding at the end thereof the following new subsection:

"(h) The Secretary of Defense shall submit to Congress a written report, not later than February 15 of each fiscal year, recommending the amount of funds to be appropriated to the Department of Defense for the next fiscal year for functions relating to the formulation and carrying out of Department of Defense policies on the control of technology transfer and activities related to the control of technology transfer. The Secretary shall include in that report the proposed allocation of the funds requested for such purpose and the number of personnel proposed to be assigned to carry out such activities during such fiscal year."

Allocation of  
funds.

LIMITATION ON DEFENSE FUNDS FOR SPACE SHUTTLE

Sec. 1106. Notwithstanding any other provision of law, during fiscal year 1983 the Secretary of Defense shall not transfer funds to the Administrator of the National Aeronautics and Space Administration to pay any part of the cost of placing Department of Defense payloads into orbit by means of the Space Shuttle except in accordance with laws in effect on July 1, 1982, and interagency agreements made pursuant to such laws.

IMPROVED OVERSIGHT OF COST GROWTH IN MAJOR DEFENSE  
ACQUISITION PROGRAMS

Sec. 1107. (a)(1) Chapter 4 of title 10, United States Code, is amended by inserting after section 139 the following new sections:

"§ 139a. Oversight of cost growth in major programs: Selected Acquisition Reports

10 USC 139a.

"(a) In this section:

Definitions.

"(1) 'Major defense acquisition program' means a Department of Defense acquisition program that is not a highly sensitive classified program (as determined by the Secretary of Defense) and—

"(A) that is designated by the Secretary of Defense as a major defense acquisition program; or

"(B) that is estimated by the Secretary of Defense to require an eventual total expenditure for research, development, test, and evaluation of more than \$200,000,000 (based on fiscal year 1980 constant dollars) or an eventual total

expenditure for procurement of more than \$1,000,000,000 (based on fiscal year 1980 constant dollars).

"(2) 'Program acquisition unit cost', with respect to a major defense acquisition program, means the amount equal to (A) the total cost for development and procurement of, and system-specific military construction for, the acquisition program, divided by (B) the number of fully-configured end items to be produced for the acquisition program.

"(3) 'Procurement unit cost', with respect to a major defense acquisition program, means the amount equal to (A) the total of all procurement funds appropriated for the program for a fiscal year, reduced by the amount of funds appropriated for such fiscal year for advanced procurement for such program in any subsequent year and increased by any amount appropriated in years before such fiscal year for advanced procurement for such program in such fiscal year, divided by (B) the number of fully-configured end items to be procured with such funds during such fiscal year.

"(4) 'Major contract', with respect to a major defense acquisition program, means (A) each prime contract under the program, and (B) each associate or Government-furnished equipment contract under the program that is one of the six largest contracts under the program in dollar amount.

Selected  
Acquisition  
Reports.

"(b)(1) The Secretary of Defense shall submit to Congress at the end of each fiscal-year quarter a report on current major defense acquisition programs. Except as provided in paragraphs (2) and (3), each such report shall include a status report on each defense acquisition program that at the end of such quarter is a major defense acquisition program. Reports under this section shall be known as Selected Acquisition Reports.

"(2) A status report on a major defense acquisition program need not be included in the Selected Acquisition Report for the second, third, or fourth quarter of a fiscal year if such a report was included in a previous Selected Acquisition Report for that fiscal year and there has been no change in program cost, performance, or schedule since the most recent such report.

"(3) A status report on a particular major defense acquisition program need not be included in any Selected Acquisition Report with the approval of the Committees on Armed Services of the Senate and House of Representatives.

10 USC 139.

"(c) Each Selected Acquisition Report for the first quarter of a fiscal year shall include (1) the same information, in detailed and summarized form, as is provided in reports submitted under section 139 of this title, (2) the current program acquisition unit cost for each major defense acquisition program included in the report and the history of that cost from the date the program was first included in a Selected Acquisition Report to the end of the quarter for which the current report is submitted, and (3) such other information as the Secretary of Defense considers appropriate. Selected Acquisition Reports for the first quarter of a fiscal year shall be known as comprehensive annual Selected Acquisition Reports.

"(d)(1) Each Selected Acquisition Report for the second, third, and fourth quarters of a fiscal year shall include—

"(A) with respect to each major defense acquisition program that was included in the most recent comprehensive annual Selected Acquisition Report, the information described in subsection (e); and

“(B) with respect to each major defense acquisition program that was not included in the most recent comprehensive annual Selected Acquisition Report, the information described in subsection (c).

“(2) Selected Acquisition Reports for the second, third, and fourth quarters of a fiscal year shall be known as Quarterly Selected Acquisition Reports.

Quarterly Selected Acquisition Reports.

“(e) Information to be included under this subsection in a Quarterly Selected Acquisition Report with respect to a major defense acquisition program is as follows:

“(1) The quantity of items to be purchased under the program.

“(2) The program acquisition cost.

“(3) The program acquisition unit cost.

“(4) The current procurement cost for the program.

“(5) The current procurement unit cost for the program.

“(6) The reasons for any change in program acquisition cost, program acquisition unit cost, procurement cost, or procurement unit cost or in program schedule from the previous Selected Acquisition Report.

“(7) The major contracts under the program and the reasons for any cost or schedule variances under those contracts since the last Selected Acquisition Report.

“(8) The completion status of the program (A) expressed as the percentage that the number of years for which funds have been appropriated for the program is of the number of years for which it is planned that funds will be appropriated for the program, and (B) expressed as the percentage that the amount of funds that have been appropriated for the program is of the total amount of funds which it is planned will be appropriated for the program.

“(9) Program highlights since the last Selected Acquisition Report.

“(f) Each comprehensive annual Selected Acquisition Report shall be submitted within 30 days after the date on which the President transmits the Budget to Congress for the following fiscal year, and each Quarterly Selected Acquisition Report shall be submitted within 30 days after the end of the fiscal-year quarter. If a preliminary report is submitted for the comprehensive annual Selected Acquisition Report in any year, the final report shall be submitted within 15 days after the submission of the preliminary report.

Submittal dates.

“§ 139b. Oversight of cost growth of major programs: unit cost reports

10 USC 139b.

“(a) In this section:

Definitions.

“(1) ‘Major defense acquisition program’, ‘program acquisition unit cost’, ‘procurement unit cost’, and ‘major contract’ have the same meanings as provided in section 139a(a) of this title.

Ante, p. 739.

“(2) ‘Baseline Selected Acquisition Report’, with respect to a unit cost report that is submitted under this section to the Secretary concerned on a major defense acquisition program, means the Selected Acquisition Report in which information on the program is first included or the comprehensive annual Selected Acquisition Report for the fiscal year immediately before the fiscal year containing the quarter with respect to which the unit cost report is submitted, whichever is later.

DoD STANDARD R&M TERMS

1. Chargeable. Within the responsibility of a given organizational entity, whether government or commercial.
2. Failure. The event in which any part of an item does not perform as required by its performance specification.
3. Inherent R&M Value. Any measure of reliability or maintainability that includes only the effects of item design and installation, and assumes an ideal operating and support environment.
4. Life Units. A measure of use duration applicable to the item (such as, operating hours, cycles, distance, rounds fired, attempts to operate).
5. Maintainability. The ability of an item to be retained in or restored to specified condition when maintenance is performed by personnel having specified skill levels, using prescribed procedures and resources, at each prescribed level of maintenance and repair.
6. Operational R&M Value. Any measure of reliability or maintainability that includes the combined effects of item design, quality, installation, environment, operation, maintenance, and repair.
7. Relevant. That which can occur or recur during the operational life of an item inventory.
8. Reliability. The duration or probability of failure-free performance under stated conditions.
9. Reliability, Mission. The ability of an item to perform its required functions for the duration of a specified mission profile.
10. R&M Accounting. That set of mathematical tasks which establish and allocate quantitative R&M requirements, and predict and measure quantitative R&M achievements.
11. R&M Engineering. That set of design, development, and manufacturing tasks by which R&M are achieved.
12. System R&M Parameter. A measure of reliability or maintainability in which the units of measurement are directly related to operational readiness, mission success, maintenance manpower cost, or logistic support cost.

Figure 1

SYSTEM R&M PARAMETERS

OBJECTIVES	PARAMETERS	TERMS (EXAMPLES)
<u>OPERATIONAL EFFECTIVENESS</u>		
• READINESS, OR AVAILABILITY		
-- READINESS-RELATED RELIABILITY PARAMETER:		MEAN TIME BETWEEN DOWNING EVENTS (MTBDE)
-- READINESS-RELATED MAINTAINABILITY PARAMETER:		MEAN TIME TO RESTORE SYSTEM (MTTRS)
• MISSION SUCCESS, OR DEPENDABILITY		
-- MISSION RELIABILITY PARAMETER:		MISSION TIME BETWEEN CRITICAL FAILURES (MTBCF)
-- MISSION MAINTAINABILITY PARAMETER:		MISSION TIME TO RESTORE FUNCTIONS (MTTRF)
<u>OWNERSHIP COST REDUCTION</u>		
• MAINTENANCE MANPOWER COST		
-- MAINTENANCE-RELATED RELIABILITY PARAMETER:		MEAN TIME BETWEEN MAINTENANCE ACTIONS (MTBMA) <sup>1</sup>
-- MAINTENANCE-RELATED MAINTAINABILITY PARAMETER:		DIRECT MANHOURS PER MAINTENANCE ACTION (DMH/MA) <sup>1</sup>
• LOGISTIC SUPPORT COST		
-- LOGISTICS-RELATED RELIABILITY PARAMETER:		MEAN TIME BETWEEN REMOVALS (MTBR)
-- LOGISTICS-RELATED MAINTAINABILITY PARAMETER:		TOTAL PARTS COST PER REMOVAL, AT ALL LEVELS OF REPAIR

<sup>1</sup> Basic technical measures of reliability (MTBF) and maintainability (MTR) must be capable of describing the maintenance-related system R&M parameters. The other system R&M parameters (except parts cost) use various subsets of total item life units, failures, and maintenance/repair time.



Action Required: DepSecDef recommendation to OMB (OFPP) for approval; subsequent change to Defense Acquisition Regulations (DAR).

d. Recommendation: Encourage greater use of class (D&Fs) which allows one D&F to cover multiple contracts. Reduces total volume of contracts which must be reviewed, thus speeding up processing time.

Action Required: USDR&E prepare policy statement encouraging greater use of class D&Fs.

e. Recommendation: Raise reprogramming thresholds from \$2M to \$10M for RDT&E appropriations and from \$5M to \$25M for procurement. Thresholds were set 10 years ago with no inflation accommodation. Greatly reduces Service flexibility to answer program.

Action Required: Renew SecDef/DepSecDef efforts to obtain Congressional Committee approval (HASC, SASC, HAC, SAC).

Advantages (all above recommendations): Provides immediate relief from unnecessary paperwork burden. Reduces administrative lead time, which will result in reductions in in-house and industry overhead cost. Supports a far more efficient Government cash flow management.

Disadvantages: Less opportunities for legal reviews.

f. Recommendation: Eliminate the need for non-Secretarial level D&Fs for competitive negotiated contract awards.

Advantages: Reduced paperwork and administrative lead times. In conjunction with recommendation C above, to increase D&F thresholds, the D&F requirement would be considerably reduced.

Disadvantages: Many smaller procurement actions would not be reviewed above program office level.

Action Required: SecDef submit recommended legislation to review public law.

g. Overall Action: USDR&E prepare implementation plan and required SecDef letters within 60 days. Tie cost thresholds to inflation.

Approved:       
Idea Needs More Development:       
I Need More Information:       
Disapproved:



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Idea Needs More Development:  
I Need More Information:  
Disapproved:

Action Required: USDR ensure that the acquisition strategy identifies plans for and funding required to acquire adequate sub-system and system test hardware to reduce overall schedule time and risks.

Disadvantages: Requires increased front end funding.  
Advantages: Saves time in the total acquisition process by emphasizing reliability up front and eliminating lengthy and costly problem identification and correction effort; also allows realistic concurrent development and operational testing.

Recommendation: Provide sufficient test hardware to meet the subsystem, system and software engineers' needs to properly engineer and test development of the end item hardware using parallel testing to reduce overall schedule time. The number of test articles must be defined and explained during preparation of Service programs and budgets.

In addition to designing for the major performance objectives, increased emphasis should be placed on designing for reliability by providing adequate design margins, while giving full consideration to adequate testing, fault isolation and maintainability. Adequate test hardware should be provided in the program to permit early combined environmental tests of the subsystems and subsequent system tests, to allow iteration of the design using the test-fix test process to achieve early design maturity.

Weapon system development programs often have too few test articles to allow parallel tests for performance, reliability, etc., and in order to shorten development time without substantially increasing risks. Procurement of too few test articles forces a sequential approach whereby the available test articles are dedicated exclusively to development testing. Consequently, operational and other testing cannot be accomplished concurrently (within acceptable levels of risk) to save time.

PROVIDE ADEQUATE FRONT END FUNDING FOR TEST HARDWARE



Recommendation 14

REDUCE THE NUMBER OF DOD DIRECTIVES

st: (12) ?  
The current acquisition directive refers to 114 (up from 15 in 1971 and 26 in 1977) related directives and instructions. The Services emulate these directives in implementation with their own implementing instructions. There is rarely a challenge to these well-intentioned directions, nor is there a cost-benefit check performed. Program manager and industry initiatives are often stilted by overregulation. With each new directive additional paperwork, manhours and other direct costs are expended in compliance. Congressional, GAO, industry, OSD, and OFPP studies have indicated that contractually imposed management systems and data requirements cost 8 cents out of every contract dollar. With defense contracting approaching \$100 billion a year, it means that these management-imposed requirements cost approximately \$8 billion per year. A 20% improvement would save \$16 million per year.

Recommendation: Reduce the number of directives. Require that the Defense Acquisition Executive be the sole issuer of DoD directives related to acquisition. This would not mean that DAE would draft all such documents, only that DAE would have final review and releasing authority.

Advantages: Coordinates requirements and reduces the issuance of superfluous directives. Will reduce program costs to the extent that directives require reports, data, documentation.

Disadvantages: Adds an additional layer to the process of issuing or revising a directive. Places the DAE in control of directives for areas of acquisition for which he may have little expertise.

Action Required: USDPE establish a joint OSD, Service, Industry team to provide recommendations within (90) days to substantially reduce the number of directives, and the documentation required in contracts.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

Recommendation 15  
FUNDING FLEXIBILITY

Program continuity requires that we budget for procurement funds more than a year in advance of the actual transition date of major acquisition programs from R&D to procurement. Since most development program schedules are success oriented, sometimes the procurement transition date arrives and the system is not ready to buy. Because procurement funds have been budgeted, there is considerable pressure to proceed with production rather than accept program delay. If the Secretary (and/or Military Departments) had the authority to transfer these procurement funds to R&D to correct deficiencies without the prior approval of OMB and Congress, it could significantly decrease the time involved in resolving program problems. Section 734 of P.L. 96-527 (DoD Appropriation Act) provides a general authority for Transfers, not to exceed \$750 million between DoD appropriations. Its use requires a determination by SecDef that such action is in the National Interest and must have prior approval by OMB. Our current reprogramming arrangements with the Congressional Oversight Committee provide that any such transfer is of "special interest of the Congress" and requires their prior approval, in effect, negating the independent use of transfer authority by the Department.

The proposal would require the support of the Oversight Committees and OMB. Ideally, such approval should be included in the general provisions of the Appropriations Act as a subsection of 734. We will have to work closely with Congress to ensure that this authority would apply only to the movement of funds programmed for an individual weapon system, and would not be used to transfer funds between programs.

Recommendation: Obtain legislative authority to transfer individual weapon system Procurement funds to RDT&E.

Advantages: Provides DoD with more flexibility to resolve weapon system funding deficiencies.

Avoids program delays associated with OMB/ Congressional review and approval of funding adjustments.

Maintains program stability by enabling program manager to resolve problems within total available acquisition funding of the program involved

Disadvantages: OMB/Congressional visibility occurs after the fact.

Could jeopardize current appropriation and authorization process.

Could jeopardize current reprogramming arrangements with Congress.

May be destabilizing.

Action Required: ASD(C), working with the General Counsel, OMB and Congress establish procedures for DoD approval of the transfer of funds in a given fiscal year from Procurement to RDT&E for an individual weapon system when the Secretary of Defense determines that it is in the National Interest to do so.

Approved: \_\_\_\_\_

Idea Needs More Development: \_\_\_\_\_

I Need More Information: \_\_\_\_\_

Disapproved: \_\_\_\_\_

Recommendation 16

CONTRACTOR INCENTIVES TO IMPROVE RELIABILITY AND SUPPORT

Industry has said that even though there is recently more attention paid to "support" in DoD solicitations, there is a widespread belief that performance and schedule are DoD's principal objectives. There is a need for industry to apply more of their design talents to reducing reliability and support problems. Beyond this a need to improve the identification and specification of maintenance manpower constraints and for industry to include these constraints in the designs.

Recommendation: Acquisition strategies should identify the approaches to incentivize contractor attainment of reliability and maintainability (R&M) goals and reduce maintenance manpower and skill levels. These should include the approach taken in the RFP evaluation, as well as specific awards, incentives and guarantees, such as specific rewards for improving reliability. The Services should develop greater expertise in support related contractor incentives through analysis of experience gained on DoD programs.

Improvements should be developed in the method of projecting critical maintenance manpower skill limitations and translating these into design constraints and objectives for inclusion in RFPs and specifications.

Advantages: Improves reliability and support. Reduces maintenance manpower requirements.

Disadvantages: Incentives other than competition require additional funds.

Action Required: USDRE working with the Services, develop guidelines to include the approaches to incentivize contractors to improve support within 60 days, followed by a USDRE and Service evaluation of incentives within the next year.

USDRE develop with the Services, within one year, improved approaches to translate maintenance manpower skill projections into system design objectives.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_



Recommendation 17

DECREASE DSARC BRIEFING AND DATA REQUIREMENTS

During recent years there has been a growing tendency to centralize the decision process within the DoD. This practice has multiplied throughout the numerous levels of authority in each of the Services, and has complicated the review process. This practice has, in and of itself, lengthened the acquisition cycle; created cost increases due to delays in decisions; confused the authority, responsibility and accountability of the designated Services Managers; and has stifled innovation which could produce program improvements leading to cost savings. The principle of decentralization should be applied to acquisition management.

Recommendation: Emphasize the requirement to achieve appropriate delegation of responsibility, authority and accountability to and within each Service for system acquisition to reduce the time and effort required for DSARC and Service major system reviews.

Advantages: Reduced system cost and shorter acquisition cycles. More efficient reporting by and within the Services. More streamlined program management. More efficient DSARC and other program reviews. Potential elimination of layered management resulting in lean organizations.

Disadvantages: Some risk of losing a thorough functional analysis of the system because of the elimination of more detailed reviews.

Action Required: USDRE make explicit the changed character and the reduced number of briefings and data for the DSARC review.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapprove: \_\_\_\_\_

Recommendation 18

BUDGETING WEAPONS SYSTEMS FOR INFLATION

Historically, inflation predictions have been lesser than the actual inflation that come to pass. The situation has been most severe in major weapon programs that spend out slowly and extend into those years when inflation estimates have been poorest. The result is that unpredicted inflation has cut heavily into real program by as much as \$6 or \$7 billion a year. In addition to the serious underfunding of major weapon and other purchases, DoD is charged with poor management because of the amounts of cost growth in current dollars appearing in reports and in the process.

Recommendation: Review various methods and alternatives for budgeting more realistically for inflation.


Required Action: Comptroller and PA&E develop in more detail the various alternatives addressing the inflation issue as related to planning and budgeting for major acquisition programs and provide a decision paper to the Deputy Secretary of Defense within 30 days; discuss draft options with CMB and appropriate Congressional staff.

Approved:

Idea Needs More Development:

I Need More Information:

Disapproved:

  
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Recommendation 19  
FORECASTING OF BUSINESS BASE CONDITION AT  
MAJOR DEFENSE PLANTS

The business base at key defense plants is not adequately considered in DoD program development. Cross-Service impacts and the effects of non-DoD work distorts business base projections and seriously increases overhead costs. This has caused large cost growth for certain weapons systems. Too little consideration is given to this factor in DoD planning and decision-making.

Recommendation: The Services will increase the effort to coordinate programming information that affects other Service overhead costs at given defense plants. Program offices will provide program projections to plant representatives so that overall business projections can be made available to the Services for planning and budgeting.

Advantages: Better cost estimates and lower cost to the government. Provides more realistic costs and stability.

Action Required: Contract Administration functions will be directed to maintain a business base projection, and government offices will be directed to support this effort and utilize these data in planning and budgeting. The OSD Cost Analysis Improvement Group (CAIG) will maintain a data exchange for the Services to assist in improved forecasting.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

11 See

with credibility

Recommendation 20

IMPROVE THE SOURCE SELECTION PROCESS

Some DoD competitively-selected contractors have performed poorly. In some instances, source selection criteria do not sufficiently take into account past performance or plans for future phases of a program. Also, the credibility and realism of contractor cost proposals are not always challenged.

Recommendation: 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 these past performance ratings are available for use by source selection personnel.

Advantages: Eliminate poor performers, eliminate proposals that are unrealistically priced, thereby reducing the risk of buy-ins.

Disadvantages: May limit competition. Will be difficult to implement and apply fairly.

Action Required: USDRE modify the source selection directive, DoDD 4105.62, to emphasize the objectives stated above. USDRE establish a DoD system for recording, documenting and sharing contractor performance.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

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Recommendation 21

DEVELOP AND USE STANDARD OPERATIONAL AND SUPPORT SYSTEMS

New subsystems and support systems are developed that are peculiar to specific weapon systems, yet have many performance features in common with other systems. Use of standard, off-the-shelf subsystems and/or support systems for some of the long-lead time items can reduce development time. 12/8

Recommendation: Identify and develop standard subsystems and support systems or their technology (independent of weapon systems) to meet projected weapon system needs. Support a program of weapon support R&D to put diagnostic, repair, and logistic technology on the shelf.

Advantages: Earlier deployment with lower risk. Enhanced supportability. Reduction in operating costs.

Disadvantages: Standard systems or technology may not be best match for the weapon system needs. Requires increased funding to implement. Could be overemphasized.

Action Required: USDRE working with the Services submits a proposed program for FY 82 and beyond within six months.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

Recommendation 22

PROVIDE MORE APPROPRIATE DESIGN TO COST GOALS

Design to Cost (DTC) fee awards are made as a result of paper analysis. There is little or no tie to actual costs in production. DTC incentive fees and awards are payable during and at the conclusion of Full-Scale Development. Award is based on the forecasted average cost for the production quantity.

Recommendation: Provide appropriate incentives to industry by associating fee awards to actual costs achieved during the early production runs.

Advantages: Ties award to "real" achievement. Makes DTC meaningful.

Disadvantages: Changes in program (rates, quantity, inflation, etc.) complicate analysis of results. Longer time between DTC effort and award payment.

Action Required: Insure program managers and contracting officers develop contract terms and procedures to provide for the payment of Design to Cost (DTC) awards and incentives based upon costs actually achieved during early production runs. Base payments on demonstration that initial costs are on track with DTC goal for total forecasted production.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapprove: . . . \_\_\_\_\_

ASSURE IMPLEMENTATION OF ACQUISITION PROCESS DECISIONS

The acquisition process has been studied many times by many organizations. Most of the recommendations presented here have been made before. However, few of these recommendations have been implemented. Congress, GAO, OMB, CFPP, industry, and OSD have continuously criticized the Services for not following DODD 5000.1 and DODI 5000.2. A recent Navy acquisition study reviewed the implementation status of past acquisition process studies and found that of 50 recurrent recommendations, some progress is perceived to have occurred in 29 and almost no progress is perceived to have occurred in the remainder.

A difficulty with implementing recommendations regarding the acquisition process is the great number of players involved to make implementation succeed. This requires persistent, intensive, follow-up effort to make sure that the recommendations really do take hold. The most common reason for non-implementation is simply that relentless action on the part of top management is not taken to insure that recommendations are, indeed, implemented. OSD has, in the past, focused a great amount of management attention on policy development and resolution. However, OSD has not monitored implementation of the policies on a program basis.

Since potential decisions could lead to major changes to the process and even to DoD organizations and their roles, it will be difficult for the existing DoD organizations to execute changes without high level attention by the SecDef and DepSecDef. Elimination of the complexity inherent in the current process is masked unless the many different types of changes are considered in terms of the aggregate administrative and reporting load generated.

A fundamental determination which is required for each decision is whether implementation should reflect centralized control under OSD or decentralization to the Services. In selected areas a uniformity of action across Services may be desired.

Recommendation: Ensure that a determined management translates approved recommendations into implementable direction and fixes responsibility so that management has visibility of the actions taken.

Advantages: This plan will not succeed without a well planned, intensive, high visibility, relentless implementation phase. Without this effort, this report will degenerate into another study.

Disadvantages: Implementation will require a priority and time commitment from all levels of management ranging from the SecDef to the Program Manager for a number of years.

Action Required: a. Assign overall responsibility to USDRE for monitoring and follow-up of all decisions made in this report.

b. USDRE will assign a prime responsibility for action on every recommendation and decision in this report. In general, these assignments have been specified under the "Action Required" sections; however, in certain cases specific action responsibilities will be defined in the immediate future.

c. USDRE should consider utilizing a working group containing OSD and Service representatives to assist in implementation.

d. USDRE should consider utilizing a number of creative techniques to translate the intent of these recommendations to all levels. This could include formal training sessions, conferences, video taped training films, articles, and policy letters.

e. Both the SecDef and the DepSecDef must maintain a personal interest in ensuring that the changes are implemented, that there is continuous action to improve the acquisition process, that periodic reviews take place, and that all Services and OSD staff be made aware of the SecDef priority interest on this subject.

Approved:	<u>      <i>R</i>      </u>
Idea Needs More Development:	<u>                  </u>
Need More Information:	<u>                  </u>
Disapproved:	<u>                  </u>



## MAJOR ISSUES FOR DECISION

This section presents for decision the major issues identified in the Defense Systems Acquisition Review.

### A. Issue: WHAT SHOULD BE THE SECDEF (DSARC) DECISION MILESTONES?

The current process provides four discrete SecDef decision points. All of the alternatives discussed below retain the current "milestone" process structure. However, all alternatives either de-emphasize or reduce the number of formal OSD level milestone reviews and SecDef decisions. Under some alternatives certain milestone reviews are delegated to the Service Secretaries. The Secretary of Defense decision authority and acquisition policy responsibilities are maintained and exercised through the PPBS process and/or by invoking explicit disapproval of proposed Service program acquisition decisions at any stage in the cycle. There are four alternatives shown schematically on page .

Alternative One (Page D-11) reduces the current four discrete SecDef decision milestones to three (with flexibility for only two) by altering Milestone Zero.

Milestone Zero SecDef review and decision is accomplished through the annual Planning, Programming and Budgeting System (PPBS).

Although Milestone I is retained, a SecDef decision would generally be necessary only when a program requires a significant prototype (Advanced Development) phase. When held, Milestone I documentation would be reduced.

Milestone II and III reviews would continue to be conducted by the DSARC with final approval action by the SecDef. Any pre- or post-Milestone III reviews deemed necessary would be held at the Service level except under unusual circumstances.

- Pro: - Reduced administrative burden.
- Increased flexibility
- Initial development program reviews and decisions are speeded.
  
- Con: - May be perceived as a lessening of SecDef control.

Alternative Two (Page D-16) reduces the number of formal SecDef DSARC reviews to Milestones II and III.

Milestone 0 would be reviewed by OSD during PPBS as in Alternative One above.

Milestone I would be delegated to the Service Secretaries. SecDef authority and oversight is maintained through notification of Service decisions with veto/disapproval authority if necessary.

Milestones II and III receive a full DSARC review and DSARC approval.

- Pro: - Further delegation of program responsibility and reduction in administrative burden.
- Front-end process is speeded as in Alternative One.
- Con: - Further reduction in SecDef control over acquisition of major programs at front-end; may restrict SecDef ability to redirect due to program momentum.
- May not be considered proper implementation of A-109 with regard to Milestone I (A-109 requires SecDef to retain decision authority at the four Milestone Decisions).

Alternative Three (Page D-19) reduces the SecDef decision milestones to two, but ensures full SecDef involvement in major program initiation, and improved program definition for program go-ahead. The first decision point, "Requirements Validation: (equivalent to combination of Zero and One), serves as a full DSARC/SecDef review and approval of major program initiation including threat, weapons concept, risk and schedule, readiness, and affordability goals. At this point a specific "not-to-exceed" dollar threshold is established which sets the funding to carry the program through Concept Validation and early Full-Scale Development activity up to the second decision point, "Full-Scale Development and Production." The goals to be achieved by, and the timing of the second SecDef decision point are defined at the first decision point.

The Program Go-Ahead, second SecDef decision point, occurs somewhat later than Milestone II in a "normal" program schedule, and it is selected to coincide with Preliminary Design Review. SecDef retains source veto/disapproval of a Service proposed action and program plans which shall include Full-Scale Development and Production, the program plan for Test and Evaluation, Support and Readiness, and the total acquisition strategy.

The production program review is delegated to the Service Secretary if there are no major changes to the program approved at the second decision point by the SecDef.

- Pro: - The administrative burden is reduced by fewer OSD level reviews.
- The review levels are linked more closely to major expenditure increases.
- Program commitment is delayed until program technical, performance and cost factors are more accurately determined.
- Provides more efficient transition between development and production.
- Con: - Same Cons as above; in addition the divergence from A-109 language is more acute.
- ~~No separate SecDef production decision required.~~

Alternative Four (Page D-24) eliminates all SecDef decision milestones and delegates total program review responsibility to the Service Secretaries. The DSARC could be invoked at SecDef discretion but generally the SecDef would exercise control and decision authority on a cy-exception veto/disapproval basis. Milestone Zero would be conducted through the PPBS process as described earlier.

- Pro: - This alternative goes the furthest toward decentralization and reduction in administrative burden.
- Con: - SecDef direct control of major acquisitions is substantially reduced. Perceived violation of the intent of A-109 as regards agency head responsibility.

Action: USDRE revise DoD Directives 5000.1/2 appropriate to alternative selected.

Decision:

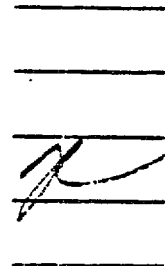
Current: (Four SecDef Milestone Decisions)

Alternative 1: (Three SecDef Milestone Decisions)

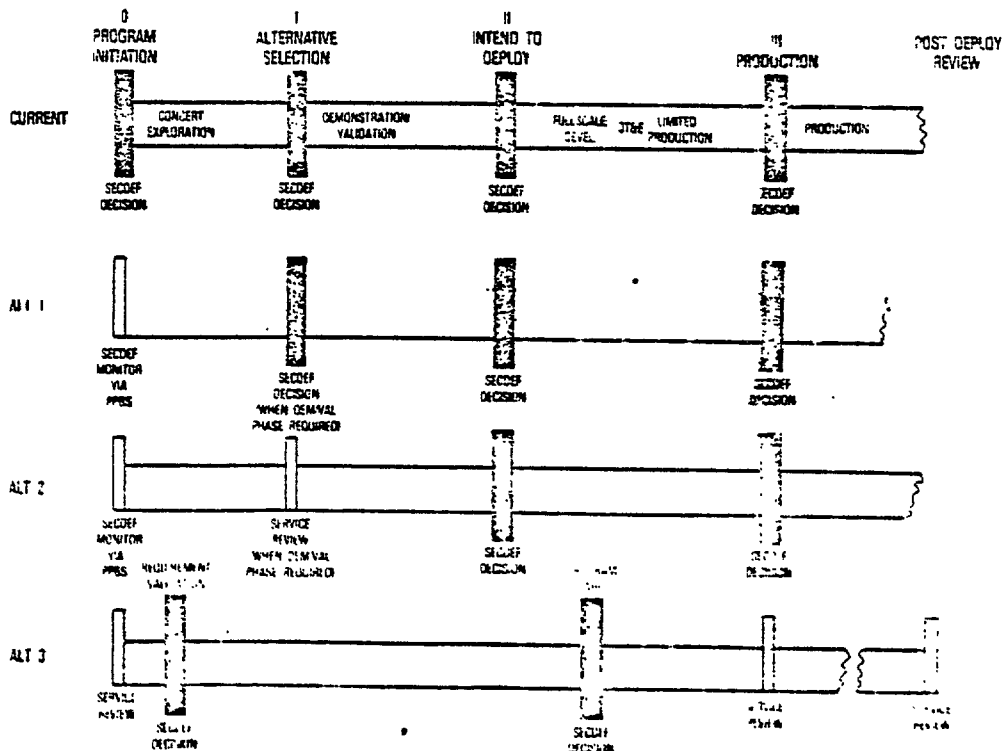
Alternative 2: (Two SecDef Milestone Decisions)

Alternative 3: (Two SecDef Milestone Decisions)

Alternative 4: (Zero SecDef Milestone Decisions)



### ACQUISITION PROCESS ALTERNATIVES



B. Issue: SHOULD MENS BE ELIMINATED/REVISED?

Problem: The Mission Element Need Statement (MENS) is an internal DoD document used to support the SecDef decision at Milestone 0. The MENS is required by DoD implementation of OMB Circular A-109 (1976) requirements to state needs in terms of mission and that SecDef should certify the need. The MENS was to be 5 pages or less. In practice staffing has increased and detailed justification information often requested by OSD has contributed directly to perceptions of growth in the "front end" of the acquisition cycle. There are 30 MENS currently approved.

Alternative One would require submission of the MENS (shortened or as currently required) no later than with the Service POM thus linking the acquisition and PPBS process. SecDef approval of MENS would be by accepting POM in the absence of specific disapproval.

- Pro: - Consistent with reduced SecDef review options.
- Better integration of acquisition and PPBS processes as "new starts" would be reviewed in the context of the full Service/DoD budget formulation process.
- SecDef decision authority retained, but exercised by exception in the budget process.
- Con: - Some reduction in SecDef visibility and influence over preliminary program plans.

Alternative Two would eliminate MENS document entirely; Congressional Descriptive Summary (and other POM documentation already required) would document Milestone 0.

- Pro: - Reduced paperwork, simplified program documentation.
- Con: - MENS has been given considerable visibility in OFPP, OMB, and GAO, could be viewed as circumvention of A-109 though MENS not specifically required by A-109.

Action Required: USDRE revise DoD Directive 5000.1/DoD Instruction 5000.2 appropriate for alternative selected.

Decision:

Alternative 1             
Alternative 2             
I Need More Information

C. Issue: SHOULD DSARC MEMBERSHIP BE REVISED?

Problem: Service Secretaries have statutory responsibility for the execution of contractual and financial responsibilities for their departments, yet they are not voting members of the DSARC. Service Chiefs also have no vote although they will be responsible for developing and operating the systems under consideration.

Alternative One would maintain current membership. (USDRE, Chairman; USDP; ASD(C); ASD(MRA&L); ASD(PA&E); Chairman, JCS; plus others in special cases).

- Pro: - Retains DSARC as a SecDef staff advisory council.
- Con: - Could place the DSARC in a position of recommending a position that is contradictory to that of the Service line executive responsible to the SecDef without explicitly reflecting the Service position.

Alternative Two would include the appropriate Service Secretary or Service Chief as full members of DSARC.

- Pro: - Provide SecDef with a broader advisory council.  
- Reduces adversary nature of current procedure.
- Con: - Reduce the independence of the DSARC as OSD advisor to SecDef.  
- Increases the size of the DSARC.

Action Required: USDRE revision of DoD Instruction 5000.2 required.

Decision:

Alternative 1 \_\_\_\_\_  
Alternative 2 \_\_\_\_\_  
I Need More Information \_\_\_\_\_

D. Issue: WHO SHOULD BE THE DEFENSE ACQUISITION EXECUTIVE (DAE)?

Problem: Current policy requires that a DAE be designated by the SecDef to be the principal advisor and staff assistant for the acquisition of defense systems and equipment. The USDRE is designated the DAE. However, the scope of the function encompasses procurement of material to support and sustain the force. There is continuing competition between modernization readiness, maintenance of forces and sustainability. The USDRE has primary staff responsibility for force modernization efforts of DoD.

Alternative One would retain USDRE as the DAE.

- Pro: - The USDRE is clearly the OSD executive with the greatest technical knowledge and systems development expertise.
- Con: - Primary USDRE responsibility is developing weapon systems as opposed to operating, maintaining, or supporting the military force.
  - The effort to rationalize and fund competing programs suffers because USDRE could be an R&D proponent himself.

Alternative Two would designate DepSecDef as DAE.

- Pro: - Improved balance between modernizing and operating the force and a more coherent defense program could result from having DepSecDef chair both the DRB and the DSAPC.
- Con: - Increases the level of DepSecDef involvement in the acquisition process. USDRE is the OSD technical and system development expert.

Decision:

Alternative 1     *JL*      
Alternative 2                       
I Need More Information

E. Issue: WHAT SHOULD BE THE CRITERION FOR SYSTEMS REVIEWED BY DSARC?

Problem: Currently, there are over 50 major programs designated for DSARC review. Although dollar thresholds (currently \$100M RDT&E or \$500M procurement in FY 1980 \$) are "guidelines," they are generally the rule of thumb used to select major programs. Major program designation is derived by subjective judgment based upon joint Service participation, estimated funding, manpower and support requirements, risk, politics, and other Secretary of Defense interests.

Alternative One would continue present system.

- Pro: - The current system allows flexibility in designation, and does not force uncontentious programs to become major strictly because of large investment.
- Con: - The largely subjective criteria causes uncertainty, and may be susceptible to an arbitrary designation.

Alternative Two increases dollar guidelines for major system designation to \$200M RDT&E and \$1B procurement in FY 80 \$.

- Pro: - The number of Service DSARCs and DSARC would be reduced approximately 25% while still insuring review of the most expensive major systems.
  - Uncertainty and the opportunity for arbitrary, unnecessary designation are reduced.
- Con: - Reduces number of major systems of significant investment not reviewed at Secretary of Defense level.

Action Required: USDRE revise DoD Directive 5000.1/DoD Instruction 5000.2 if Alternative Two is adopted.

Decision:

Alternative 1 \_\_\_\_\_  
Alternative 2 \_\_\_\_\_  
I Need More Information

F. Issue: HOW SHOULD THE DSARC/PPBS DECISION BE INTEGRATED?

Problem: It has been the perception that a DSARC endorsement and subsequent SecDef approval commits the SecDef/Service to fund the program as approved. This has led to confusion as to program status and stability. The DSARC process reviews single programs at significant milestones to determine readiness to proceed to the next phase. It is not feasible in that context to assess the financing of a major program vis a vis other Defense requirements. In contrast, the PPBS addresses all programs within a resource allocation framework without an in-depth review of technical issues and program structure. This "disconnect," the lack of explicit resource commitment (including support and manpower) resulting from a successful DSARC review and subsequent SecDef approval, is frequently cited as a flaw in the acquisition process.

Alternative One continues present practice.

- Pro: - Allows funding decisions during POM/budget development.
- Con: - Fosters program instabilities when DSARC program is not supported in PPBS cycle.
  - May void contract with industry.

Alternative Two resolves the interface problems by providing that programs reviewed by the DSARC will be accompanied by assurance that sufficient agreed to resources are in the FYDP and EPA or can be programmed to execute the program as recommended. DSARC review would certify the program ready to proceed to the next acquisition stage. Affordability in the aggregate would be a function of the PPBS process.

- Pro: - This would lead to DSARC endorsement of fiscally executable programs and fosters program stability through resource commitment.
- Con: - Funding constraints may be set without regard to technical issues.

Alternative Three has the DRB assume the functions of the DSARC. This also makes DepSecDef the Acquisition Executive.

- Pro: - Decisions made by single body; no need to revisit in another forum.
  - Forges a closer linkage between the acquisition process and the PPBS.
- Con: - Current DRB membership not optimal for technical program reviews.



Action Required: Alternative 2--DAE enforce current DoD Directive 5000.1 affordability policy and USDRE revise 5000.1 to strengthen policy and eliminate confusion.

Alternative 3--USDRE revise DoD Directive 5000.1/DoD Instruction 5000.2 to reflect changes in role and membership of DRB.

Decision:

Alternative 1	_____
Alternative 2	_____ <i>je</i>
Alternative 3	_____
I Need More Information	_____

*W. L. Clark*

G. Issue: PROGRAM MANAGER CONTROL OVER LOGISTICS AND SUPPORT RESOURCES

Problem: Three programming and budgeting problems are disincentives for program managers to provide system support and readiness.

1. Support program and budget requirements are based on experience related measures (unrelated to readiness) instead of a system's support requirements and readiness factors.

2. Budget review by appropriation categories. The fielding of a weapons system involves several appropriations: R&D, procurement, military construction, operation and maintenance and military personnel. Normally budget decisions in these accounts occur without visibility of the impact on individual system's support or readiness.

3. Budget execution. Some weapon support funds (spares, training, depot) are controlled by Service activities not responsible to the program manager. Sometimes priorities do not match the program manager's and funds are diverted to fund other requirements.

The Program Manager may not know of or participate in PPBS decisions which impact on his system's support. Once decisions are made on his system's support, they may be altered by another activity during budget execution. This is particularly critical early in FSED as well as during the transition to production when large initial support resources are spent. At any given time, there would be an estimated 15-20 weapons total involved in transition. Procurement of spares with contracts separate from the system production contract increases spares costs.

OPTIONS: Alternatives 2 and 3 below would apply to selected weapon systems, those nearing production or in early production (15-20 systems). A two year trial is recommended for the selected alternative.

Alternative One would continue present management system (use traditional/experience related measures to review system support program and budget requirements; review budget by appropriation categories.

- Pro: - No cost of change.
- Con: - Disincentives for program manager to provide system support readiness remain. Budget review and budget execution problems are not addressed.
- Little program manager input to support budget execution.

Alternative Two would have Services submit with the POM support resource requirements and readiness objectives, by weapon system, for systems entering/or in early production. Direct CSD to have a single review of support associated with individual systems.

Pro:

Gives more PPBS visibility of the combined effects of major support decisions on readiness objectives.

Removes PPBS disincentives by reducing independent budget/PPBS decisions without visibility of effect on program as a whole.

Would move in the direction of a more mission oriented budget decision process.

Con:

Some extra work for the reviewers.

Alternative Three is the same as two but would additionally develop procedures to give the PM more control of support resources, funding and execution. Services would develop implementing approaches to deal with the problems identified on this issue. The basic option should give the Program Manager a voice in support resource allocation and budget execution process through increased and centralized resource visibility and coordination by the PM on changes to his plans.

Pro:

Giving the Program Manager a voice (or coordination) in major support resource decisions for his program would improve responsibility.

Con:

A moderate step requires procedural changes and may or may not be effective. More direct control of many resources would unbalance the overall use of logistic resources by the Service.

Action Required: ASD(MRA&L) letter to Services stating objectives to give more incentives to PM. ASD(MRA&L) would work with the Services to define and evaluate implementing options. Initial letter can be prepared within 30 days.

Decision:

Alternative 1 \_\_\_\_\_  
Alternative 2 \_\_\_\_\_  
Alternative 3   X    
I Need More Information \_\_\_\_\_

H. Issue: IMPROVING RELIABILITY AND SUPPORT FOR SHORTENED ACQUISITION CYCLE

Problem: In response to serious readiness and reliability problems in many of the systems we now operate, there have been increases in Service and OSD efforts to define reliability and support objectives and to demonstrate their accomplishment prior to major production commitment. Recent acquisition policies include this increased emphasis.

The new focus on shortening the development process is potentially in conflict with initiatives to improve reliability and support. Whereas the fastest acquisition approach involves initiating production prior to test of development models, the highest confidence of achieving reliability and other support goals in fielded hardware involves iterative design and testing before high rate production. A balance must be struck on each program. Many of the serious problems in current systems result from not striking the correct balance.

For those systems which are run on a fast track, there are requirements for additional early funding to design in reliability and support characteristics - including the need to pay this price in parallel or competing developments. Additional in-house talent must be brought to bear, and industry incentives need to be applied to avoid previously experienced support problems.

Because of the relative priority of reliability and support efforts compared to performance objectives, and the current shortage of in-house talent to address these problems, specific top management attention, priority and stress on support resources is needed.

Alternative One modifies the current acquisition procedures to require a specific early decision (circa Milestone 1 on many programs) on the approach, additional resources and incentives which will be used to balance the risks in the reliability and support area on each program. The vehicle for decision can be an acquisition strategy prepared by the Program Manager. This should include an option which goes as far as possible in extra efforts (design, parallel testing, contractual) to increase the likelihood of achievement of support objectives on concurrent programs.

- Pro: - Early decision on degree of concurrency sets in motion long lead steps to reduce support risks.
- Results in conscious decision to balance all the objectives in the light of Service and DoD priorities.
- Gets additional early resource needs considered.
- Provides clear support objectives to PM.

- Con: - Will require more up-front funds Will be viewed by some as addressing support too early.
- Additional responsibility for PM (but the clear decisions may be helpful).

Alternative Two shifts more of the focus to fixing reliability and support problems experienced in fielding the system by subsequent redesign of production hardware and incorporation of fixes. Rely more on interim contractor support while problems are being fixed.

- Pro: - Easier to do.
- Leaves program manager freer to make the trade-offs without Service involvement.
- Con: - Requires more funds to fix later. Historically difficult to get funds for major fixes. Less likelihood of avoiding support problems.
- Congress will criticize the early fielding problems.

Action Required (If Alternative One is selected): USDRM issue guidance adding early assessment of support options to the current procedures. This could be part of a decision on overall acquisition strategy. Additionally request the Services to revise and develop support related planning guidelines.

Decision:

Alternative 1       X        
 Alternative 2             
 I Need More Information

INCREASE COMPETITION IN THE ACQUISITION PROCESS

Competition is a basic cornerstone of the free enterprise system. When applied to procurement, it assures fairness, avoids favoritism, obtains lower prices, and achieves better performance. Failure to obtain competition for Government contracts results not only in a loss of these benefits but in a loss of confidence in the integrity and quality of the acquisition process. Such losses have a very serious effect on the ability of the DoD to accomplish its basic mission.

Competition can be obtained only by meticulous planning and by the support of management at all levels. It involves all functional disciplines associated with the acquisition process -- not just the procurement or contracting function. Special techniques for enhancing competition have been developed for different commodities and services. Some require additional early funding to achieve significant savings in later phases. Technical or design competition may supercede price considerations during advanced or engineering development phases for new equipment. Competition should be extended to the extent possible beyond initial acquisition and should include life cycle costs.

Recommendation - Require the Services and Defense Agencies to establish management programs to increase competition, by setting objectives.

Advantages - Will decrease contract costs, improve performance, avoid the appearance of favoritism, and increase confidence in Defense procurement.

Disadvantages - Increases management costs and lengthens preaward lead time.

Action Required - Direct that acquisition management activities establish appropriate program objectives to enhance competition.

Approved: \_\_\_\_\_  
Idea Needs More Development: \_\_\_\_\_  
I Need More Information: \_\_\_\_\_  
Disapproved: \_\_\_\_\_

Frank C. Carlucci  
JUL 27 1981



December 26, 1979  
NUMBER 5000.3

USDR&E

## Department of Defense Directive

**SUBJECT:** Test and Evaluation

- Reference:**
- (a) DoD Directive 5000.3, "Test and Evaluation," April 11, 1978 (hereby canceled)
  - (b) DoD Directive 5000.1, "Major System Acquisitions," January 18, 1977
  - (c) DoD Directive 5000.2, "Major System Acquisition Process," January 18, 1977
  - (d) DoD Directive 3200.11 "Use, Management and Operation of Department of Defense Major Ranges and Test Facilities," June 18, 1974
  - (e) DoD Directive 5000.19, "Policies for the Management and Control of Information Requirements," March 12, 1976

### A. REISSUANCE AND PURPOSE

This Directive reissues reference (a) and establishes policy for the conduct of test and evaluation in the acquisition of defense systems; designates the Director Defense Test and Evaluation (DDTE) as having overall responsibility for test and evaluation matters within the Department of Defense; defines responsibilities of the DDTE, organization of the Joint Chiefs of Staff (OJCS) and DoD Components; and provides guidance for the preparation and submission of Test and Evaluation Master Plans.

### B. APPLICABILITY AND SCOPE

1. The provisions of this Directive apply to the Military Departments and the Defense Agencies (hereafter referred to as "DoD Components"), the Office of the Secretary of Defense (OSD), the OJCS, and the Unified and Specified Commands. As used herein, the term "Military Services" refers to the Army, Navy, Air Force, and Marine Corps.

2. These provisions encompass major defense system acquisition programs, as designated by the Secretary of Defense under DoD Directive 5000.1 (reference (b)), and apply to all DoD Components that are responsible for such programs. In addition, the management of system programs not designated as major system acquisitions shall be guided by the principles set forth in this Directive.

C. DEFINITIONS

Terms used in this Directive are defined in enclosure 1.

D. POLICIES AND RESPONSIBILITIES

1. General

a. Test and evaluation (T&E) shall begin as early as possible and be conducted throughout the system acquisition process to assess and reduce acquisition risks and to estimate the operational effectiveness and operational suitability of the system being developed. Meaningful critical issues, test objectives, and evaluation criteria related to the satisfaction of mission need shall be established before tests begin.

b. Successful accomplishment of T&E objectives will be a key requirement for decisions to commit significant additional resources to a program or to advance it from one acquisition phase to another. Acquisition schedules, financial plans, and contractual arrangements shall be based on this principle.

c. Dependence on subjective judgment concerning system performance shall be minimized during testing. To the extent permitted by resource constraints and the need for realistic test environments, appropriate test instrumentation will be used to provide quantitative data for system evaluation.

2. Development Test and Evaluation (DT&E). DT&E is that T&E conducted to assist the engineering design and development process and to verify attainment of technical performance specifications and objectives. DT&E is normally accomplished or managed by the DoD Component's materiel development agency. It includes T&E of components, subsystems, hardware/software integration, related software, and prototype or full-scale engineering development models of the system. T&E of compatibility and interoperability with existing or planned equipment and systems are also included.

a. During the system acquisition phase before the decision Milestone I, DT&E shall be accomplished, when appropriate, to assist in selecting preferred alternative system concepts.

b. Before the Milestone II decision, adequate DT&E shall be accomplished to identify the preferred technical approach, including the identification of technical risks and feasible solutions.

c. Before the Milestone III decision, adequate DT&E shall be accomplished to ensure that engineering is reasonably complete (including survivability/ vulnerability, compatibility, transportability, interoperability, reliability, maintainability, safety, human



factors, and logistic supportability), that all significant design problems have been identified, and that solutions to these problems are in hand.

d. After the Milestone III decision, DT&E shall be an integral part of the development, acceptance, and introduction of system changes to improve the system, react to new threats, and reduce life cycle costs.

e. For systems that interface with equipment of another DoD Component or that may be acquired by more than one DoD Component, multiservice DT&E may be required. Such testing shall include appropriate participation and support by all affected DoD Components.

f. The DoD Component's developing agency shall structure acquisition programs, make information available, and arrange for the DoD Component's independent operational test and evaluation (OT&E) agency's participation in development testing, as appropriate, to support OT&E objectives.

3. Operational Test and Evaluation (OT&E). OT&E is that T&E conducted to estimate a system's operational effectiveness and operational suitability, identify needed modifications, and provide information on tactics, doctrine, organization, and personnel requirements. Acquisition programs shall be structured so that OT&E begins as early as possible in the development cycle. Initial operational test and evaluation (IOT&E) must be accomplished prior to the Milestone III decision.

a. In each DoD Component there shall be one major field agency, separate and distinct from the materiel developing/procuring agency and from the using agency, responsible for managing operational testing and for reporting test results and its independent evaluation of the system under test directly to the Military Service Chief or Defense Agency Director.

b. OT&E shall be accomplished in an environment as operationally realistic as possible. Typical operational and support personnel will be used to obtain a valid estimate of the users' capability to operate and maintain the system when deployed under both peacetime and wartime conditions.

c. During the system acquisition phase before the Milestone I decision OT&E will be accomplished, as appropriate, to assess the operational impact of candidate technical approaches and to assist in selecting preferred alternative system concepts.

d. Before the Milestone II decision OT&E will be accomplished, as necessary, to examine the operational aspects of the selected alternative technical approaches and estimate the potential operational effectiveness and suitability of candidate systems. Decisions made at Milestone

It to commit funds for production long lead items or limited production must be supported by OT&E results.

e. Before the Milestone III decision, adequate OT&E shall be accomplished to provide a valid estimate of the system's operational effectiveness and suitability. The items tested must be sufficiently representative of the expected production items to ensure that a valid assessment can be made of the system expected to be produced.

f. After the Milestone III decision during initial production and deployment of the system, the DoD Component's OT&E agency will manage follow-on OT&E (FOT&E), as necessary, to ensure that the initial production items meet operational effectiveness and suitability thresholds and to evaluate system, manpower, and logistic changes to meet mature system readiness and performance goals.

g. When systems have an interface with equipment of another DoD Component or may be acquired by more than one DoD Component, multiservice OT&E shall be accomplished. Such testing shall include participation and support by all affected DoD Components. An independent evaluation shall be submitted by the OT&E agency of each participating DoD Component.

h. Throughout the system acquisition process, the DoD Component's OT&E agency shall:

(1) Ensure that OT&E is effectively planned and accomplished during all acquisition phases.

(2) Participate in initial system acquisition planning and test design to ensure adequacy of the planned schedules, testing, and resources to meet OT&E objectives and to ascertain which portions of DT&E can contribute to the accomplishment of OT&E objectives.

(3) Monitor, participate in as appropriate, and review the results of DT&E to obtain information applicable to OT&E objectives.

(4) Ensure that the operational testing and applicable development testing, and data collected, are sufficient and credible to support its analysis and evaluation needs.

(5) Provide an independent evaluation of OT&E results at key decision milestones. The Milestone III evaluation shall include recommendations regarding the system's readiness for operational use.

(6) Bring directly to the attention of its Military Service Chief, or Defense Agency Director, issues which impact adversely upon the accomplishment of adequate OT&E.

4. Combining Development and Operational Testing. Planning for DT&E and OT&E shall be coordinated at the test design stages so that

each test phase uses resources efficiently to yield the data necessary to satisfy common needs of the materiel developing agency and the OT&E agency. Development and operational tests may be combined when clearly identified and significant cost and time benefits will result, provided that the necessary resources, test conditions, and test data required by both the developing agency and the OT&E agency can be obtained. Participation by the OT&E agency in the planning and execution of tests must be sufficient to ensure that the testing conducted and data collected are sufficient and credible to meet the OT&E agency's requirements. When a combined testing program is chosen, it will normally include dedicated operational test events, and the final period of testing prior to the Milestone III decision will emphasize appropriate separate operational testing managed by the DoD Component's OT&E agency. In all cases, the OT&E agency shall provide a separate and independent evaluation of the test results.

5. T&E for Major Ships of a Class. The long design, engineering, and construction period of a major ship will normally preclude completion of the lead ship and accomplishment of tests thereon prior to the decision to proceed with follow-on ships. In lieu thereof, successive phases of DT&E and OT&E shall be accomplished as early as feasible at land-based or sea-based test installations and on the lead ship to reduce risk and minimize the need for modification to follow-on ships.

a. When combat system complexity warrants, there shall be one or more combat system test installations constructed where the weapon, sensor, and information processing subsystems are integrated in the manner expected in the ship class. These test installations may be land-based, sea-based, or both, depending on test requirements. Adequate DT&E and OT&E of these integrated subsystems shall be accomplished prior to the first major production decision on combat systems. To the degree feasible, first generation subsystems shall be approved for Service use prior to the initiation of integrated operational testing. When subsystems cannot be Service-approved before this integrated operational testing, their operational suitability and effectiveness shall be examined at the test installation as early as possible in the acquisition cycle.

b. For new ship types that incorporate major technological advances in hull or nonnuclear propulsion design, a prototype incorporating these advances shall be employed. If the major technological advances affect only certain features of the hull or nonnuclear propulsion design, the test installation need incorporate only those features. Adequate T&E on such prototypes shall be completed before the first major production decision on follow-on ships.

c. The prototyping of Navy nuclear propulsion plants will be accomplished in accordance with the methods in use by the Department of Energy (DoE).

d. For all new ship classes, continuing phases of OT&E on the lead ship shall be conducted at sea as early in the acquisition process as possible for specified systems or equipment and, if required, for the full ship to the degree feasible.

e. A description of the subsystems to be included in any test installation or test prototype, the schedules to accomplish T&E, and any exceptions to the above policies shall be provided in the initial and any subsequent milestone decision documentation for approval by the Secretary of Defense.

6. Test and Evaluation of Computer Software. The provisions of this Directive apply to the software components of defense systems as well as to hardware components.

a. Quantitative and demonstrable performance objectives and evaluation criteria shall be established for computer software during each system acquisition phase. Testing shall be structured to demonstrate that software has reached a level of maturity appropriate to each phase. Such performance objectives and evaluation criteria shall be established for both full-system and casualty mode operations. For embedded software, performance objectives and evaluation criteria shall be included in the performance objectives and evaluation criteria of the overall system.

b. Decisions to proceed from one phase of software development to the next will be based on quantitative demonstration of adequate software performance through appropriate T&E.

c. Before release for operational use, software developed for either new or existing systems shall undergo sufficient operational testing as part of the total system to provide a valid estimate of system effectiveness and suitability in the operational environment. Such testing shall include combined hardware/software and interface testing under realistic conditions, using typical operator personnel. The evaluation of test results shall include an assessment of operational performance under other possible conditions which were not employed, but which could occur during operational use.

d. The OT&E agencies shall participate in the early stages of software planning and development to ensure that adequate consideration is given to the system's operational use and environment, and early development of operational test objectives and evaluation criteria.

7. T&E for One-of-a-Kind Systems. Some programs, particularly space, large-scale communications, and electronic system programs, involve procurement of a few items over an extended period. For these programs, the principles of DT&E of components, subsystems, and prototype or first production models of the system shall be applied. Compatibility and interoperability with existing or planned equipment shall be tested during DT&E and OT&E. OT&E shall be accomplished prior to the production decision or initial acceptance of the system to

provide a valid estimate of operational effectiveness and operational suitability. Subsequent OT&E may be conducted to refine estimates and ensure deficiencies are corrected.

8. Production Acceptance Test and Evaluation (PAT&E). PAT&E is T&E of production items to demonstrate that procured items fulfill the requirements and specifications of the procuring contract or agreements. Each DoD Component is responsible for accomplishing PAT&E.

9. T&E Master Plan (TEMP). The DoD Component shall prepare and submit, before Milestone I and each subsequent decision milestone, a TEMP for OSD approval. This broad plan shall relate test objectives to required system characteristics and critical issues, and integrate objectives, responsibilities, resources, and schedules for all T&E to be accomplished. Guidelines for preparation and submission of the TEMP are at enclosure 2.

10. Changes to TEMPs. The DoD Component shall ensure that any significant changes made in the test program after approval are reported promptly to the DDTE, with the reason for change.

11. Acquisition Milestone Decisions. The DDTE provides T&E assessments to support system acquisition milestone decisions. The DoD Components shall, in addition to providing the information specified in DoD Directive 5000.2 (reference (c)) and TEMPs in accordance with enclosure 2, provide the following additional information to the DDTE for use in making T&E assessments. When testing has been accomplished, appropriate test reports shall be provided as early as possible prior to milestone decision points. Other available supporting information including system operational concepts, how tests were accomplished, and test limitations shall be provided upon request of the DDTE. In addition, the DoD Component shall inform the DDTE of significant progress toward, or problems with, meeting significant test objectives during the conduct of test programs.

12. Joint T&E (JT&E) Program. When required and as initiated by the DDTE, JT&E will be conducted. In addition to examining the capability of developmental and deployed systems to perform their intended mission, JT&Es may also be conducted to provide information for technical concepts evaluation, system requirements, system improvements, systems interoperability, force structure planning, developing or improving testing methodologies, and obtaining information pertinent to doctrine, tactics, and operational procedures for joint operations. Testing shall be accomplished in realistic operational conditions, when feasible and essential to the evaluation. Responsibility for managing the practical aspects of each JT&E will be delegated to a specific DoD Component, and supported by forces and material from participating Components.

13. Participation by the Joint Chiefs of Staff (JCS) in JT&E Programs. As the proponent for joint procedures and interoperability

of deployed forces, the JCS have a requirement for JT&E results that provide information on joint doctrine, tactics, and operational procedures. Joint testing objectives will be addressed, when feasible, in conjunction with scheduled JCS exercises to minimize resource impact and provide economies. When JT&E and JCS exercises are integrated, the JCS will participate, as appropriate, in testing involving joint force interoperability to ensure compatibility of exercise and JT&E objectives.

a. The JCS shall annually coordinate, for submission to the DDTE, JT&E nominations by the Joint Staff, the Military Services, and the Commanders in Chief (CINC) of the Unified and Specified Commands. This does not preclude direct nominations to the DDTE from the Military Services or CINCs for JT&E activities that are inappropriate for JCS consideration or out of phase with the JCS nominations.

b. The list of nominations shall be prioritized for each fiscal year. To the extent feasible, it shall identify the participating Military Services, identify tests with potential for integration with JCS exercises, and recommend a lead Service or CINC to conduct the JT&E.

c. Control and OSD sponsorship of JT&E will be exercised by the DDTE. The DDTE, in coordination with the JCS, will task the selected lead Service or, through the JCS, the selected CINC to conduct the test, incorporate the test into joint exercises, as appropriate, appoint a Joint Test Director, develop the test plans, and provide reports, as required.

d. The Military Services, CINCs (if appropriate), and the Joint Staff shall participate in or monitor the JT&E definition and test design efforts, and coordinate the results of these before the commitment of resources.

#### E. WAIVERS

Waiver of the provisions of this Directive may be granted only by the Secretary of Defense.

#### F. EXCLUSIONS

Nuclear subsystem T&E governed by joint DoD/DoE agreements are excluded from the provisions of this Directive.

#### G. RESPONSIBILITIES OF THE DIRECTOR DEFENSE TEST AND EVALUATION

The Director Defense Test and Evaluation shall:

1. Review T&E policy and procedures applicable to the Department of Defense as a whole and recommend changes to the Secretary of Defense.

2. Coordinate T&E instructions to the DoD Components and resolve T&E management problems between DoD Components.

3. Monitor the T&E planned and conducted by the DoD Components for major acquisition programs and for other programs, as necessary.

4. Manage the consideration and review of TEMPs within OSD, and review and comment on system T&E aspects of DCPs and other documents concerned with system acquisition T&E.

5. For major system acquisition programs, provide to the Defense Acquisition Executive, the Defense System Acquisition Review Council (DSARC), the Worldwide Military Command and Control System Council, as appropriate, and the Secretary of Defense an assessment of the adequacy of testing accomplished, an evaluation of test results, and an assessment of the adequacy of testing planned for the future to support system acquisition milestone decisions.

6. Initiate and sponsor technically and operationally oriented JT&E with specific delegation to appropriate DoD Components of all practical JT&E aspects.

7. Fulfill OSD responsibilities for the Major Range and Test Facility Base (MRTFB) in accordance with DoD Directive 3200.11 (reference (d)).

8. Monitor, to the extent required to determine the applicability of results to system acquisitions or modifications, that T&E:

a. Directed by the JCS that relates to the Single Integrated Operational Plan (SIOP) as it affects system technical characteristics.

b. Conducted primarily for development or investigation of tactics, organization, or doctrinal concepts that affect system technical characteristics.


9. Review those program elements that relate to DoD Component independent test agency, test facility, and test resource budgets.

#### H. INFORMATION REQUIREMENTS

The reporting requirements prescribed by this Directive are exempt from formal approval and control in accordance with subparagraph VII.D. of enclosure 3 to DoD Directive 5000.19 (reference (e)).

I. EFFECTIVE DATE AND IMPLEMENTATION

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

  
W. Graham Claytor, Jr.  
Deputy Secretary of Defense

Enclosures - 2

1. Definitions
2. Test and Evaluation Master Plan (TEMP) Guidelines



## DEFINITIONS<sup>1</sup>

Acquisition Risk. The chance that some element of an acquisition program produces an unintended result with adverse effect on system effectiveness, suitability, cost, or availability for deployment.

Availability. A measure of the degree to which an item is in an operable and committable state at the start of a mission when the mission is called for at an unknown (random) time.

Combat System Test Installation. A collection of subsystems including weapons, sensor, and information processing equipment, together with their interfaces installed, for the purposes of early testing before the availability of a first production item, at a fixed or mobile test facility designed to simulate the essential parts of the production item.

Critical Issues. Those aspects of a system's capability, either operational, technical, or other, that must be questioned before a system's overall worth can be estimated, and that are of primary importance to the decision authority in reaching a decision to allow the system to advance into the next acquisition phase.

Evaluation Criteria. Standards by which achievement of required operational effectiveness/suitability characteristics, or resolution of technical or operational issues may be judged. At Milestone II and beyond, evaluation criteria must include quantitative goals (the desired value) and thresholds (the value beyond which the characteristic is unsatisfactory).

JT&E Program. An OSD program for JT&E, sponsored by the DDTE, structured to evaluate or provide information on system performance, technical concepts, system requirements or improvements, systems interoperability, improving or developing testing methodologies, or for force structure planning, doctrine or procedures.

Logistic Supportability. The degree to which the planned logistics (including test equipment, spares and repair parts, technical data, support facilities, and training) and manpower meet system availability and wartime usage requirements.

Long Lead Items. Those components of a system or piece of equipment that take the longest time to procure and, therefore, may require an early commitment of funds in order to meet acquisition schedules.

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<sup>1</sup>Terms defined in JCS Pub. 1, "Department of Defense Directory of Military and Associated Terms," are not included except for the term "Vulnerability," for which supplementary information is provided concerning its specific application in this Directive.

Maintainability. The ability of an item to be retained in or restored to specified condition when maintenance is performed by personnel having specified skill levels, using prescribed procedures and resources, at each prescribed level of maintenance and repair.

Multiservice T&E. T&E conducted by two or more DoD Components for systems to be acquired by more than one DoD Component, or for a DoD Component's systems that have interfaces with equipment of another DoD Component.

Operational Effectiveness. The overall degree of mission accomplishment of a system used by representative personnel in the context of the organization, doctrine, tactics, threat (including countermeasures and nuclear threats) and environment in the planned operational employment of the system.

Operational Suitability. The degree to which a system can be satisfactorily placed in field use, with consideration being given availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, safety, human factors, manpower supportability, logistic supportability, and training requirements.

Pilot Production Item. An item produced from a limited production run to demonstrate the capability to mass produce the item for operational use.

Pre-Production Prototype. An article in final form employing standard parts, representative of articles to be produced subsequently in a production line.

Realistic Test Environment. The conditions under which the system is expected to be operated and maintained, including the natural weather and climatic conditions, terrain effects, battlefield disturbances, and enemy threat conditions.

Reliability. The duration or probability of failure-free performance under stated conditions.

Reliability, Mission. The ability of an item to perform its required functions for the duration of a specified mission profile.

Required Operational Characteristics. System parameters that are primary indicators of the system's capability to be employed to perform the required mission functions, and to be supported.

Required Technical Characteristics. System parameters selected as primary indicators of achievement of engineering goals. These may not be direct measures of, but should always relate to the system's capability to perform the required mission functions, and to be supported.

Dec 26, 79  
5000.3 (Encl 1)

Survivability. The degree to which a system is able to avoid or withstand a hostile environment without suffering an abortive impairment of its ability to accomplish its designated mission.

Vulnerability. For weapon system acquisition decisions, three considerations are critical in assessing system vulnerability: susceptibility--a system limitation or weakness (may not be exploitable); accessibility--the openness of a system to exploitation by a countermeasures technique; and feasibility--the practicality and probability of an adversary exploiting a susceptibility in combat.

TEST AND EVALUATION MASTER PLAN (TEMP) GUIDELINES

A. SCOPE AND APPLICABILITY

The provisions of these Guidelines encompass major defense system acquisition programs as designated by the Secretary of Defense and certain other important programs for which a TEMP is specifically requested by the DDTE and apply to all DoD Components responsible for such programs.

B. POICIES AND PROCEDURES

1. The TEMP is the primary document used in the OSD review and decision process to assess the adequacy of the planned testing and evaluation. As such, the TEMP must be of sufficient scope and content to explain the entire T&E program.

2. Each TEMP submitted to OSD should be a summary document of not more than 30 pages, detailed only to the extent necessary to show the rationale for the kind, amount, and schedules of the testing planned. It must, however, relate the T&E effort clearly to technical risks, operational issues and concepts, system performance, reliability, availability, maintainability and logistic requirements, and major decision points. It should also explain the relationship of the various simulations, subsystem tests, integrated system development tests and initial operational tests which, when analyzed in combination, provide confidence in the system's readiness to proceed into the next acquisition phase or into fully capable service. The TEMP must address the T&E to be accomplished in each program phase, with the next phase addressed in the most detail. TEMPs supporting the production and initial deployment decision must include the T&E planned to verify correction of deficiencies, production acceptance testing, and follow-on OT&E.

3. Five copies of a draft TEMP will normally be submitted to the DDTE for OSD review and comment concurrent with submission of the "For Comment" DCP to the Acquisition Executive prior to the planned Decision Milestone I date. This draft will be revised if necessary after review by the DoD Component Acquisition Executive and submitted for OSD coordination at least 15 working days before the DSARC meeting (or decision milestone date if a DSARC meeting is not planned). The TEMP will be updated and submitted in accordance with these procedures before Milestones II and III. OSD approval of the TEMP, or redirection, will be provided following decision milestones.

C. CONTENT OF TEMP

Every TEMP submitted to OSD should contain the same kind of information, and the following format should be used as a guide. If more detail for internal use is desired, DoD Components may supplement the

TEMP with detachable annexes. At DoD Component discretion, Part I may be preceded by a page of administrative information (listing of responsible persons and offices involved in the procurement).

## Part I - Description

1. Mission. Summarize the operational need, mission to be accomplished, and planned operational environment (conditions, natural and induced, in which it will operate). This section should relate directly to the Mission Element Need Statement (MENS) and planned system operational concept.

2. System. Briefly describe the system and how it works, to include:

a. Key functions of the system that permit it to accomplish its operational mission. Include, if practical, a mission/function matrix relating the primary functional capabilities that must be demonstrated by testing to the mission(s) to be performed and concept(s) of operation.

b. Interfaces with other systems that are required to accomplish the mission.

c. Unique characteristics of the system that make it different or better than alternative systems, or that lead to special test requirements (such as hardness to nuclear effects).

3. Required Operational Characteristics. List the key operational effectiveness and suitability characteristics, goals, and thresholds.

4. Required Technical Characteristics. List the key technical characteristics, performance goals, and thresholds.

Note: The characteristics listed in 3. and 4. above should include, but not be limited to, the characteristics identified in the Decision Milestone documentation. Clearly define these characteristics, particularly in the areas of reliability, availability, and maintainability. Indicate the program milestones at which the thresholds will be or have been demonstrated. If an interservice or international program, highlight any characteristics resulting from this circumstance. Prior to Milestone II, while tradeoffs of characteristics are underway, it may not be possible to establish firm goals or thresholds. In this case, those aspects of performance critical to the ability of the system to accomplish its mission should be identified.

## 5. Critical T&E Issues

a. Technical Issues. Briefly describe key areas of technological or engineering risk that must be addressed by testing.

b. Operational Issues. Briefly describe key operational effectiveness or suitability issues that must be addressed by testing.

Part II - Program Summary

1. Management. Outline the program and T&E management responsibilities of participating organizations. Highlight arrangements between participants for test data sharing, responsibilities for test management decisions, and management interfaces for multiservice T&E efforts. Discuss the adequacy of the planned test periods and schedule to provide confidence in test results.

2. Integrated Schedule. Display on one page (a foldout, if necessary) the integrated time sequencing of T&E for the entire program and related key events in the acquisition decision-making process. Include events such as program decision milestones, key subsystem demonstrations, test article availability, first flights, critical support resource availability, critical full-up system demonstrations, key OT&E events, first production deliveries, and initial operational capability date.

Part III - DT&E Outline. Discuss all DT&E in sufficient detail so that test objectives are related to the system operational concept and are clearly identified for each phase. Relate the planned testing to the critical technical issues appropriate to each phase. The near-term portion of the plan should contain the most detail; the long-range portions should be as specific as possible. The following information should be included.

1. DT&E to Date. Provide a summary of the DT&E already conducted based on the best available information. This section should set the stage for discussion of planned DT&E. Briefly describe test articles (for instance brassboard, advanced development model), with emphasis on how they differ from the planned production articles. Emphasize DT&E events and results related to required performance characteristics, critical issues, and requirements levied by earlier OSD decisions. Highlight technical characteristics or specification requirements that were demonstrated (or failed to be demonstrated). When simulations are a key part of the DT&E effort, describe how the simulations are confirmed.

2. Future DT&E. Discuss all remaining DT&E planned, beginning with the date of the current TEMP revision and extending through completion of planned production and modifications. Address separately each remaining phase of DT&E, including the following for each phase:

a. Equipment Description. Summarize the equipment's functional capability and how it is expected to differ from the production model.

b. DT&E Objectives. Summarize the specific DT&E objectives to be addressed during this phase. The objectives identified should be the discrete major goals of the DT&E effort, which, when achieved, will provide solutions to critical technical issues and demonstrate that the engineering effort is progressing satisfactorily. Broad, general objectives, such as "demonstrate that the design and development process is complete," are of no value. If the Secretary of Defense decision memorandum requires demonstration of specific technical characteristics in a given phase, identify those characteristics.

c. DT&E Events/Scope of Testing/Basic Scenarios. Summarize the key DT&E events planned to address the objectives. In addition, describe in sufficient detail the scope of testing and basic test scenarios so that the relationship between the testing and the objectives, and the amount and thoroughness of testing, are clearly apparent. Include subsystem tests and simulations when they are key elements in determining whether or not objectives will be achieved. Discuss reliability, availability, and maintainability testing, and define terms.

3. Critical DT&E Items. Highlight all items the availability of which are critical to the conduct of adequate DT&E prior to the next decision point. For example, if the item is not available when required, the next decision point may be delayed. If appropriate, display these critical items on the integrated schedule.

#### Part IV - OT&E Outline

Discuss all planned OT&E, from the earliest IOT&E through the FOT&E during initial production and deployment which addresses operational effectiveness and suitability and identifies deficiencies in the production system, in similar format and detail as that described in the DT&E outline (Part III). In the OT&E to Date section, which sets the stage for discussion of the planned OT&E, relate the test conditions and results to the operational effectiveness and suitability, as appropriate, of the systems being acquired. In this section and in Future OT&E, be sure to discuss the degree to which the test environment, including procedures and threat simulations, is representative of the expected operational environment. Also discuss the reliability testing concept, and the training and background of operational test personnel. In OT&E Objectives, present the major objectives that, when achieved, will establish the operational effectiveness and suitability of the system. Either present the objectives in terms of, or relate the objectives to, the system's operational effectiveness and suitability. In OT&E Events/Scope of Testing/Basic Scenarios, relate the testing to be performed to the OT&E objectives (for instance, specify test outcomes that satisfy the objectives). When development and operational testing are combined, some of Parts III and IV may be combined, as appropriate.

Part V - Production Acceptance Test and Evaluation (PAT&E)

Briefly describe the PAT&E planned to demonstrate that items procured fulfill the requirements and specifications of the procuring contract or agreements.

Part VI - Special Resource Summary

Provide a brief summary of the key resources for DT&E, OT&E, and PAT&E that are unique to the program.

1. Test Articles. Identify the actual number of articles, including key support equipments, of the system required for testing in each phase and for each major type of T&E (DT&E, OT&E, PAT&E). If key subsystems (components, assemblies, or subassemblies) are to be tested individually, identify each such subsystem and the quantity required. Specifically identify prototypes, pilot production, and production models.

2. Special Support Requirements (instrumentation, targets, threat simulations, test sites, facilities). Identify the special support resources required for T&E, and briefly describe the steps being taken to acquire them.



# MATRIX OF GOVERNMENT PUBLICATIONS

OCTOBER 1981

SUBJECT	OMB/OFPP	OSD	AIR FORCE	NAVY	ARMY	NASA
ACQUISITION PROGRAM MANAGEMENT	OMB Circular A-109, 4-8-76	DODD 5000.1 3-19-80	AFR 800-2/AFSC Sup. 1 11-14-77	SECNAVINST 5000.1A 11-17-78	AR 1000-1 4-1-78	Shuttle JSC 07700 Vol VII & Vol XVII
	OFPP Pamphlet No. 1 8-76	DODD 5000.2 3-19-80	AFR 57-1 6-12-79 AFSCR 400-1 10-18-74	AB-50B 5-1-73		DOT ORDER 4200.14 1-20-77
		DODD 5000.30 8-20-76	AFSCP 800-3 4-9-74	CNO INST. 5000.42 4-1-74		Mgt. Instr 7100.14A (NASA) 4-19-78
		DODD 5000.35 3-8-78 DODD 5000.19 3-12-74	AFR 500-24 5-29-81 AFR 20-5 6-19-73 AFSCR 550-22 12-6-78			
CONFIGURATION MANAGEMENT		DODD 5010.19 5-1-79	MIL-STD-483 (I) (USAF) NOTICE NO. 2 3-21-79	NAVMATINST 4130.1A 7-1-74	MIL-STD-1456(MU) Notice No. 1 8-10-72	NHB 8040.2 January 1970
		DDM 5010.21 (I) 1-20-80	AFR 65-3/ASD Sup. 1 7-25-75		USAMC Supp. 1 6-25-70	MM 8040.12 7-28-71
		TRJ-SERVICE 3 PROC. ACT NUMBERS	AFR 65-3(I) 7-1-74		DARCOM Supp. 1 8-18-76	Shuttle JSC 07700, Vol IV Vol. IV
IDENTIFICATION (Specifications and Drawings)	(See Drawing and Spec Practices)		*MIL-STD-483 (I) (USAF) NOTICE NO. 2 3-21-79 AFSCM/AFCLM 375-7 11-1-71	*SAME AS ABOVE	*SAME AS ABOVE	SAME AS ABOVE
CHANGE CONTROL (Engineering Change Proposals)		DOD-STD-480A 4-12-78	DOD-STD-480A 4-12-78	DOD-STD-480A 4-12-78	DOD-STD-480A 4-12-78	SAME AS ABOVE
		MIL-STD-481A 10-18-72	MIL-STD-481A 10-18-72 AFR 65-3/ASD SUPP. 1 7-1-74 AFR 57-4 Chgs. 12-15-77	NAV MAT NOTE 4130 2-9-70 NAVAIRINST 5215.10A 3-18-77	AMC Memo 15-28 5-28-70	
ACCOUNTING (Physical Configuration Inspection)		DDM 5000.18 3-17-80	ASDP 800-12	NAVMATINST. 4130.1A 7-1-74	AH70-37 7-1-74	SAME AS ABOVE
		MIL-STD-482A 4-1-74	MIL-STD-482A 4-1-74	MIL-STD-482A 4-1-74	MIL-STD-482A 4-1-74	

\*Tel service Standard MIL-STDXXX draft was coordinated but not issued

# In margin denotes change made in this issue

SUBJECT	OMB/OFFP	OSD	AIR FORCE	NAVY	ARMY	NASA & OTHERS
CONTRACTOR PERFORMANCE EVALUATION		DODD 516.16 8-1-81	AFSCR 74-3 1-30-76 AFR 70-13 Supp 1 11-1-79 AFSCR 84-15 11-1-79 Change 75-1 12-7-80	NAVMAINST. 4335.4B Supp. 1 8-6-80	DARCOM Supp. 1 8-19-78	
REPORTING REQUIREMENTS		DDMM 7700.4 12-7-80				
COMPUTER RESOURCES		DODD 6000.20 4-28-78	AFR 600-14 VOL I 8-8-77 VOL II 9-28-78	NAVMAINST 6535.5 7-31-76		
SYSTEM SOFTWARE						
See attached document -- APPENDIX A: "Embedded Computer Software"						
CONTRACTOR SCHEDULE CONTROL SYSTEM CRITERIA (PERFORMANCE MEASUREMENT)		DDMM 7000.8 8-10-77	ASD CDR135	NAVMAINST 7000.17 12-8-71		NHB 9001.2 A October 1971 JSC 07700, Vol XV 8-25-73 NSFC 8020 7A 11-10-72 MEMO 80.8, Rev. 1 (ASFC) Oct. 72
COST ANALYSIS			AFSCM 130-1	NAVMAINST P 2240 10-1-76	DARCOM P 715-5 10-1-76	
IMPLEMENTING PROCEDURES			AFSC 170-3 10-1-76	NAVMAINST P 2240 10-1-76		
CONTRACTOR COST DATA REPORTING		DDMM 7000.10 12-3-79	AFSC/AFCEP 800-10 11-8-73	NAVMAINST P 2241 11-8-73	AMCP 715-8 11-3-78	NHB 9001.2 A October 1971 NHB 2340.3
DATA MANAGEMENT (Management of Data on Contract Data Requirements Lists (CDRL))		DDMM 7000.10 9-5-73 DODD 5000.10 2-12-78 DDMM 6000.30 2-10-77	AFR 310-1 3-11-74 AFSCR 310-1 3-11-74	NAVMAINST 4065.15A 2-2-71 NAVMAINST 4300.21 2-29-71 NAVMAINST 4300.23 2-7-73	AR 700-51 2-28-73 DAACD Supp. 1 7-27-73	NSFC 600-5 8-1-84 Shuttle JSC 07700, Vol. V
		DDMM 6000.30M Draft July 1970		NAVMAINST 4300.23 2-7-73		

<u>SUBJECT</u>	<u>OMB/OFF</u>	<u>OSD</u>	<u>AIR FORCE</u>	<u>NAVY</u>	<u>ARMY</u>	<u>NASA</u>	<u>#</u>
DATA ACQUISITION MANAGEMENT		DODI 6000.10 3-12-78	AFM 310-J Sup 1 6-30-78 ASDMM 310-1 AFAD 71-700 10-18-71	NAVYMAT INST. 4000.15A 2-2-71	AR 700-51 2-28-73 JSA-40 Sup. 1 7-27-73	NPC 600-6 6-1-84	#
COST ANALYSIS ESTIMATED DATA PRICES		ASPH F-200-1423 4-1-63 DODI 6000.22 10-17-74	ASPH 70-6	NAVYMAT INST. 4000.15A 2-2-71			
AUTHORIZED DATA LIST		DOD 5000.101 Vol II Jan 71 DODD 2000.1 3-12-76 ASPR 7-104.5(m) April 72	6000.101 Vol II (current issue) AFPI 71-687 1-4-68 AFSCN/AFPCR 310-3 1-31-69 AFAD 71-687	6000.101 Vol II (current issue)	6000.101 Vol II (current issue)		
DEFERRED REQUISITIONING OR ENGINEERING DATA		ASPR 7-101.010 Nov. 1971	MIL-STD-883B(1) (USAF) 11-18-71	MIL-STD-883B(1) 11-18-71	AR 70-37 7-1-74		
PROCUREMENT DATA PACKAGES		MIL-STD-883B(1) 11-18-71 OSD Memo 6-17-73	NPD 1-4101(G) Rev. 1 7-15-74	6-25-70 MIL-STD-883B(1) 11-18-71 MIL-T-50301 (MUD) 5-4-69	DSAMC Supp. 1 6-25-70 MIL-STD-883B(1) 11-18-71		
DATA QUALITY							
DESIGN-AIRCRAFT			AFSCDIII, 2 SERIES AFM 70-13 10-31-71	SD-34K Vol II Fixed Wing Vol II Rotary Wing 6-13-73	AMCI 700-100 August 1971		#
DESIGN - MISSILES		MIL-M-90503 6-14-68	MIL-M-90503 6-14-68 AFSCDIII, 3 SERIES	MIL-M-90503 6-14-68	MIL-M-90503 6-14-68		

<u>SUBJECT</u>	<u>OMB/OFP</u>	<u>OSD</u>	<u>AIR FORCE</u>	<u>NAVY</u>	<u>ARMY</u>	<u>NASA</u>
DESIGN TO COST	OMB Circular A-109 4-3-76	JOINT GUIDE 4-11-76	AFSCP/ATLCP 800-10 6-11-76	NAVMAT P 510 6-11-76	DABCON P 700-6 6-11-76	
DRAWING ACQUISITION	OFTF Pamphlet No. 1 6-26	DDDD 5000.28 3-23-75	AIR 800-11 3-28-73	AR 801 6-1-73	DD-D-1000B(1) 11-30-78	#
DRAWING PRACTICES		DD-D-1000B(1) 11-30-78	DD-D-1000B(1) 11-30-78	DD-D-1000B(1) 11-30-78	DD-D-1000B(1) 11-30-78	#
			AFAD 71-700	NAVADMINET 4500.14 AD-1350(A8) 4-15-78		
		DD-D-1000C NOTICE 1 4-30-80	DD-D-1000C NOTICE 1 4-30-80	DD-D-1000C NOTICE 1 4-30-80	DD-D-1000C NOTICE 1 4-30-80	SIMILAR TO MILITARY PRACTICES
DESIGN REVIEW			AFR 81-10 6-3-75			
			AFR 81-11 6-3-75			
			MIL-STD-490A (USAF) 6-1-74	NAVADMINET 4100.1 6-11-87		MIL 900.2 Jan 1970
			AFSC 80-14 3-1-88	NAVADMINET 3000.X Draft		
			MIL-STD-1821A (USAF) 6-1-78			
			NOTICE 1 29 SEP 1978			
GOVERNMENT-INDUSTRY DATA EXCHANGE PROGRAM (GUIDE)			MIL-STD-1806A (USAF) 2-28-76	NAVADMINET 6200.35 3-10-85	AMCH 70-04 6-26-73	MIL-STD-210 6-1-78
			AFSC/ATL C Reg. 800-20 3-8-76	MIL-STD 1558 (USAF) 3-29-76		
HUMAN ENGINEERING REQUIREMENTS		MIL-H-4000A-8 1-31-79	MIL-H-4000A-8 1-31-79	MIL-H-4000A-8 1-31-79	MIL-H-4000A-8 1-31-79	
			AFM 80C-15 4-4-76	MIL-P-28700	AH600-1 6-1-78	

<u>SUBJECT</u>	<u>OMB/OFPP</u>	<u>OSD</u>	<u>AIR FORCE</u>	<u>NAVY</u>	<u>ARMY</u>	<u>NASA</u>
<b>ELECTRONIC EQUIPMENT DESIGN CRITERIA</b>		MIL-STD-454 Req 62 3-15-76 MIL-STD-1472B 12-31-74 Change 1 5-10-76	MIL-STD-454 Req 62 3-15-76 MIL-STD-1472B 12-31-74 Change 1 5-10-76 AFM 800-15 Sup. 1 6-4-76	MIL-STD-454 Req 62 3-15-76 NAVMATINST 3900.9 MIL-STD-1472B 12-31-74 Change 1 5-10-76	MIL-STD-454 Req 62 3-15-76 MIL-STD-1472B 12-31-74 Change 1 5-10-76 AMCP 700-134 JULY 76	
<b>TEST &amp; EVALUATION</b>			MIL-X-xxx(USAF) 2-8-76			
<b>INTEGRATED LOGISTICS SUPPORT</b>		DODD 5000.20 1-17-68	AFM 800 8 Sup. 1 1-30-71 AFM 800 8 11-4-74 AFSC P 800-31 6-16-74 MIL-STD-1581 12-31-74	SECNAVINST 4000.29A NAVMAT INST 4106 1 6-12-74 MIL-HDBK-240(AB) 4-10-74 (draft) NAVMAT INST 4000.20B	TM 38-703-1 11-4-69	Shuttle 2nd Stage Vol XII
<b>LOGISTIC SUPPORT ANALYSIS</b>		MIL-STD-1388-1 6-7-76	MIL-STD-1388-1 6-7-76	MIL-STD 1388 1 6-7-76	MIL-STD-1388-1 6-7-76	
<b>LOGISTIC SUPPORT ANALYSIS DATA</b>		MIL-STD-1388-2 6-7-76	MIL-STD-1388-2 6-7-76	MIL-STD-1388-2 6-7-76	MIL-STD-1388-2 6-7-76	
<b>STANDARD INTEGRATED SUPPORT MANAGEMENT SYSTEM (SIBMS)</b>		THREE-SERVICE DOCUMENT USING ALL 3 PROCURING ACTIVITY NUMBERS	AFM 800-24 Sup. 1 9-21-79 AFSCR/AFSCR 200-24 7-17-77	NAVMAT INST 400-38 5-17-77	DARCON-R 760-97 5-17-77	
<b>IMPLEMENTATION GUIDE</b>			AFP 800-7 March 72	NAVMAT P-4000 March 72	TM 38-710 March 72	
<b>LOGISTICS PERFORMANCE MEASUREMENTS</b>		DODD 5016.24 9-12-71 DODD 5016.26 Chg 1 7-3-72				

<u>SUBJECT</u>	<u>OMB/OFPP</u>	<u>OSD</u>	<u>AIR FORCE</u>	<u>NAVY</u>	<u>ARMY</u>	<u>NASA</u>
LOGISTICS SYSTEM PLANNING		DODD 4124.43 3-24-78	ASDP 800-10			
MAINTAINABILITY PROGRAM REQTS.		MIL-STD-470 3-21-66 DODD 5000.40 7-8-80 MIL-STD-454G 3-15-80	MIL-STD-470 3-21-66 AFR 88-5 Sup. 1 4-13-79 MIL-STD-45G 3-15-80	MIL-STD-470 3-21-66 OPNAVINST 4790.4	MIL-STD-470 3-21-66 MIL-STD-454G 3-15-80	#
MAINTAINABILITY ANALYSIS				MIL-M-24265A 7-20-76 MIL-STD-1304A(AS) 12-31-69		
MAINTAINABILITY DEMONSTRATION		MIL-STD-471A(D) NOTICE 1 12-8-78	MIL-STD-471A(D) NOTICE 1 12-8-78	MIL-STD-471A(D) NOTICE 1 12-8-78	MIL-STD-471A(D) NOTICE 1 12-8-78	#
MAINTENANCE SUPPORT		MIL-STD-1630 4-11-73	MIL-STD-1630 4-11-73	MIL-STD-1630 4-11-73	MIL-STD-1630 4-11-73	
MAINTAINABILITY PREDICTION		MIL-HDBK-472 5-24-68	MIL-HDBK-472 5-24-68	MIL-HDBK-472 5-24-68	MIL-HDBK-472 5-24-68	
MAINTAINABILITY VERIFICATION DEMONSTRATION/EVALUATION FOR AERONAUTICAL SYSTEMS		MIL-STD-471 NOTICE 1 12-8-78	MIL-STD-471 NOTICE 1 12-8-78	MIL-STD-471 NOTICE 1 12-8-78	MIL-STD-471 NOTICE 1 12-8-78	#
MAINTENANCE ENGINEERING		DODD 3232.1  DODI 4101-13 8-10-88	AFM 60-1 7-1-78	AR 30A Vol. II Notice 1 12-7-72 OPNAVINST 4700.2A NAVAIR 01-1A-31, -32, -33 7-1-77 AR 50A 1-1-69 C/N1 4-14-69 C/N1 3-18-76	AM CR 760-16 2-18-69 AMCP 706-134 July 77	
MANAGEMENT SYSTEMS CONTROL		DODI 5000.32 2-10-77	AFR 400-1 7-14-69 AFSCR 17-1/ASD Supp 1 AFSCMDR 178-1 3-4-77 AFSCMDR 100-1 6-13-74	NAVAIR INST 6200.3 10-1-72		
CONTRACTOR MANAGEMENT SYSTEMS EVALUATION PROGRAM (CMSEP)						

SUBJECT	OMB/OFPF	OSD	AIR FORCE	NAVY	ARMY	NASA
FOR STUDIES & ANALYSES	09PPF Draft Jan 77	DODD 5010.22 11-22-76				
FOR RDT&E		DODD 5100.14 1-7-75	AFR 80-1 9-3-76 AFSCR/AFLCR 800-5 AFR 800-13 2-22-76	NAVSO GUIDE Draft 2-14-76		
AGE ACQUISITION MANAGEMENT		DODD 5000.10 3-18-76	AFSCR/AFLCR 800-14 5-27-77	SECNAVINST 7000.10		
SUPPORT EQUIPMENT		DODD 4120.21	DAR (ASPR) 1-311			
MANAGEMENT SYSTEMS CONTROL		DOD 5600.191 Jan 77	ASDP 800-1 AFLCR 37-16			
LIST OF APPROVED MANAGEMENT SYSTEMS		DODD 5000.33 TRI-SERVICE DOCUMENT	AFSCR/AFLCR 800-14 3-18-75	NAVADMINST 3100.1 3-18-75	AMCR 715-9 3-18-75	
METRIC SYSTEM	Interagency committee on metric policy FED register Vol 42 No. 5 4-8-82 144-1943	DODD 5110-1476 8-1-77				
NEW DESIGN		DODD 4120.10 1-28-80				
EQUIPMENT		DODD 5110-1476 8-1-77				
PHASED PROCUREMENT		DODD 4610.80 7-20-77				
		I-4110 5100.1 3-19-80	AFSCR 800-3 4-9-70	SECNAVINST 6000.1 3-13-72	AR 715-8 proposed Policy Memo 8-20-72	NMI 7121.13 8-21-72 NDD 7121.4 July 1973
		DODD 5000.2 3-19-80		SECNAV INST 6300. (Proposed)		
PRODUCTIVITY		DODD 7045.7 Oct. 71				
PRODUCTION MANAGEMENT		DODD 3000.44 10-31-77	MIL-STD-1538 (USAF) 8-1-72			
MANUFACTURING MANAGEMENT		DODD 5010.31 4-27-75	AFR 500-9 4-25-73		AR 8-4 8-18-76	





SUBJECT	OMB/OFPF	USD	AIR FORCE	NAVY	ARMY	NASA	#
SOURCE SELECTION	OMB Circular A-109 4-5-76	DDDD 4105.02 1-6-76 Chg 1	AFM 70-15 Supp. 1 2-18-77	SECNAVINST 5000.1 3-13-73	AR 718-9 9-31-76	NHR 6103.6 7-31-73	
	OFPF Pamphlet No. 1 8-76	Chg 1 3-3-77	AFSCR 70-8 10-4-76				
			ASDP 804-7 8-28-73				
			SMSO Supp. 1 4-1-76				
RFP INSTRUCTIONS	OMB Circular A-109 4-5-76	DISSECT/DEF LETTER 3-7-76	ASDP 800-6 8-28-73	SECNAVINST 5000.1 3-1-73	AMCR 15-10 7-16-74		
	OFPF Pamphlet No. 1 8-76		AFSCR 80-8 11-23-71	NAVMAT LTR 8-16-75			
			AFSC PAMPHLET 70-14 5-14-76	OPNAVINST 6000.43 8-1-74			
PROPOSAL EVALUATION	OMB Circular A-109 4-5-76	DDDD 4105.02 1-6-76 Chg 1	AFM 70-15 Supp. 1 11-1-79				
	OFPF Pamphlet No. 1 8-76	Chg 1 3-3-77	AFSCR 80-15 Chgs 70-4 11-1-79				
			MIL-STD-705B 9-15-80	MIL-STD-705B 9-15-80	MIL-STD-705 B 9-15-80	MIL-STD-705 A(1A) April 1970	
			AFN 80-5 7-3-73	MIL-STD-847A 1-31-73	DARCOM F703-4 11-1-74	F 323 72-10 6-26-72	
RELIABILITY PROGRAM		DDDD 5000.40 7-3-80	MIL-STD-1643 (USAF) 7-15-74	MIL-STD-15C1A (ASD) 10-31-80		JSC 67700 Vol XIII Illustate	
			MIL-STD-1548 10-24-79				
		MIL-STD-840 3-15-80	MIL-STD-840 3-15-80	MIL-STD-454G 3-15-80	MIL-STD-454G 3-15-80		
			MIL-STD-705A 2-18-83	MIL-STD-705A 8-18-83	MIL-STD-705A 8-18-83		
RELIABILITY TEST			MIL-STD-117C 4-9-79	MIL-STD-117C 4-9-79	MIL-STD-117C 4-9-79		
			MIL-STD-206AAS 3-31-77	MIL-STD-206AAS 3-31-77			
PROBLEMS FOR A DMCA			MIL-STD-1619A 11-22-80	MIL-STD-1619A 11-22-80			

SUBJECT	OMB/OFP	OASD	AIR FORCE	NAVY	ARMY	NASA	
						APD No. 1A	#
SAFETY	DODD 1000.3 3-29-79	MIL-STD-883A 8-28-77	MIL-STD-882A 8-28-77	MIL-STD-882A 8-28-77	MIL-STD-882A 8-28-77	APD No. 1A 11-11-69	
	DODI 5000.26 11-6-78	RANSOM 117-8 1-1-71	NAVSTAT INST 8100.6 6-1-71	7JACR 315-100		NHB 1700.1 Vol. 3 3-2-76	
	DODI 4001.3 6-1-78	MIL-STD-1532 3-1-75				MSCM 4010 4-15-71	
		ASDF 117-3, Change 1				FWD 71-11 8-7-72	
SPARE PARTS BREAKOUT PROGRAM (DOD HIGH DOLLAR)	MIL-STD-4540 3-11-69	MIL-STD-4540 3-11-69	MIL-STD-4540 3-11-69	MIL-STD-4540 3-11-69	MIL-STD-4540 3-11-69	Seattle ISC 07100	
	DSAM 4100.3 March 1969	AFSCM/AFPCR 87-5 11-12-71	NAVYMINIST F 4100.33A March 69	AR 715-22 March 1969			
SPECIFICATION ACQUISITION	MIL-STD-43400 10-30-68	MIL-STD-43400 10-30-68	MIL-STD-43400 10-30-68	MIL-STD-43400 10-30-68	AR 70-37 1-1-74	NHB 8000.3 June 1970	
			MIL-D-70618 5-13-68	UNAMC Supp 1 6-23-70		MNH 8000.12 MSFC 7-18-71	
SPECIFICATION PRACTICES	MIL-STD-400 (C) 8-18-71	MIL-STD-400 (USAF) 6-1-71	DSM 4120 1-41 June 1973	AR 70-27 8-1-74		NHB 8000.3 June 70	
	DODD 4120.21 11-3-80	MIL-STD-420 5-18-70 ASDF 800-1		USAMC Supp 1 6-23-70	E-COM PMF-1B 1-4-63	MNH 8000.12 MSFC 7-18-71	
MILITARY & FEDERAL	MIL-STD-941 8-13-75						
HANDBOOKS & STANDARDS	MIL-STD-942 8-13-75						
USE OF INDUSTRY STANDARD DOCUMENTS	MIL-STD-943 11-18-79 Proposed						

SUBJECT	OMB/OPPI	OSD	AIR FORCE	NAVY	ARMY	NASA	
STANDARDIZATION PROGRAMS AND MANAGEMENT		DODD 4120.3 2-16-79	AFM 73-1 Sup. 1 9-12-75	NAVMATINIST 4120.87A	AR700-47 Jan. 1972		
		DSM 4120.2-M May 79	ASDM 73-1 MIL-STD-143	MIL-STD-480 4-27-71 Change 2 4-28-77	MIL-STD-480 4-27-71 Change 2 4-28-77		
	PARTS CONTROL PROGRAM	DODI 4120.10 12-16-76	MIL-STD-945 NOTICE 1 2-16-81	MIL-STD-945 NOTICE 1 2-16-81	AR-70 7-20-70	MIL-STD-945 NOTICE 1 2-16-81	
			MIL-STD-480 4-27-71 Change 2 4-27-77	ASR 200-34 5-17-77	MIL-STD-480 4-27-70 Change 2 4-28-77		
			MIL-STD-945 NOTICE 1 2-16-81		MIL-STD-945 NOTICE 1 2-16-81		
USE OF NON-GOVERNMENT STANDARDS	OMB Order AHS 1-21-80	DODI 4120.20 12-28-76					
EQUIVALENTS PARTS LIST			MIL-STD-610 3-18-80				
	APPROVAL OF NONSTANDARDS		MIL-STD-965 4-18-77	MIL-STD-965 4-16-77	MIL-STD-965 4-18-77		
SYSTEM EFFECTIVENESS		MIL-STD-454G NOTICE 1 4-29-80	MIL-STD-454G NOTICE 1 8-29-80	MIL-STD-454G NOTICE 1 8-29-80	MIL-STD-454G NOTICE 1 8-29-80		
			MIL-STD-400A (USAF) 5-1-74	NAVMAT INST 3960.1 1-7-78			
			RAMSO-LVV-8E-001 2-17-72	May 1987			
ENGINEERING MANAGEMENT (FORMERLY SYSTEM ENGINEERING)	OMB Circular A-109 4-5-76	JOINT AGREEMENT 2-20-73	AFR 600-2 Chg. 1 4-9-76	NAVMATINIST 8200.11A Change 1	VM 26-750 November 1973		
	OPPI Pamphlet No. 1 8-76	DEFENSE Mgmt 4-7-73	MIL-STD-400A (USAF) 6-1-71	MIL-STD-400A 5-17-68	AMCR 70-52 10-7-70		

SUBJECT	DATE	BRANCH	REPORT TITLE	DATE	BRANCH	REPORT TITLE	DATE	BRANCH	REPORT TITLE	DATE	BRANCH	REPORT TITLE
SYSTEM SECURITY			AFM 207-1	4-10-78								
REVIEWS			MIL-STD-1821A (USAF)	4-1-76								
OPERATIONAL AND TECHNICAL			AFR Proposed									
ASSESSMENT			AFRCR 008-18	4-30-75								
TALYING OF REQUIREMENTS			DMR Check A-100	11-1-80								
			DEPSECRET Manual	8-4-75								
			ASPR Sec 101-1201 (a)	7-1-76								
			INMID 5000.9	3-23-81								
TERMINOLOGY (STANDARD MILITARY)			JACFUA 1 Ch 1	2-1-73								
TEST AND EVALUATION			DOC 5000.3	12-26-79								
			AFM 80 14 Sup. 1	1-19-81								
			OPNAVINST 3440.47D	2-8-78								
			AFSD 00-14	1-2-77								
			AFRCR 00 14	1-2-77								
			MIL-STD-1820B	1-31-80								
			AFRCR 00-10	8-20-76								
			NAVAIRNGTR 6400	2-18-78								
			AFRCR 00-9	2-18-77								
			MIL-STD-1521A (USAF)	5-10-74								
			AFM 80 (VAST)	2-17-76								

NAVY      ARMY      NAVY      AIR FORCE      ORN      COMUSMACV      SUBJECT

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<u>SUBJECT</u>	<u>OMB/OFPP</u>	<u>OSD</u>	<u>AIR FORCE</u>	<u>NAVY</u>	<u>ARMY</u>	<u>NASA</u>
AUTOMATIC TEST EQUIPMENT DEFINITIONS		MIL-STD-1309B 8-30-76	MIL-STD-1309B 8-30-76	MIL-STD-1309B 8-30-76	MIL-STD-1309B 8-30-76	
BUILT-IN TEST EQUIPMENT GUIDE				NAVMATINST 3890.9 9-9-76		
TRANSPORTATION & PACKAGING			MIL-F-9014 ASDR 800-16 AFR 21-4 3-9-71 AFR 310-1 Sup. 1 9-30-77			#
VALUE ENGINEERING		DODD 8010.9 6-12-78		SECNAV INST 4850.3A 4-18-78	AR 11-28 8-30-78	NASA LETTER (POLICY) 8-6-78 (Vocchietti) to all NASA Procurement Officers
		HANDBOOK 5010.9-1 9-12-68	MIL-V-38352(1) 1-20-65	MIL-V-38352(1) 1-20-65	MIL-V-38352(1) 1-20-65	
		ASPR 7-104.44 7-462.00 7-400.24 1-1701 7-204.33 7-303.31 7-403.37	ASPR 320-2 9-30-71	AS-2530 12-30-69  AS-2533-A 8-1-73  MIL-V-24474	USAMCSup 1 12-29-70  AM 6-4 8-18-76	M11 MSFC 11-25-70
WORK BREAKDOWN STRUCTURE		MIL-STD-881A 4-25-75	MIL-STD-881A 4-25-75	MIL-STD-881A 4-25-75	MIL-STD-881A 4-25-75	NIH 5010.1 Feb 1975
		DODD 8010.20 7-31-69	AFSCM 173-4 11-24-72  AFR 800-17 5-2-75	NAVMATINST 4200.11A		
WORK STATEMENT PREPARATION			AFSCP 860-6 4-18-72	SECNAVINST 5000.1 3-13-72  MIL-HDBK-245A 8-1-77	AMCPAMPHLET 715-4 June 1967	NIH 5000.2 Feb 1975

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## APPENDIX A EMBEDDED COMPUTER SOFTWARE

The following government documents contain policy requirements and descriptions of activities related to embedded computer software:

	<u>OSD</u>	<u>AIR FORCE</u>	<u>NAVY</u>	<u>ARMY</u>	<u>OTHER</u>
SOFTWARE ACQUISITION MANAGEMENT	DODD 5000.29 4-24-76	AFM 800-14, Vol. I (Sup. I) 8-8-77	NAVAIRINST 5230.5 7-21-76		#
	Defense Systems Software FY 79-83 R&D Technology Plan, September 1977				
SOFTWARE ACQUISITION		AFM 800-14, Vol. II 8-24-75			
OVERVIEW		AD-A030-591 June 1976 (Logicon, Inc.)			
PROCESS		AD-A030-593 June 1976 (Logicon, Inc.)			
STANDARDS & REGULATIONS		AD-A030-593 June 1976 (Logicon, Inc.)			
TECHNICAL ASPECTS		AD-A030-594 June 1976 (Logicon, Inc.)			
AIRBORNE SOFTWARE					
GROUND BASED SOFTWARE					
SOFTWARE ACQUISITION ENGINEERING GUIDEBOOK (AIRBORNE SYSTEMS)					
REQ'S, SPEC'S, & STD'S.		ASD AD-A050-426 (TR 78-4) November 1977			
REVIEWS & AUDITS		ASD AD-A050-429 (TR 78-7) November 1977			
QUALITY ASSURANCE		ASD AD-A050-468 (TR 78-8) November 1977			
SOFTWARE ACQUISITION MANAGEMENT GUIDEBOOKS	Embedded Computer Resources and the DSARC Process -- Guidebook, 1977 Edition				
CONFIGURATION MANAGEMENT		ESD AD-A047-306 (TR 77-254) August 1977 (Mitre Corp.)			

<u>SUBJECT</u>	<u>OSD</u>	<u>AIR FORCE</u>	<u>NAVY</u>	<u>ARMY</u>	<u>OTHER</u>
CONTENT REQUIREMENTS & AUDIENCE		ESD AD-A018-124 December 1975 (Mitre Corp.)			
CONTRACTING		ESD AD-A018-444 January 1976 (Mitre Corp.)			
COST ESTIMATING & MEASURING		ESD AD-A023-374 March 1978 (SDC)			
PROGRAM DEVELOPMENT SPECIFICATION		ESD AD-A033-373 November 1977 (SC-C)			
		RADC No. CPO1877961000 3-31-78			
DOCUMENTATION REQUIREMENTS		ESD AD-A037-051 June 1976 (Mitre Corp.)			
FACILITIES (DEVEL. & MAINT.)		ESD AD-A038-234 January 1977 (Mitre Corp.)			
LIFE CYCLE EVENTS		ESD AD-A037-115 February 1977 (Mitre Corp.)			
MAINTENANCE		ESD AD-A053-040 (TR77-317) October 1977			
QUALITY ASSURANCE		ESD AD-A047-318 (TR77-255) August 1977 (Mitre Corp.)			
REVIEWS & AUDITS		ESG AD-A052-367 (TR76-117) November 1977 (Mitre Corp.)			
REG'S., SPEC'S. & STD'S.		ESD AD-A016-001 October 1975 (Mitre Corp.)			
SERIES OVERVIEW		ESD AD-A053-375 March 1978 (SDC)			
STATUS REPORTING		ESD AD-054-488 September 1975 (Mitre Corp.)			
VERIFICATION		ESD AD-A048-377 (TR 77-263) August, 1977 (Mitre Corp.)			
VALIDATION & CERTIFICATION		ESD AD-A053-009 (TR 77-326) August, 1977 (Mitre Corp.)			
STATEMENT OF WORK PREPARATION		ESD AD-A035-924 January 1977 (Mitre Corp.)			

<u>SUBJECT</u>	<u>DEFENSE</u>	<u>AIR FORCE</u>	<u>NAVY</u>	<u>ARMY</u>	<u>OTHER</u>
SOFTWARE CONFIGURATION MANAGEMENT	DOD-STD-400A 4-13-78  DOD Joint Services Configuration Management Regulation 7-1-74	MIL-STD-488(MUSAF) 4-1-78 (Revised)	MIL-STD-1676(NAVY) 12-1-78  MIL-STD-1676(NAVY) 12-1-78	MIL-STD-1456 (OAU) 4-18-72 (Revised)	DODCA AD-1455-48  ANSI 3.12 1978 Vocabulary for Information Processing Terminology  Similar JSC 87146
CHANGE CONTROL					
SOFTWARE DEFINITIONS					
SOFTWARE DEVELOPMENT					
SOFTWARE DOCUMENTATION STANDARDS	DOD-STD-7935.1-1 9-13-77		SECNAVINST 3346.1 3-8-74  SECNAVINST 3333.1A, C-1 8-18-74  WP-6506 8-1-78	USA/JSC Manual 18-206, C-2 10-9-76	
SOFTWARE PROGRAMMING LANGUAGES	DODD 5306.31 11-24-76				
SOFTWARE QUALITY ASSURANCE		MIL-STD-1550B 7-3-80		MIL-S-3177(NAD) 4-5-74	

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SUBJECT	OPD	AIR FORCE	NAVY	ARMY	OTHER
SOFTWARE REVIEWS & AUDITS		MIL-STD-1311A(USAF) 9-18-78 (Rev. 84)			
SOFTWARE SPECIFICATION PRACTICES	MIL-STD-1814 8-18-72 (Rev. 84)	EADG ACQUISITION 1-11-78			

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January 17, 1980  
NUMBER 5000.39

ASD(MRA&L)

## Department of Defense Directive

**SUBJECT** Acquisition and Management of Integrated Logistic Support for Systems and Equipment

**REFERENCES:**

- (a) DoD Directive 5000.1, "Major System Acquisitions," January 18, 1977
- (b) DoD Directive 5000.2, "Major System Acquisition Process," January 18, 1977
- (c) DoD Directive 4100.35, "Development of Integrated Logistic Support for Systems/Equipment," October 1, 1970 (hereby canceled)
- (d) through (v), see enclosure 1

### A. PURPOSE

This Directive establishes policy and responsibilities for Integrated Logistic Support (ILS), including manpower planning, as an inherent part of major system acquisitions, including single-component, multi-component, and international acquisitions (references (a) and (b)), to meet system readiness goals within established cost, schedule, performance, manpower, and other logistic constraints.

### B. APPLICABILITY AND SCOPE

1. This Directive applies to the Office of the Secretary of Defense, the Military Departments, and the Defense Agencies (hereafter referred to as "DoD Components").

2. This Directive provides guidance for DoD Components when establishing policy for ILS for less-than-major systems and equipment.

### C. DEFINITIONS

Terms used in this Directive are defined in enclosure 2.

## D. POLICY

### i. Program Management

#### a. General

(1) Acquisition programs for systems and equipments shall have an ILS program that begins at Milestone 0. It shall be structured to meet program system readiness objectives (i.e., peacetime readiness and wartime employment) within established cost, schedule, performance, and logistic (including manpower) constraints.

(2) Realistic program goals and thresholds shall be established for system readiness, support resources, and support-related design parameters. System readiness goals shall be tailored to the specific needs of the system. Reliability and Maintainability (R&M) goals and thresholds shall include parameters that drive fielded system manpower and other logistic demands. Milestone documentation shall include assumed characteristics of the planned logistic system (e.g., average resupply time).

(3) The scope and level of detail of the ILS program (including data requirements) shall be tailored to meet the specific needs of the program at each stage of its acquisition cycle. Enclosure 3 lists essential ILS considerations for each acquisition milestone.

#### b. Basis for ILS Planning and Resource Decisions

(1) ILS planning shall be based on:

(a) Fulfillment of the need identified by the Mission Element Needs Statement (MENS).

(b) Review and assessment of alternative strategies to support the operational requirement for the system at the lowest life cycle cost.

(c) Logistic (including manpower) and affordability constraints identified at Milestone 0.

(d) A system operational concept (and alternative, if desired) and system readiness objectives, established by Milestone I and refined thereafter.

(e) Realistic estimates of system and subsystem R&M and other parameters which drive manpower and other logistic demands.

(f) Assessment of risks based on the sensitivity to uncertainty in key design and logistic parameters.

(g) Documented Logistic Support Analyses, which quantitatively link related design parameters and ILS requirements to system readiness objectives and define detailed support element requirements.

(2) Support acquisition budgets and decisions and manpower requirements shall be based upon and directly traceable to system readiness goals and the latest estimates of initial and mature R&M values. They shall be updated using test data and operational experience as they become available. For early deployment, support decisions shall balance the risks of initial readiness needs and premature investment. The degree of uncertainty of the data used in such early deployment decisions shall be recognized and quantified, if possible.

(3) Full consideration shall be given to current maintenance, initial provisioning, and supply support policies, systems, capabilities, and procedures (DoD Directives 4151.1, 4151.16, and 4140.40 and DoD Instructions 4151.11, 4151.12, 4151.15, and 4140.42 (references (h) through (n)). Innovative support concepts to improve system readiness/support costs are encouraged. Proposed support concepts shall balance the most effective approach from the program view with the needs of the support structure. A summary of the rationale for the proposed concepts shall be documented in the ILS plan.

c. Logistic Support Analysis (LSA) Requirements

(1) LSA shall include use of appropriate analytical tools and models throughout the acquisition cycle to evaluate alternative support concepts, to perform tradeoffs between system design and ILS elements, and to perform tradeoffs among ILS elements in order to meet system readiness objectives at minimum cost. LSA shall be used to effect integration of support planning and design and consistency among ILS elements. LSA shall commence at Milestone 0 and be performed in increasing depth throughout the acquisition phases.

(2) The support costs, manpower requirements, and R&M of current comparable equipment shall be identified at a system and subsystem level by Milestone I to provide comparative baselines for estimates of new systems, and to identify and set targets for improvement in the new system.

(3) Initial tradeoffs among system characteristics and ILS elements shall be completed before detailed development of individual ILS elements begins.

(4) Clearly defined systems engineering procedures (such as the Reliability Centered Maintenance approach) shall be implemented to influence the evolving system design and to determine ILS element requirements.

(5) R&M parameters shall be defined in terms consistent with data collection on fielded equipment. Estimates of R&M parameters shall reflect anticipated maintenance demands for the system in the field. These estimates shall be maintained in a consistent, common data base and used to support both LSA and R&M development efforts.

(6) MIL-STD-1388-1-2, Logistic Support Analysis (reference (c)), shall be appropriately tailored to define contract requirements for LSA. During full-scale development, detailed maintenance task analyses and trade studies shall be conducted. LSA Records (LSAR) shall be maintained to serve as the definitive source of data for ILS resource requirements determination. The LSAR shall be related to the Work Breakdown Structure (WBS). Redundant data bases for each ILS element shall be avoided.

(7) LSAR shall be reviewed as they become available, selectively assessed during test and evaluation, and verified in operational service.

d. Management

(1) The program manager is responsible for ILS. The program manager shall be supported by a qualified ILS manager, designated by Milestone I, to serve as the program focal point for manpower and other logistic planning, analyses relating ILS elements to system readiness goals, the support-related design interface, and support acquisition and operating and support (SA and O&S) costs. Support acquisition costs are selected development and procurement costs (reference DoD Instruction 5300.33 (reference (p)) associated with a weapon system during the acquisition phase that are required to ensure that planned support of that weapon system is achieved. For multi-component acquisition programs, each participating DoD Component shall designate a qualified ILS manager to participate in ILS management under the program manager. A continuing interface between the program management office and the manpower and other logistic communities shall be maintained throughout the acquisition process.

(2) The program manager shall have a current ILS plan to support milestone decisions. The ILS plan shall identify manpower and other support goals and demonstrated achievements; define support concepts and plans; and document ILS element requirements, and the schedules, funding requirements, and responsibilities for ILS activity planned for the succeeding program phases. For multi-component acquisition programs, the ILS plan shall address the support requirements of all participating components.

(3) Development program budgets shall include adequate funding for ILS planning, analysis, and cost reduction efforts starting with program initiation.

(4) During the formulation of the acquisition strategy and supporting plans, consideration shall be given to ILS goals and objectives to determine source selection factors, contract type and structure, incentives, and degree of competition. Innovative contractor efforts to improve support costs and system readiness shall be solicited and considered in source selection weighting and contract incentives. To the maximum practical extent, ILS contract requirements shall be identified under definitized contract line items in the prime contract. Contractors shall be provided appropriate Government data to use as a basis for ILS planning and LSA (such as baseline and operating scenario and maintenance concept, system readiness goals, schedules, maintenance and support cost data on current systems, and manpower/skills availability).

(5) Contract support shall be used when it is feasible and beneficial to the Government due to readiness, economics, logistic risk (design instability, etc.), or acquisition leadtimes. Transition from contractor to Government support (if any) shall allow a phased build-up of organic support capability for each subsystem at each maintenance level. A tentative schedule for phased transition shall be defined by Milestone II.

(6) Detailed milestone plans to meet ILS objectives shall be developed early in full-scale engineering development. Positive controls (such as

network scheduling systems, WBS) shall be established (a) to identify interdependencies among the ILS elements, design activities, and deployment plans, and (b) to integrate schedules.

(7) ILS management information (including details of schedule, resource levels and estimates, L-VA, and status of progress toward support-related goals) shall be current and available to support ILS planning and management decisions. Duplicate data bases and reporting requirements shall be avoided. Standard data elements shall be developed and used to the extent possible. The WBS established for the program in accordance with DoD Directive 5010.20 (reference (q)) and MIL-STD-881A (reference (r)) shall be used as the framework for cost reporting.

(8) A clear "audit trail" of changes in support budgets, support-related goals and thresholds (including changes in definition), and their impact on system readiness goals, support costs, and support schedule objectives shall be maintained.

(9) Plans shall be developed by Milestone III for follow-on readiness assessments, beginning with initial deployment and continuing until the system design and support configuration are mature. These plans shall include milestones, responsibilities, and acquisition strategies for making system design and support resource improvements needed to meet system readiness objectives.

e. Test and Evaluation. Test and Evaluation (T&E) programs (DoD Directive 5000.3, reference (s)) shall include sufficient time and resources to assess the adequacy of support-related design parameters, manpower, support concepts, and resources to meet system readiness goals. Test results shall be provided to system developers and shall be used in changing system design and support plans.

## 2. Staff Support Requirements. The heads of DoD Components shall:

a. Maintain reporting systems and data bases, consistent with the provisions of DoD Directive 5000.19 (reference (t)), for maintenance data, supply data, deployment, readiness and utilization data, and SA and O&S cost data on fielded systems. This data shall be made available to developers of new systems. Data elements shall be registered and standardized in accordance with DoD Directive 5000.11 (reference (u)).

b. Establish ILS research and study programs that emphasize quantitative methods to relate design parameters and ILS elements to system readiness goals and costs.

c. Establish career fields and career development programs (including formal training) for ILS managers.

d. When cost-effective, develop uniform ILS program and data requirements (such as specifications, standards, reports).

e. Develop guidance for the test and evaluation of ILS and establish procedures and responsibilities for the feedback and analysis of support-related T&E results and early operational experience.

## E. RESPONSIBILITIES

1. The Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) shall:

- a. Issue policies and guidance on ILS.
- b. Review readiness objectives for realism, consistency with design, and supportability.
- c. Review ILS plans and resources for adequacy.
- d. Review programed manpower and other logistic resources for newly fielded systems for consistency with readiness objectives and compatibility with T&E results and early field experience.
- e. Exercise policy and operational control of the ILS Analysis Office of the DoD Product Engineering Services Office.

2. The Under Secretary of Defense for Research and Engineering (Defense Acquisition Executive) shall:

- a. Review the adequacy of programed funds and schedules, including T&E, to achieve support-related objectives.
- b. Review the adequacy of trade-offs between performance and support related design goals and thresholds and SA and O&S costs used to establish these goals.
- c. Establish technology programs to reduce future support demands.

3. The Chair of OSD Cost Analysis Improvement Group (CAIG) shall issue guidance for:

- a. Service and CAIG support cost evaluations.
- b. Service programs to improve support cost estimating techniques and data bases.

4. The Secretaries of Military Departments and Directors of the Defense Agencies shall:

- a. Implement the policies of this Directive for major system acquisition programs.
- b. Develop policies for the application of ILS to less-than-major acquisitions.
- c. Establish a Component focal point for ILS policy.
- d. Ensure that each major program has representation and participation of the functional elements responsible for the programing, funding, acquisition, and application of system support resources.

e. Include adequate development and production funding in budget submissions and identify the readiness impacts of funding shortfalls.

f. Conduct ILS reviews to assess, in quantitative terms, the adequacy of logistic plans, resources, and support-related parameters to meet system goals at each acquisition milestone.

5. Program Managers shall:

a. Include ILS as an integral part of their acquisition programs.

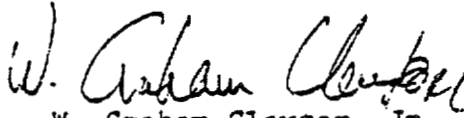
b. Allocate appropriate development and production resources and schedule for ILS, including ILS requirements of participating DoD Components in multi-component acquisition programs.

c. Balance system readiness with cost, schedule, and performance goals.

d. Advise the Component Head and the Defense Acquisition Executive on projected shortfalls or impediments to meeting system readiness goals.

F. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Forward two copies of implementing instructions to the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) within 120 days.

  
W. Graham Claytor, Jr.  
Deputy Secretary of Defense

Enclosures - 3

1. References
2. Definitions
3. Support Considerations in the System Acquisition Process



REFERENCES, continued

- (d) Assistant Secretary of Defense (I&L) Memorandum, "Criteria for Logistic Support Plan Summary - DSAPC Milestone III," July 27, 1972, hereby canceled
- (e) Assistant Secretary of Defense (I&L) Memorandum, "Logistics Annex to the Decision Coordinating Paper (DCP)," March 18, 1977, hereby canceled
- (f) Assistant Secretary of Defense (MRA&L) Memorandum, "Manpower and Logistic Concerns for New Major Systems," August 17, 1978, hereby canceled
- (g) DoD 4100.35 G. "Integrated Logistics Support Planning Guide for DoD Systems and Equipment," October 15, 1968, hereby canceled
- (h) DoD Directive 4151.1, "Use of Contractor and Government Resources for Maintenance of Materiel," June 20, 1970
- (i) DoD Directive 4151.16, "DoD Equipment Maintenance Program," August 30, 1972
- (j) DoD Directive 4140.40, "Basic Objectives and Policies on Provisioning of End Items of Materiel," February 26, 1973
- (k) DoD Instruction 4151.11, "Policy Governing Contracting for Equipment Maintenance Support," June 11, 1973
- (l) DoD Instruction 4151.12, "Policies Governing Maintenance Engineering Within the Department of Defense," June 19, 1968
- (m) DoD Instruction 4151.15, "Depot Maintenance Programming Policies," November 22, 1976
- (n) DoD Instruction 4140.42, "Determination of Initial Requirements for Secondary Item Spare and Repair Parts," August 7, 1974
- (o) MIL-STD 1388-1-2, "Logistic Support Analysis," October 15, 1973
- (p) DoD Instruction 5000.33, "Uniform Budget/Cost Terms and Definitions," August 15, 1977
- (q) DoD Directive 5010.20, "Work Breakdown Structures for Defense Materiel Items," July 31, 1963
- (r) MIL-STD 881A, "Work Breakdown Structures for Defense Materiel Items," April 25, 1975
- (s) DoD Directive 5000.3, "Test and Evaluation," December 26, 1979
- (t) DoD Directive 5000.19, "Policies for the Management and Control of Information Requirements," March 12, 1976
- (u) DoD Directive 5000.11, "Data Elements and Data Codes Standardization Program," December 7, 1964
- (v) Army, TM 38-710; Navy, NAVMAT P-4000; Air Force, AFP-800-7; Marine Corps, NAVMC-2644; DSAH, 4000.1; DCAC, 270-120-2; DNA, INST No. 4100.35; "Integrated Logistic Support Implementation Guide for DoD Systems and Equipments," March 1972
- (w) DoD Instruction 4120.19, "Department of Defense Parts Control System," December 16, 1976

## DEFINITIONS

1. Integrated Logistic Support (ILS). A unified and iterative approach to the management and technical activities necessary to: (a) cause support considerations to influence requirements and design; (b) define support requirements that are optimally related to the design and to each other; (c) acquire the required support; and (d) provide the required support during the operational phase at minimum cost.

2. The ILS elements are:

- a. The maintenance plan.
- b. Manpower and personnel.
- c. Supply support (including initial provisioning).
- d. Support and test equipment.
- e. Training and training devices.
- f. Technical data.
- g. Computer resources support.
- h. Packaging, handling, storage, and transportation.
- i. Facilities.

3. The ILS Implementation Guide for DoD Systems and Equipments (reference (v)) provides additional definitions and information useful in ILS planning.

SUPPORT CONSIDERATIONS IN THE  
SYSTEM ACQUISITION PROCESS

The following are ILS considerations for each milestone:

1. Milestone 0 - Program Initiation

a. Activities accomplished. Manpower and other logistic resource constraints have been identified in the MENS. If appropriate, these constraints should be based on analysis of systems currently in the mission area.

b. Activities in next phase. There are explicit and visible plans and resources for:

(1) Analysis of manpower, other support cost, and readiness drivers of current systems.

(2) Development of alternative operational and support concepts and evaluation of manpower and other support resource implications.

2. Milestone 1 - Demonstration and Validation

a. Activities accomplished

(1) A baseline operational scenario and alternatives have been defined for recommended system alternatives with adequate detail for support planning purposes. System readiness objectives have been established.

(2) The logistic resource (including manpower) implications of alternative operational and support concepts have been evaluated. Projected manpower and other logistic resource requirements have been identified and are consistent with updated program constraints.

(3) Manpower and other logistic cost drivers of current systems have been identified at a detail level and targets for improvement on the new system have been established.

(4) Manpower, logistic, and R&M parameters (including testability, if applicable) critical to system readiness and support cost have been identified. Estimates of achievable values for these parameters have been compared to current systems.

(5) Major items of support-related hardware and software (e.g. automated test stations, simulators) requiring development have been identified.

(6) Logistics, including manpower, is given appropriate consideration in requests for proposals, source selection, and contracts.

b. Activities in next phase. There are explicit and visible plans and resources for:

(1) Conduct of tradeoffs among system characteristics, manpower, and support concepts to meet peacetime readiness and wartime employment objectives. Analysis is planned to set firm goals and thresholds for selected parameters by Milestone II.

(2) International logistic considerations for programs which involve other nations.

### 3. Milestone II - Full-Scale Engineering Development

#### a. Activities accomplished

(1) A baseline support concept, including a maintenance concept backed by documented analyses, has been established to influence design.

(2) A consistent set of goals and thresholds for readiness, R&M (including built-in test, if applicable), manpower and other logistic parameters have been established and presented in comparison to a contemporary baseline system.

(3) The sensitivity of manpower and other support resource requirements to changes in key parameters (including R&M and utilization rate) and associated impacts on system readiness have been analyzed and logistic risk areas have been identified.

(4) Tradeoffs have been conducted to determine the optimum balance among hardware characteristics, support concepts, and support resource requirements. Estimates of manpower requirements (by work center) and other support resource requirements have been determined based on these analyses, are consistent with goals and thresholds for readiness and support-related parameters, and are presented in comparison to a contemporary baseline system. Requirements for support resources (e.g., unique skills or specialties) which are in short supply have been identified.

(5) NATO standardization and interoperability requirements are reflected in ILS planning.

(6) ILS considerations are given appropriate weight consideration in RFPs, source selection, and contracts. Contract requirements clearly define a baseline operational scenario, a baseline maintenance concept, peacetime readiness and wartime employment objectives, and phased support schedule objectives. ILS program and data requirements are tailored to meet these objectives.

(7) T&E plans are adequate to assess achievement of support-related thresholds, adequacy of support plans and resources, and impacts on cost and readiness objectives.

(8) Support acquisition funding profiles are presented in comparison with similar programs.

b. Activities in next phase. There are explicit and visible plans, resources, and contract requirements for:

(1) Detailed analysis and tradeoffs of design, R&M, manning levels, and other logistic requirements to meet program goals.

(2) Identification of detailed ILS element requirements consistent with support-related goals and thresholds.

(3) Development of ILS elements, including a maintenance plan, on a schedule commensurate with contractor/government support transition objectives.

(4) Effective and economical use of contractor support.

(5) T&E of the adequacy of planned manpower, support concepts and resources, and R&M (including testability if applicable) to meet system readiness and utilization objectives.

(6) Tracking and control of subsystem support costs and ILS schedules.

(7) International logistic considerations for programs involving other nations.

(8) Optimum use of standard parts and components (DoD Instruction 4120.19 (reference (w))).

#### 4. Milestone III - Production and Deployment

##### a. Activities accomplished

(1) R&M demonstrations have been acceptable. Analysis, test and evaluation results, and independent reviews have affirmed the adequacy of the maintenance plan and planned manpower and other support resources to meet goals for peacetime readiness and wartime employment.

(2) Parameters used in determining support resource requirements are traceable to program goals and thresholds. Spares investment levels have been explicitly related to readiness objectives, and are based on realistic estimates of demand rates and system utilization.

(3) Support acquisition funding profiles are traceable to those presented at Milestone II, and the impact of any changes upon readiness goals or support capability objectives has been assessed.

(4) A preliminary manning document and supporting analysis (including comparison by work center to a baseline system) are available, and manpower requirements can be met from projected DoD Component assets.

(5) The development status and production leadtimes of ILS elements are commensurate with support capability objectives and deployment needs.

(6) The ILS plan provides for smooth transition of support responsibility.

(7) NATO standardization and interoperability requirements are reflected in ILS planning.

(8) Contract requirements are consistent with ILS plans and support-related goals and thresholds.

b. Activities in next phase. There are explicit and visible plans and resources in the production and operational phase for:

(1) Validation and delivery of ILS elements to meet deployment needs.

(2) Follow-on evaluation and analysis of the maintenance plan, support capability, O&S cost, and manpower to meet system readiness goals.

(3) Correction of deficiencies by changes to production design and planning.



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NUMBER 5000.40

USDR&E

## Department of Defense Directive

**SUBJECT:** Reliability and Maintainability

**References:** (a) DoD Directive 5000.1, "Major System Acquisitions,"  
March 19, 1980  
(b) DoD Instruction 5000.2, "Major System Acquisition  
Procedures," March 19, 1980  
(c) DoD Directive 5000.3, "Test and Evaluation,"  
December 26, 1979

### A. PURPOSE

This Directive establishes policies and responsibilities for the reliability and maintainability (R&M) of defense systems, subsystems and equipment. It implements the principles set forth in references (a) and (b) for major systems, and for items not designated as major systems, during all phases of the life cycle.

### 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. OBJECTIVES

The objectives of defense R&M activities shall be:

1. Operational Effectiveness. Increase operational readiness and mission success of fielded items.
2. Ownership Cost Reduction. Reduce demand for maintenance and logistic support of attached and detached item components.
3. Limit Manpower Needs. Field items that can be operated and maintained with skills and training expected to be available in the Department of Defense.
4. Management Information. Provide specific types of R&M data essential to acquisition, operation, and support management.
5. Efficiency. Ensure that each increment of cost and schedule investment in R&M contributes significantly to the above objectives.

## D. POLICY

1. General. Each DoD Component shall establish R&M programs consistent with its roles and missions. Each F&M program shall include a balanced mix of R&M engineering and accounting tasks. F&M engineering and accounting shall be tailored for maximum efficiency in accordance with the following provisions:

a. Reliability engineering shall focus on the prevention, detection and correction of design deficiencies, weak parts, and workmanship defects. Maintainability engineering shall reduce maintenance and repair time, number of tasks required for each preventive and corrective maintenance action, and the need for special tools and test equipment. Program plans shall stress early investment in R&M engineering in order to avoid subsequent costs and schedule delays.

b. R&M accounting shall provide information essential to acquisition, operations, and support management, to include properly defined inputs for estimates of operational effectiveness and ownership cost. Cost and schedule investment in efforts to obtain management data (such as R&M demonstrations) shall be clearly visible and carefully controlled.

2. R&M Engineering Policy. The DoD Components shall define fundamentals of design, manufacture, and management which result in delivery of reliable and maintainable items to the operational forces. These fundamentals shall be the baseline for selection and tailoring of R&M engineering tasks and tests.

a. Design fundamentals should include: (1) parts and material history, qualification and acceptance, (2) design simplification and standardization, (3) parts application stress analysis and derating, (4) sneak circuit analysis for electronics, (5) failure modes and effects analysis, (6) maintenance and repair analysis, and (7) R&M growth testing to disclose design deficiencies, and to verify the effectiveness of corrective actions.

b. Manufacturing fundamentals should include: (1) process controls to minimize introduction of weak parts and workmanship defects, (2) environmental stress screening of parts and equipment to disclose latent defects as early and as efficiently as possible, and (3) failure-free acceptance criteria.

c. Engineering management fundamentals should include: (1) integrated failure, maintenance and repair reporting throughout design and manufacture, (2) failure analysis, with supporting laboratory facilities, (3) corrective action policies to minimize recurrence of failures and maintenance or repair difficulties, and (4) follow-up to ensure verification of corrective actions.

3. R&M Accounting Policy. Separate R&M terms shall be directly related to operational effectiveness and ownership cost. DoD standard R&M terms are defined in enclosure 1. Additional terms shall be defined in accordance with the following provisions:

a. System R&M Parameters. System R&M shall be measured in four separate ways, using units of measurement directly related to: (1) operational



readiness, (2) mission success, (3) maintenance manpower cost, and (4) logistic support cost. These four ways of measuring R&M shall be known as the "system R&M parameters"

(1) All system R&M parameters do not apply to all systems, but a separate term shall be defined for each applicable system R&M parameter. Insofar as possible, these terms shall be standardized by major system types, such as land vehicles, ships, aircraft, and missiles. Examples of terms for system R&M parameters are illustrated in enclosure 1 (figure 1).

(2) System R&M parameters shall be expressed in operational R&M values, not inherent R&M values, and shall include both contractor-furnished equipment (CFE) and government-furnished equipment (GFE) elements of the system.

(3) Requirements and achievements for each applicable system R&M parameter shall be numerically traceable: (a) through all phases of the system life cycle, (b) between levels of assembly, (c) between DoD program documents and contracts, and (d) between DoD data systems for acquisition and ownership.

b. Basic R&M Terms. Basic terms for R&M shall be defined in units of measurement capable of describing the system R&M parameters related to maintenance manpower cost. Audit trails shall be used to relate the other applicable system R&M parameters to these basic units of measurement. Audit trails are illustrated in enclosure 1 (figures 2 and 3).

(1) Basic reliability terms (such as Mean-Time-Between-Failures) shall include all item life units, and every failure within the item, to ensure they can describe the maintenance-related system reliability parameter (for example, Mean-Time-Between-Maintenance-Actions). Basic reliability terms shall not be limited to mission operating time, or to mission-critical failures.

(2) Basic maintainability terms (such as Mean-Time-To-Repair) shall include every prescribed level of maintenance and repair, to ensure they can describe system demand for maintenance manpower (for example, total direct manhours per maintenance action). They shall not be limited to the system downtime necessary to diagnose item failure, remove, and reinstall the item.

4. R&M by Design. The following provisions are prerequisites to the achievement of inherent R&M values.

a. R&M-related acquisition, operation, and support experience shall be provided from predecessor items as input for R&M programs. This information shall include measured R&M values, measured environmental stresses, and the skill levels of operator and maintenance personnel.

b. R&M improvement from one generation of items to the next shall be emphasized. Previous operational R&M deficiencies shall be analyzed to determine, insofar as possible, whether they were due to materiel (R&M design and manufacture) or to operating and support concepts (policies and planning factors). Corrective action shall be directed to the cause of the deficiency.

c. Tradeoffs between performance and reliability, and among required values for system R&M parameters, shall balance the design effort devoted to operational effectiveness with that devoted to ownership cost reduction.

d. Items designated as GFE, off-the-shelf commercial products, or preferred parts shall have proved reliable and maintainable in service. The environment in which an item is reliable and maintainable shall be stated.

e. Test conditions and procedures shall be operationally realistic, and they shall be defined early enough to influence item design. Performance, reliability, and environmental stress testing shall be combined, and types of environmental stress will be combined insofar as practical. Maintainability tests shall represent item maintenance and repair in service. They should be accelerated by introduction of simulated failures and preventive maintenance.

f. Design features shall be considered according to their effects on both operational effectiveness and ownership cost. For example, redundancy and alternate modes of operation improve mission reliability, but they reduce maintenance-related reliability and thus basic reliability.

5. R&M growth is required during full-scale development, concurrent development and production (where concurrency is approved), and during initial deployment. Predicted R&M growth shall be stated as a series of intermediate milestones, with associated goals and thresholds, for each of these phases.

a. A period of testing shall be scheduled in conjunction with each intermediate milestone. The purpose of these tests shall be to find design deficiencies and manufacturing defects. A block of time and resources shall be scheduled for the correction of deficiencies and defects found by each period of testing, to prevent their recurrence in the operational inventory. Administrative delay of R&M engineering change proposals shall be minimized.

b. The differences between required values for system R&M parameters shall be used to concentrate R&M engineering effort where it is needed (for example, enhance mission reliability by correcting mission-critical failures; reduce maintenance manpower cost by correcting any failures that occur frequently).

c. Approved R&M growth shall be assessed and enforced. Enforcement of intermediate R&M goals shall be left to the acquiring activity. Failure to achieve an intermediate R&M threshold is a projected threshold breach, and if it occurs, an immediate review by the program decision authority is required.

6. R&M Accounting Tests. R&M demonstrations, qualification tests, and acceptance tests shall be tailored for effectiveness and efficiency (maximum return on cost and schedule investment) in terms of the management information they provide.

a. In cases where it is impractical or inefficient to demonstrate all applicable R&M parameters at the system level, R&M estimates shall be compiled from lower-level test results. In every case, measured test results shall be considered valid R&M information only to the degree that test conditions and procedures simulate the operational life of a production item. Those elements of operational R&M values which are not simulated shall be accounted for.

b. Total test time and number of samples shall be based on the amount of confidence gained (the degree that bands of uncertainty are reduced) by each additional increment of testing. Statistical decision risk and confidence levels shall be based on tradeoffs with cost and schedule.

c. All relevant test results shall be used to project operational R&M values for estimates of operational effectiveness and ownership cost, but only chargeable test results shall be used to determine contractual compliance.

d. Insofar as possible, tests that determine contractual compliance with R&M requirements shall be conducted or controlled by someone other than the supplier whose compliance is being determined. A higher tier contractor may conduct or control these tests on behalf of the government. Suppliers' test facilities may be used. Test results shall be fed back as input for the supplier's quality control program. Exceptions in which the suppliers test their own product under intermittent surveillance may be granted in situations of technical or financial necessity.

7. Acquisition. Program review and decision authorities shall address R&M achievements of the preceding phase, and preparations for the following phase, at each major milestone decision or equivalent point in the acquisition process.

a. Mission Area Analysis. Projected deficiencies in operational readiness, mission success, maintenance manning, and logistic support shall be documented as needs of the mission area. Establishment of quantitative R&M requirements shall be deferred to the conceptual phase.

b. Conceptual Phase. A measured baseline value shall be obtained for each system R&M parameter that applies to each alternative system concept, from operation and support experience with a similar system or systems. A system life profile shall be defined, to include one or more mission profiles; then a tentative operational goal shall be established for each applicable system R&M parameter. These goals shall be responsive to documented needs of the mission area, and realistically achievable in comparison to baseline values.

c. Demonstration and Validation Phase. CFE items shall be designed to prevent operational R&M deficiencies typical of current items. Items that are selected as CFE or off-the-shelf commercial products shall have met, or shall be required to meet, their allocated R&M goals for the new system under equal or more severe environmental stresses. Operating and support concepts shall be tailored to prevent operational R&M deficiencies.

d. Full Scale Development Phase. A firm goal and a threshold shall be established, at the full-scale development decision, for each applicable system R&M parameter. Goals shall be realistically achievable in service; thresholds shall be acceptable in service. Goals shall be translated into specified values, and thresholds into minimum acceptable values, in contracts for both CFE and GFE. R&M growth shall be assessed and enforced to ensure that R&M thresholds are met well before the production decision.

e. Production and Deployment Phase. Previous use, operational test results, and verified design corrections shall be inputs for the production decision. Design corrections shall have been verified under conditions no less

ensure that design requirements. Proposed design corrections do not count, unless concurrency has been approved and specific provisions have been made to verify their effectiveness. The recurrence of failures due to weak parts and workmanship defects shall be precluded by specific quality control provisions in the production contracts. R&M growth shall be assessed and enforced to ensure that R&M thresholds are met (or met again) during initial deployment.

f. In-Service Evaluation The acquiring agency shall continue to correct operational R&M deficiencies due to material design and quality, to ensure that R&M goals reaffirmed at the production decision are achieved in service. Responsibility for the correction of operational R&M deficiencies caused by operating or support concepts shall be clearly defined.

3. Ownership. The following provisions apply from delivery of an item to its final expenditure or removal from the operational inventory.

a. Actions shall be taken to reduce the percentage of failures that are written off as "false alarms" at all levels of maintenance and repair. Maintenance and repair activities shall be provided with (or if more cost-effective, supported by) test facilities capable of revealing failures that are not found by trouble-shooting without environmental stress.

b. Specifications for spares, replacements, and modifications shall have no less stringent R&M requirements than specifications for the original equipment. Specifications shall be reviewed, and upgraded as necessary to correct R&M deficiencies, upon request of operating or supporting activities.

c. DoD in-service data collection systems shall report the measured values of each applicable system R&M parameter, and identify operational R&M deficiencies. DoD standard data elements shall be developed in accordance with subsection D.3. of this Directive and current DoD policy on data element standardization. Samples of defective materiel also should be returned to the acquisition community for R&M engineering analysis.

d. Specific offices shall be established to investigate and resolve the operational R&M deficiencies of items no longer under the responsibility of an acquisition program. R&M improvements having significant potential for return on investment (in accordance with section C. of this Directive) shall be incorporated in materiel, and instituted by revision of operating and support concepts, policies, or planning factors.

## E. RESPONSIBILITIES

1. The Under Secretary of Defense for Research and Engineering (USDRAE) shall:

a. Be responsible for the R&M of systems, subsystems, and equipment through all phases of the acquisition process, and as necessary to correct operational R&M deficiencies caused by materiel design and manufacture.

b. Ensure that R&M engineering and accounting tasks are established for each major system acquisition, as defined by DoD Directive 5000.1 (refer-

ence (a)), and that sufficient time and resources are programmed to accomplish those tasks.

c. Ensure that quantitative goals and thresholds are established for the R&M parameters that apply to each major system, and that these provide an optimum balance between operational effectiveness and ownership cost.

d. Review R&M engineering achievements and R&M accounting projections at each major milestone decision, and take appropriate action in response to: (1) deviations from R&M engineering requirements (subsection D.2.), and (2) projected breach of R&M threshold, in accordance with the provisions of DoD Instruction 5000.2 (reference (b)).

e. Sponsor revision of the Defense Acquisition Regulations, Military Specifications and Standards, and other research and engineering documents to implement this Directive.

f. Promote continuing improvement in R&M engineering and accounting to increase the efficiency of R&M programs, and to determine the relationships between R&M tasks or tests and resulting values of the system R&M parameters.

2. The Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) shall:

a. Be responsible for the proper application of system R&M parameters in manpower and logistic support plans, and for the correction of operational R&M deficiencies caused by support concepts.

b. Ensure that manpower needs (including skill levels) and logistic resources directly related to such operational effectiveness objectives as readiness and combat utilization rates are determined, using appropriate R&M values and projections (DoD Instruction 5000.2, reference (b)).

c. Ensure that tradeoffs are made to determine the optimum mix of R&M goals and thresholds, alternative logistic support concepts, and manning policies, to meet system ownership cost reduction objectives (DoD Instruction 5000.2, reference (b)).

d. Sponsor review of logistic support concepts and manning policies and revisions necessary to prevent recurrence of operational R&M deficiencies during all phases of the life cycle.

3. The Director, Defense Test and Evaluation, shall ensure that, for testing encompassed by DoD Directive 5000.3 (reference (c)), the independent operational test and evaluation agencies:

a. Assess each applicable system R&M parameter insofar as practical during system-level tests, and conduct or review the results of equipment-level tests, as necessary, to compile system-level R&M estimates.

b. Include an estimate based on appropriate test and evaluation for each applicable system R&M parameter in reports supporting major milestone decisions, and state the confidence level associated with each estimate.

c. Plan and conduct operational R&M testing efficiently in order to minimize program cost and schedule impact.

4. The DoD Cost Analysis Improvement Group shall ensure that cost analysis groups:

a. Assess the impact of R&M requirements on acquisition cost, and the effect of R&M improvements on reduction of ownership cost.

b. Use the appropriate system R&M parameters as input for ownership cost estimates, and update cost estimates with operational experience or relevant test results prior to major milestone decisions (DoD Instruction 5000.2, reference (b)).

c. Improve cost analysis capability to analyze the contribution of R&M activities to operational effectiveness and ownership cost reduction.

5. Secretaries of Military Departments and Directors of Defense Agencies shall:

a. Be responsible for the operational R&M of their systems, subsystems and equipment, to include the effects of materiel design, quality, operating and support concepts, policies, and planning factors.

b. Identify the system R&M parameters that apply to each type of system they operate or plan to acquire, and define a measurable term for each of those parameters. Ensure that their data collection systems make each applicable system R&M parameter traceable.

c. Define the R&M engineering and accounting tasks that apply to each phase of the life cycle. Ensure that appropriate R&M tasks are specified as contractual requirements for acquisition.

d. Analyze operational R&M deficiencies to determine their cause, and identify tradeoffs between improvement of materiel and improvement of concepts or policies. Establish clear lines of authority, responsibility, and accountability for improvement of materiel and improvement of concepts or policies.

e. Establish appropriate R&M requirements for each item, based on a defined item life profile that includes environmental stresses and the skill levels of operator and maintenance personnel. Ensure that quantitative R&M requirements are consistent with both operational effectiveness and ownership cost reduction objectives. Clearly distinguish between quantitative R&M requirements for the item and statistical criteria for R&M demonstrations, qualification tests, and acceptance tests.

f. Ensure that R&M programs are tailored for maximum efficiency, as defined in section C. of this Directive; then provide the time and resources necessary to accomplish those programs.

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g. Provide R&M-related acquisition, operation, and support experience to their program managers and participating contractors. Maintain an R&M technology base and corporate memory to institutionalize lessons learned.

h. Ensure that their program managers and acquiring activities:

(1) Integrate and tailor specific R&M engineering and accounting tasks into each phase of their programs.

(2) Allocate quantitative R&M requirements to each CFE and GFE item. Establish clear lines of R&M chargeability for the various suppliers of CFE, GFE, and off-the shelf commercial products.

(3) Address R&M requirements and achievements at contractual design reviews, and during the source selection process.

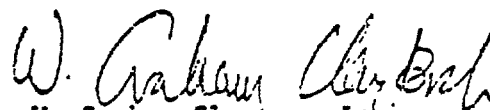
(4) Enforce the R&M engineering tasks and tests specified as contractual requirements in accordance with subsection D.2. of this Directive.

(5) Assess and enforce approved R&M growth to meet intermediate R&M goals. Report a projected threshold breach in event of failure to meet an intermediate R&M threshold.

(6) Continue to correct operational R&M deficiencies caused by factors within their defined responsibilities, to ensure that R&M goals are achieved in service.

F. EFFECTIVE DATE AND IMPLEMENTATION

The provisions of this Directive are effective immediately. Forward one copy of each implementing document to the Under Secretary of Defense for Research and Engineering within 120 days.

  
W. Graham Clayton, Jr.  
Deputy Secretary of Defense

Enclosure - 1  
DoD Standard R&M Terms

TABLE 2

ISSUES ASSOCIATED WITH SELECTED MAJOR WEAPON SYSTEM PROGRAMS

	SYSTEM EFFECTIVENESS										PROGRAM ACQUISITION							
	OPERATIONAL REQUIREMENTS	FORCE LEVEL REQUIREMENTS	PERFORMANCE LIMITATIONS	SURVIVABILITY/RELIABILITY/MAINTAINABILITY	LOGISTICS SUPPORT	TECHNICAL RISKS	ADEQUACY OF TESTING	A-100 INCONSISTENCIES	AFFORDABILITY	PROGRAM CONCURRENT	COST EFFECTIVENESS	PROGRAM MANAGEMENT	TIMELINESS					
<b>ARMY PROGRAMS</b>																		
LEAD BALLISTIC MISSILE DEFENSE	X	X	X											X				
AH 64 ATTACK HELICOPTER		X	X															
BLANDOFF TARGET ACQUISITION SYSTEM		X	X	X														X
COPPERHEAD PROJECTILE		X	X	X														
<b>NAVY PROGRAMS</b>																		
ADVANCED LIGHTWEIGHT TORPEDO		X	X	X														
LIGHT AIRBORNE MULTI PURPOSE SYSTEM		X	X	X														
AEGIS/CIC 47		X	X	X														
ANTISHIP CRUISE MISSILE PROGRAM	X	X	X															
P-7A AIRCRAFT		X	X	X														
<b>AIR FORCE PROGRAMS</b>																		
AW WEAPON SYSTEM	X	X	X															
SPACE TRANSPORTATION SYSTEM		X	X															
F-15 AIRCRAFT		X	X	X														
C-17 AIRCRAFT	X	X	X															
KC-135 AIRCRAFT MODIFICATION	X	X	X															
F-22 AIRFIELD ATTACK SYSTEM	X	X	X															
<b>JOINT PROGRAMS</b>																		
LAND ATTACK CRUISE MISSILES	X	X	X	X														
HIGH SPEED ANTI RADIATION MISSILE		X	X	X														
ADVANCED MEDIUM RANGE AIR TO AIR MISSILE		X	X	X														
ASSAULT BREAKERS		X	X	X														
THEATER NUCLEAR FORCES		X	X	X														
AIR FORCE/NAVY TANKER AIRCRAFT PROGRAMS	X	X	X	X														
NUMBER OF ISSUES (81)	8	6	13	7	8	4	8	7	5	4	4	4	4	3	2	1		
PERCENT OF TOTAL ISSUES																		



TABLE 2 (CONTINUED)

POTENTIAL IMPACT OF GAO RECOMMENDATIONS  
ON SELECTED MAJOR WEAPON SYSTEM PROGRAMS

AIM OF OUR RECOMMENDATION IS TO:  REPORTS ISSUED ON:	MINIMIZE RISK/ ENSURE EFFECTIVENESS	IMPROVE DISCLOSURE TO THE CONGRESS	AFFIRM REQUIREMENTS	EVALUATE ALTERNATIVES	REDUCE COSTS
<b>ARMY PROGRAMS</b>					
LOAD BALLISTIC MISSILE DEFENSE	X		X		X
AH 64 ATTACK HELICOPTER	X	X		X	
STANDOFF TARGET ACQUISITION SYSTEM	X		X		
COPPERHEAD PROJECTILE	X		X		
<b>NAVY PROGRAMS</b>					
ADVANCED LIGHTWEIGHT TORPEDO	X	X			
LIGHT AIRBORNE MULTI-PURPOSE SYSTEM	X	X	X		
AEGIS/CG-47	X	X			X
ANTISHIP CRUISE MISSILE PROGRAMS	X		X		
F/A-19 AIRCRAFT		X			
<b>AIR FORCE PROGRAMS</b>					
MX WEAPON SYSTEM		X		X	X
SPACE TRANSPORTATION SYSTEM		X			
F-16 AIRCRAFT		X	X		
C-X AIRCRAFT			X	X	
KC-135 AIRCRAFT MODIFICATIONS			X	X	X
JP 233 AIRFIELD ATTACK SYSTEM			X	X	
<b>JOINT PROGRAMS</b>					
I AND ATTACK CRUISE MISSILES	X		X		
HIGH SPEED ANTI-RADIATION MISSILE	X	X			
ADVANCED MEDIUM RANGE AIR-TO-AIR MISSILE	X	X			
ASSAULT BREAKER	X			X	
THEATER NUCLEAR FORCES	X	X			
AIR FORCE/NAVY TRAINER AIRCRAFT PROGRAMS	X	X		X	

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LINE-OF-EFFORT: To what extent do the systems currently being acquired satisfy the agency's approved program performance thresholds?

MAJCR ISSUES

In our report to the Congress dated March 20, 1981, we reported that Federal agencies estimate that their 1,040 current major acquisitions will cost \$777 billion at completion. Each year the Congress expends considerable effort analyzing budget requests for major systems being justified on the basis of satisfying approved operational performance.

The impact of these acquisitions is critical on technology, on the Nation's economic and fiscal policies, and on the accomplishment in such fields as defense, space, energy, and transportation. This is recognized by the Executive Branch as evidenced by OME Circular A-109, which describes the acquisition of major systems as "\*\*\*\*one of the most crucial and expensive activities performed to meet national needs." The Circular directed agencies to ensure that major systems being acquired will meet performance criteria. Great sums have been committed to acquire systems or programs which later are found incapable of meeting required performance criteria.

ACHIEVEMENTS IN THE LOE  
UNDER THE EXISTING PROGRAM  
PLAN

Objectives under the existing plan

Our objective under the existing LCE was to evaluate the adequacy of the policy and procedures of Federal agencies for acquiring systems to address mission needs. The specific questions to be addressed in achieving the objectives were:

1. Has realistic threat data been used to establish requirements?
2. Do the prescribed performance goals reflect mission needs?
3. Will the systems operate effectively in their intended environments, both natural and simulated?

4. Has adequate testing and evaluation been planned or conducted to assess whether the system will meet mission needs?
5. Do the established reporting systems provide data that can be used to reliably assess the effectiveness of systems in meeting mission needs?
6. Can the systems be modified to adjust for future changes in the threat and in mission needs?

#### Results achieved

We believe more attention to the precise role of some major weapons could help eliminate uncertainty as to the capabilities proposed for the weapons. In other cases, the need for some of the performance requirements proposed for weapon systems we examined were questionable or not fully established. Elimination of such uncertainties would help to minimize development time and reduce cost. Examples of individual weapon systems where we found this to be the case include the Low Altitude Defense System (C-MASAD-81-5), some Navy Cruise Missiles (C-MASAD-81-9), and the Air Force/Navy Trainer Aircraft Programs (MASAD-81-11). Reports on these programs were furnished to the Congress late in 1980 or early in 1981. Some examples are provided below.

Our Low Altitude Defense System reports pointed the advantages of the system in certain applications but questioned its use in other situations. DOD subsequently initiated a study to determine potential applications.

Our report on Navy cruise missiles points out that some assessments of need were inconclusive and that the precise role of some versions was not documented. These issues are expected to receive considerable attention during FY 82 authorization and appropriation hearings.

Our report on future trainer aircraft surfaced many issues including specifications so restrictive that a potential aircraft for that role was eliminated from consideration. As a result of our efforts the restrictions have been removed. It is expected that considerable debate will take place on this aircraft and GAO will be called upon for additional work.

#### WORK REMAINING UNDER THE LOE

##### LOE objectives

The objectives for this LOE are to identify the deficiencies in the agencies acquisition process and to recommend changes which

will insure that major systems being acquired will meet approved performance criteria. The specific questions to be addressed in achieving the objectives under this LOE are:

1. Has realistic threat data been used to establish the system's required operational performance criteria?
2. Are the prescribed performance goals reasonable and achievable?
3. Will the systems or projects operate effectively in their intended environments, both natural and simulated?
4. Has adequate testing and evaluation been planned or conducted to assess whether the systems will meet performance criteria/goals?
5. Can the systems be modified to adjust to future changes in the threat and improved performance?

#### Strategy for the upcoming planning period

The strategy we plan to use includes (1) selecting specific agency programs involving the investment of large sums of money, (2) looking at the required performance criteria of those programs, and (3) evaluating the capabilities of the system being acquired to meet performance criteria.

The assignments listed below were selected to help achieve the objectives of this LOE. For the most part the systems selected for review have progressed beyond milestone 0 and 1, (see p. 25) and work is concerned with activities/objectives associated with full scale development or production decisions--milestones II and III.

#### Ongoing assignments

Review of the Army's DIVAD Gun Program

Review of the Air Force's Air Launched Cruise Missile Program

Review of the Army Pershing II Missile System

Review of the Navy's Landing Craft Program

Review of the Present and Future Friend/FOE Identification Equipment and Capabilities

Review of the Navy's F/A-18 and AV-8B Aircraft Programs

Review of the Navy's Sonobuoy and Signal Processor  
Development Programs

Review of the Navy's A/BGM-109 Cruise Missile System  
Program

Review of the Air Force's LANTIRN Program

Review of the Army's Remotely Piloted Vehicle Program

Review of the Army's Viper Program

Review of the Navy's DGX/FFX Ship Program

Some expected results of the foregoing assignments is to identify to the Congress those programs which are not meeting the performance criteria for which funds were appropriated. In some cases we will identify deficiencies in the agency's acquisition process that allowed the performance criteria to be degraded, such as, the agency acting on tentative or incomplete information rather than waiting for the complete information or a final report.

#### Planned assignments

Under this LOE we also plan assignments covering:

1. Survey of Counterair Capabilities
2. Survey of U.S. Space Defense Program
3. Survey of Night Adverse Weather Capability of Military Aircraft.

## CHAPTER 4

AREA-OF-CONCERN: Determine the adequacy and effectiveness of agency efforts to reduce total costs and increase effectiveness of major acquisitions.

During the 1960's and early 70's there was little consideration given to controlling out-year operation and support cost. In the mid 70's the consequences of their lack of attention began to become known and in the past few years attention has been drawn to controlling and reducing the out-year costs of weapon system entering the development cycle. Some recognize this as a long range problem requiring the development of better management approaches; others tend to ignore it.

During this period--1960 through late 1970's--weapon system complexity, cost, and operation and support were ever increasing and, since funds were limited, the quantity of systems procured was relatively low. This combination of factors resulted in reduced combat readiness of some of our ground, air, and naval forces. We believe a fundamental cause is the severe unbalance between performance on one side and military utility--reliability, availability, maintainability, and human operability--on the other side. In the process of developing and deploying complex systems essential phases need more attention, namely design for producibility; design for reliability, availability, and maintainability; and trade-offs of acquisition costs to lower long term operation and support costs.

The validity of the efforts to reduce total costs and improve effectiveness should be demonstrated during tests and evaluations. Testing during the development phase can disclose problems and risk, including those related to long term operation and support, at a point early in the acquisition cycle when corrective measures can be most easily and economically taken.

Controlling costs is a major concern to the Congress and its constituency. Just as important is being adequately informed on how U.S. major national programs are being developed and managed, and whether systems under development can be expected to meet performance goals and related requirements. Our objective in this area-of-concern during the next 18 months will be to determine what specific actions are being taken by Federal agencies to reduce the total acquisition cost of programs, yet provide needed effectiveness.

### What has been achieved

We have learned much since our current plan was written 18 months ago. Our efforts have highlighted that the military services are designing weapon systems which are difficult and/or costly to operate, support, and maintain. We believe these problems can be traced to the Department of Defense's (DOD's) system acquisition process, particularly the early phases before system design is set. The lack of attention to (1) early system design along with the increasing sophistication and complexity of this equipment and to (2) ownership considerations by defense officials at major system acquisition milestones, have contributed to a low state of system readiness.

Our past efforts have focused Congressional attention on the major factors in the acquisition cycle which contribute to decreased system effectiveness and high costs to operate, support and maintain. We have also encouraged and supported DOD initiatives to develop and implement guidance and incentives which will provide equal attention to ownership and effectiveness considerations during the system acquisition process.

The work done in this area was used as the basis for proposing economies in the procurement of major systems in a January 21, 1981 letter from the Comptroller General to the Secretary of Defense. (Specific reports and results achieved are summarized on pp. 36, 37 and 38.)

Three lines-of-effort are proposed within this area-of-concern:

- What is being done during the development and acquisition process to achieve the proper balance by trade-offs between development and acquisition costs, design to cost constraints, and ownership costs yet maintain adequate system performance and operational effectiveness?
- To what extent is testing and evaluation of acquisitions effectively planned, conducted, reported and considered in decision making? And, what is being done in developmental tests and evaluations (DT&E) and operational tests and evaluation (OT&E) to insure that reliability, availability, maintainability, and human factors have been adequately considered?
- Does planning for major acquisitions adequately consider potential critical material shortages on system cost, schedule and performance goals?

## LOE 3012

LINE-OF-EFFORT: What is being done during the development and acquisition process to achieve the proper balance by trade-offs between development and acquisition costs, design to cost constraints, and ownership costs yet maintain adequate system performance and operational effectiveness. (See Appendix III for relationship of this LOE with the PLRD/SM&D issue area.)

### MAJOR ISSUES

As indicated earlier, Federal agencies spend hundreds of billions of dollars to research, design, develop, and produce systems. The process for acquiring these systems is extremely complicated and influenced by a host of factors that affect the systems' eventual operational effectiveness. During the acquisition process the system developer gives considerable attention to system cost, schedule, and technical performance. Of equal importance is the need to design systems which, when deployed, can be adequately operated, maintained, or supported at a reasonable cost. These design parameters which affect a deployed systems operational effectiveness and cost to operate and maintain are designated as ownership considerations. Examples of these considerations which must receive adequate attention during early system design include logistic support, human operability, and quality assurance.

The system developer is constantly being confronted by the need to make trade-off decisions that affect the high visibility aspects of a program. In this environment, ownership considerations can easily be traded-off. We believe the pressures to attain specific performance goals within tight time and development cost constraints have led management to trade-off or otherwise sacrifice the ownership considerations to meet short-term performance, budget, and schedule pressures. As a result, lack of early attention to ownership considerations has contributed to the deployment of systems which are difficult and costly to operate, maintain, and support.

### ACHIEVEMENTS IN THE LOE UNDER THE EXISTING PROGRAM PLAN

#### Objectives under existing plan

The major issues described above represents a change of emphasis from the LOE discussed in the existing program plan. The revised LOE places increased importance on Federal agencies efforts to design systems which can be operated, maintained or supported at a reasonable cost. The objective of the existing



LOE was to determine what actions can be taken by Federal agencies to reduce the total acquisition costs of systems and programs. The questions to be addressed in achieving this objective were:

1. Should prime contractors have total responsibility for the product purchases rather than having sub-contractors warrant each subsystem?
2. Is adequate emphasis given to lowest possible operating cost during system design and development?
3. Should warranties be provided for in the development stage in order to have a better design product, thereby minimizing future repair expenses and design changes?
4. Would a better determination of the quantity needed and technical and operational needs earlier in the procurement process aid in reducing costs?
5. Can systems designated for one mission be used for other missions, doing away with the need for a second system?
6. Before entering production, what assurance is there that systems can perform their missions so that costly retrofits are not required?
7. What is the impact of producing at more efficient rates?

#### Results achieved

The work conducted to date concentrated on addressing questions number 2, 6, and 7. The work done has produced excellent results and, as discussed below, additional results can be expected.

We have issued the following major reports on the existing line-of-effort.

- PSAD-80-6, November 8, 1979, "Impediments to Reducing the Cost of Weapon Systems". This report points out that major weapons' cost increases since World War II far exceeds the rate of inflation, and no relief is in sight. Various Department of Defense efforts to restrain costs are worthwhile, but unlikely to achieve really substantial cost reductions. The rising costs have reduced the quantities of

weapons produced and widened the U.S. forces' numerical disadvantage with the Soviet arsenal. Military and political considerations may prevent fundamental changes, but GAO made recommendations that could relieve the cost problem.

--PSAD-80-61, June 30, 1980, "Implications of Highly Sophisticated Weapon Systems on Military Capabilities". This report shows that a host of factors surrounding the reliability, availability, maintainability, and sustainability of major weapon systems being acquired today contributed to serious problems. These systems developed by the United States have grown in sophistication, complexity, and cost to a point where only relatively low quantities are being acquired. High operating and support costs for these weapons compound budgetary problems. A low state of readiness can result when the systems do not work properly. GAO recommended that the Congress should carefully examine lower cost alternative programs before approving new weapon systems. In particular, it should explore with senior military officials the pros and cons of larger quantities of alternative weapons versus smaller numbers of highly sophisticated and expensive systems.

--PSAD-81-17, January 29, 1981, "Effectiveness of U.S. Forces Can Be Increased Through Improved Weapon System Design". This report shows that many of today's military systems cannot be adequately operated, maintained, or supported because the Department of Defense does not pay enough attention to logistic support, human factors, and quality assurance during the design phase of the acquisition process. These problems deter the systems' effectiveness to defend our country in case of war. We made recommendations to improve the management and planning of ownership considerations that have an impact on the effectiveness of a weapon system.

This series of reports has helped to generate a high state of Congressional and Defense Department interest in the seriousness of the problems discussed in the reports. On January 21, 1981 the Comptroller General highlighted these and many other defense issues to the new Secretary of Defense.

In a March 6, 1981, letter responding to the Comptroller General the Secretary of Defense expressed support for the examination of lower cost alternatives before approval of new systems and the need to devote attention to the existing impediments to reducing the cost of weapon systems. In addition, the Defense Department has initiated a determined effort to act on all past recommendations of the Congress, GAO, and others. This includes many of the issues we have highlighted over and over during our past work. Some examples are:

- Increase stability in the acquisition process
- Eliminate impediments to reducing costs
- Provide adequate frontend funding
- Reduce administrative cost and time to procure items
- Implement policy to design-in reliability considerations
- Produce at economic production rates
- Budget to most likely costs
- Encourage capital investment to enhance productivity
- Encourage multiyear contracting
- Plan for preplanned product improvements
- Reaffirm existing management principles

WORK REMAINING  
UNDER THE LOE

LOE Objectives

Our objectives under this LOE are to (1) assure that Federal agencies consider the proper balance of trade-offs between sophisticated systems and simple systems during early stages of system acquisition, (2) improve management awareness of the benefits to be gained and opportunities available to reduce ownership costs yet maintain adequate system effectiveness, and (3) advise the Congress of Federal agency actions taken and additional actions necessary to improve system effectiveness and reduce ownership costs.

To accomplish these objectives we will obtain answers to the following questions:

1. Do agency acquisition policies emphasize that ownership considerations are of equal importance in system design as cost, schedule, and technical performance?
2. How are ownership considerations being reflected in early system design?
3. Do Federal agencies mission need statements, requests for proposals, and contracts contain

the language necessary to ensure ownership considerations will be adequately addressed?

4. Are decisionmakers being provided with accurate and timely information concerning ownership factors (such as logistic support and human factors) at major program decision points?
5. Is highly complex and sophisticated equipment being developed without adequate consideration of its impact on the user in terms of support costs and skill levels to operate and maintain?
6. During the acquisition cycle, are ownership considerations being traded-off in favor of cost, schedule, and technical performance?
7. Are systems being adequately tested and evaluated to ensure that they can be properly operated, maintained and supported when deployed?
8. What additional steps can be taken by the agency to improve the attention given to ownership considerations in the design and development of systems?
9. Do decision and contractual documents explicitly require consideration of man/machine interfaces to reduce system complexity and increase reliability and maintainability?
10. Is program management structured to provide oversight and assure that man/machine interfaces are considered during development, test and evaluation, by all acquisition levels--user, contractor, and program personnel?
11. Is adequate consideration given, early in the acquisition process, to manpower and logistic needs to assure development and deployment of effective systems?

#### Strategy for the upcoming planning period

Our strategy to meet these objectives is to develop answers to the above questions in five ongoing assignments. We anticipate that, after identifying ownership cost versus system performance issues on these programs, issuing an overview report on DOD's progress and any further actions that may be needed.

An important aspect of the LOE is communicating the importance of these matters to all involved. Within GAO this will be achieved by discussions at conferences, special briefings for all staff members, individual work plans, and the issuance of this program plan.

Ongoing Assignments:

- Review of the AH-64 Helicopter/Hellfire Programs  
(a priority #1 weapon system assignment)
- Review of the MLRS Program
- Survey of Funding Problems of Joint Service Acquisition Programs.
- Survey of NASA's Progress in Improving Project Management
- Survey of Modifications to DOD Weapon Systems

Also, because of the importance of the work under this LOE, we will address our stated objectives in each of the 20 individual systems selected for reporting in early 1982.

Some expected results of the foregoing assignments is to identify those major program acquisitions that have not emphasized trade-off considerations, such as, cost, schedule and performance that could and should have been made to reduce ownership costs. We hope to be able to show that ownership cost can be reduced by properly structuring program management practices.

Planned Assignments:

A follow-on to our January 29, 1981 report on increasing effectiveness of U.S. forces through improved weapon system design is planned for the fall of 1981.

A follow-up review of the Air Force's Next Generation Trainer Aircraft. Life cycle cost comparisons are to be a prime factor in evaluating competing alternatives.

A follow-up review of the joint Air Force/Navy alternate engine to provide a backup engine for the F-14 and F-16 aircraft in the event improvement efforts for engines currently on these aircraft are not successful.

LOE 3013

LINE-OF-EFFORT: To what extent is the testing and evaluation of acquisitions effectively planned, conducted, reported, and considered in decisionmaking? And, what is being done in DTE and OTE to insure that reliability, availability, maintainability and human factors have been adequately considered?

MAJOR ISSUES

Each year the Congress must decide whether to authorize appropriations for the initiation and continuance of Government programs to acquire systems and accomplish projects. As a result, each year the congressional oversight committees are interested in whether the performance of systems under development or being acquired are meeting expectations. Problems disclosed by testing frequently give the first indication of a system's inability to accomplish the purpose for which it is being developed and the potential for cost overruns to occur.

In the years preceding our current plan, GAO performed enough work in this area to designate it a non-PLOE. Our existing plan cited this. We believe it is appropriate to highlight it once again but with a new focus. This new focus is deemed necessary because of recent emphasis on the deployment of highly complex systems which may be unreliable, difficult for military personnel to maintain, fail to enhance our military capability, and add to Defense's logistic burden.

The two major types of testing are development testing and operational testing. Development testing is carried out during the development phase to disclose problems and risks early in the acquisition cycle when corrective measures can be most easily and economically undertaken. Problems disclosed by development testing should be corrected and risks should be minimized before proceeding into a more advanced stage of development.

Operational testing, on the other hand, is done to determine whether a project or system can perform its intended function under representative operating conditions which simulate those under which the system would be used. It is to be done by a different organization than the one that does the development tests. While the system may meet technical specifications as previously demonstrated during development testing, its effectiveness in its operational environment could be doubtful because of factors such as changes in how it must be used in the field. Consequently, it is essential that realistic operational testing be performed before a production commitment is made.

Trends towards meeting reliability, availability, maintainability goals, and human factors considerations are important in testing. In a drive to compensate for numerical inferiority in relation to potential adversaries, DOD and the services have pushed technology to the limit in an effort to develop weapon systems with superior operational capability. One result of this emphasis on performance has been the deployment of highly complex systems which are less reliable than desired, and difficult for field personnel to maintain. Because of these reliability and maintainability (R&M) problems the new systems fail to enhance the combat power of using units to the degree expected and add to the units' logistics burden.

In recent reviews we found that these problems occur because during the acquisition cycle the services tradeoff R&M in an effort to achieve cost, schedule and performance goals which they consider to be more important at the time. In addition, in a review we are now completing we found that the services do not have adequate data bases and methodologies for establishing realistic R&M goals, testing to determine if the goals have been achieved, or analyzing and reporting test results to decisionmakers.

DOD has become increasingly aware of the consequences of this under emphasis of R&M. As a result, during 1980 it issued its first R&M directive (5000.40) and added R&M related requirements to its directives on major acquisitions (5000.1 and 5000.2).

#### ACHIEVEMENTS IN THE LCE UNDER THE EXISTING PROGRAM PLAN

##### Objectives under the existing plan

Our objective under this LOE was to provide the Congress with an independent view of the results of tests of system performance. Specific questions to be asked were:

1. Were test objectives defined and documented in a test plan?
2. Was sufficient testing planned and accomplished to permit accurate evaluation of system performance during both the development and operational test phase?
3. Are test facilities and conditions adequate?
4. Is operational testing sufficiently independent of development testing as directed by OMB Circular A-109?

5. Did the tests performed identify areas of technical risk?
6. How well were test objectives met?
7. Were operational tests consistent with the mission and environment under which the system is to perform?
8. Did operational tests include testing with associated weapons which complement the system?
9. Will sufficient test data be available to support the next progress milestone decision?
10. Were all test issues resolved before commitment to production?
11. Was the system performance during testing consistent with information presented to the Congress?
12. Is the management of development and operational testing at the appropriate level?
13. Are the plans and priorities of joint testing effective and timely?

#### Results achieved

This was listed as a non-priority LOE in our existing plan. We propose to consider it again but with emphasis on the reliability, maintainability aspect of testing. The proposed revised objectives and specific questions reflect this emphasis. Our expanded objective and additional questions to be answered are shown below.

#### WORK REMAINING UNDER THE LOE

#### LOE Objectives

Our objectives under this expanded LOE are to (1) provide the Congress with our independent view of the results of tests and system performance, (2) determine whether adequate attention is being given to reliability, maintainability, and operability in DTE and OTE and (3) evaluate the effectiveness of the DCD R&M directive and the adequacy of its implementation by the services. The specific questions to be addressed in achieving the objectives are questions 1 through 13 above plus those below which center on the R&M aspects of testing.



1. Were realistic goals developed for system performance at the beginning of the acquisition cycle? How were R&M goals established?
2. Were test results and analyses clearly reported and considered in decisionmaking? Did the results change/modify the course of the acquisition? Were trade-off analyses made? Is R&M being traded-off in favor of cost, schedule and performance?
3. Did the tests performed identify areas of technical risk? To what extent did management consider the technical risk? Action taken?
4. Concerning the R&D regulations recently issued by the Services, does it adequately implement the DOD R&M directive?
5. Do test objectives provide for testing and evaluation of man/machine interfaces including evaluation of skill levels needed?

#### Strategy for the upcoming planning period

In a recent letter to the Secretary of Defense MASAD 81-25, March 31, 1981, GAO said that Defense has taken action designed to raise the level of attention given to R&M considerations. The issue now is implementation, and determining whether the quality and timeliness of R&M data is improving.

Our strategy during the next 18 months will be to emphasize the R&M aspects of testing during our review of specific weapon systems. To accomplish the objectives under this LOE we plan to select future assignments on specific systems that should be or are undergoing R&M testing--answering the questions under this LOE. Hopefully assignments under this LOE will provide support to begin an assignment which would allow us to evaluate the overall effectiveness of R&M directives, the adequacy of implementation by the Service's, and to make recommendations for improvement.

#### Ongoing assignments

- Review of Nuclear Effects on Major Weapon Systems
- Review of M1 Tank Testing

From the foregoing assignments, we expect to demonstrate that adequate emphasis is not being given to the implementation of existing directives which were prepared to insure acceptable reliability, maintainability and operability of major program acquisitions.

#### Planned assignments

- Review of LAMPS III helicopter reliability and maintainability testing

LOE 3014

LINE-OF-EFFORT: Does planning for major acquisitions adequately consider potential critical material shortages on system cost schedule and performance goals? (See Appendix III for relationship of this LOE with EMD issue area.)

MAJOR ISSUE

Orderly acquisition of major systems, particularly those employing aerospace technology, will require successful management of critical materials and other production roadblocks such as special metals, large forgings and castings, machine capacity, and electronic "bits and pieces". If not addressed effectively, systems being acquired will be subject to:

- higher development costs required to identify, develop and prove substitute materials available domestically or from allied nations;
- performance and reliability shortfalls attributable to inferior, but more available, materials; and
- lengthened delivery schedules due to material shortages or other production constraints.

U.S. dependence on foreign sources for some critical materials has reached the point of alarm. Driven by demands for better performance the U.S. increasingly relies upon the superior properties obtained from critical material used in high technology systems. Limited U.S. industrial capacity in several key sectors coupled with high competing commercial demands has slowed the delivery of system components. Production lead times and delivery schedules are lengthening.

WORK PLANNED UNDER THIS LOE

Objective under this LOE

Our objective for this planning period is to assess how agencies responsible for developing and acquiring major systems are dealing with potential shortages of critical materials. Once this is determined we want to assess the adequacy of these actions and identify additional corrective actions.

Specific questions to be addressed under this LOE include the following:

1. What critical materials are and other production roadblocks considered most vital to current and future defense technologies and systems?

2. Has the agency assessed current and future critical materials needs and other production constraints for ongoing and proposed programs and the adequacy of resources available to meet these needs?
3. What agency criteria exist or are planned to aid in the use of critical materials?
4. How has established policy affected agency efforts to deal with critical materials import dependency?

#### Strategy for the upcoming planning period

This is a new LOE and our strategy will be firmed up as we develop a better understanding of the problems involved. We plan to work very closely with the Energy and Minerals Division in order to capitalize on the work already achieved.

Critical materials are used in a wide range of high technology products having both defense and commercial applications. Our focus will be on (1) major defense acquisition management initiatives in place or planned that address critical material dependency alternatives and (2) selected major acquisition programs to determine what approaches are being used, their effectiveness, and the potential of alternative actions. Both industry and Government strategies will be examined and analyzed to clarify basic issues and find viable solutions.

#### Ongoing assignments

Since this is a new LOE we have no assignments ongoing.

#### Planned assignment

Survey of the impact of critical materials availability on major weapon programs--Cost, Schedule, and Performance.

## CHAPTER 5

AREA-OF-CONCERN: Determine the effectiveness of the management strategies used by Federal agencies for the development and acquisition of major programs.

OMB Circular A-109, "Major Systems Acquisitions" prescribes policies to guide all Federal agencies in managing their major system acquisition programs. The guidelines are designed to affect all phases of the acquisition cycle from analysis of mission needs through production. We believe it to be of utmost importance to monitor Federal agencies progress and to evaluate whether applications of policies is being done in an efficient and practical manner. It is also imperative that we evaluate the information used to select specific acquisition strategies and determine whether the expected advantages of adhering to that strategy are achieved.

Our objective under this area-of-concern is to identify areas where an agency can take actions to improve the current acquisition management process, practices, and strategy it uses to insure that major acquisitions are affordable, cost effective, available in minimum time, and operationally suitable.

By using the following 4 lines-of-effort over the next 18 months, we expect to surface identifiable changes that could improve the effectiveness of the agency's development and acquisition of major systems. We plan to accomplish this by evaluating compliance with A-109, use of multi-year contracting, use of product improvement efforts, and cooperative developments with foreign countries. We believe that monitoring these areas will enable us to improve agency management of major program acquisitions.

Four lines-of-effort are proposed under this area-of-concern.

--What has been the impact of OMB Circular A-109 on acquisition programs in terms of helping Federal agencies acquire systems which are affordable, satisfy the need, and which are available on time?

--Is the Defense Department and its components requesting multi-year contracting authorization

for weapon systems where advantageous to the Government and have the results been beneficial to the Government?

--What has been the impact or potential impact of acquisition strategies such as Preplanned Product Improvements which provide for planned efficient growth in capabilities?

--How is the development and acquisition of major programs affected by cooperating with foreign countries in the development, production, or sale of systems?

LOE 3C15

LINE-OF-EFFORT: What has been the impact of OMB Circular A-109 on acquisition programs in terms of helping Federal agencies acquire systems which are affordable, satisfy the need, and which are available on time?

MAJOR ISSUES

In April 1976, the Office of Federal Procurement Policy of OMB issued Circular A-109, a policy document, to implement the recommendations of the Commission on Government Procurement. A-109 prescribes how major civil projects and defense systems should be acquired. The circular's guidelines are designed to affect all phases of the acquisition cycle from analysis of mission needs through the construction or production phase. It also provides for early communication to the Congress of the agency's major system requirements.

A-109 specifies key decisions and outlines the sequence of activities in the major system acquisition process. It also provides agencies with flexibility in determining how they will meet the requirements of the circular.

In view of the magnitude of the Federal investment in major systems and our support of both the recommendations of the Commission on Government Procurement and the intent of A-109, it is necessary that we continue to evaluate (1) agency progress in implementing the A-109 policies and (2) the impact of those policies on agency acquisitions. OMB Circular A-109 was issued over 5 years ago and while some agencies have made steady progress, others have been slow to implement the directive. More recently the impact that the directive has had on lengthening the acquisition process has come into question.

GAO has been responsible for keeping A-109 in the forefront of executive agencies involved in the acquisition of major civil and defense programs. We have reported to Congress and agencies that implementation has been spotty but progress is being made.

More recently, GAO expressed its feelings about a possible undermining of A-109. On March 3, 1981, the Comptroller General sent a letter to the Director, Office of Management and Budget, expressing concern about a momentum being built in some quarters of the Executive Branch to set aside the A-109 Circular. It is our opinion that such a momentum, if not stopped, could negate the impact of policies which took years to establish and implement.

ACHIEVEMENTS IN THE LOE UNDER THE  
EXISTING AND PROPOSED PROGRAM PLAN

Objectives under existing and proposed plan

Our objectives under this LOE are to continue to (1) evaluate agency implementation progress, such as the extent to which agency instructions are translated into organizational changes and (2) where agencies have incorporated A-109 policies, evaluate their impact in terms of affordability, timeliness, program results, and adherence to instructions. The specific questions to be addressed in achieving the objectives under the existing and proposed plan are:

1. What have agencies done in determining their needs to ensure that the highest priority major system needs are identified?
2. Has the consideration on issues such as need and affordability early in the cycle helped to reduce false starts and provide more program stability?
3. What evidence is there that A-109 has lengthened or shortened the acquisition time for major acquisitions?
4. What procedures have the agencies established to identify whether their capability to accomplish their mission is in need of improvement?
5. What steps have been taken to coordinate mission analyses where joint or related missions are assigned to two or more agency components?
6. What has been done to complete agency implementation of A-109?
7. What are the agencies' assessments of A-109 in managing the acquisition of major systems?
8. Has the milestone zero review of the need for a new or improved capability brought a sounder basis for new system development and acquisition programs?

Our recommendations have been and will continue to be targeted on improved implementation or alternatives in policy to achieve stated goals.

## Results Achieved

The completed and on-going work discussed below shows our progress in addressing questions 1, 3, 6, and 7. However, we plan to continue to emphasize these as well as address question 2 and 8. Questions numbered 4 and 5 relate to mission analysis are deleted from this plan and will be addressed in work of the Mission Analysis Subdivision.

GAO has reported on the changes needed in agency practices and procedures for determining its needs consistent with A-109 principles. GAO has issued the following reports.

"Observations of OMB Circular A-109--Major Systems Acquisitions by the DOD", (PSAD-79-9, 2/20/79). As a result of that report, DOD revised its basic directives to increase management visibility over ongoing programs, and increased the program manager's authority.

"Implementation of Major System Acquisition Process--A-109--Is Inconsistent Among Civil Agencies", (PSAD-79-89, 8/14/79). Agencies agreed with our report and initiated action to place a high priority on implementation of A-109.

"FAA Has Not Gone Far Enough With Improvements To Its Planning and Acquisition Process", (PSAD-80-42, 6/4/80). As a result of this report, the Department of Transportation revised their directive on major system's acquisitions. FAA also revised its directive.

A GAO letter to the Director, OMB dated March 3, 1981, expressing concern about a momentum building to set aside A-109. As of March 31, 1981 no reply had been received.

## WORK REMAINING UNDER THE LOE

### LOE objectives

The objectives and specific questions of the existing LOE, remain valid for our proposed plan.

### Strategy for the upcoming planning period

During the next 18 months we plan to maintain our position of responsibility for keeping A-109 in the forefront of executive agencies involved in the acquisition of major civil and



defense programs. Our plan has been and will continue to be targeted toward improved agency implementation or alternatives in agency policy to meet the requirements of Circular A-109. We do not have a cookbook or step-by-step procedural approach to A-109 and view the circular as a policy guideline for major acquisitions with particular action to be taken when they make sense.

During the next 18 months we plan to (1) follow-up on our previous reports and (2) monitor other agency implementation progress. Our ongoing assignments, listed below, supports this plan.

#### Ongoing assignments

We have five ongoing assignments which will address the specific questions under this LOE.

- Improvements Needed in the Management of the Acquisition of Major System, Department of Energy.
- Impact of A-109 on Weapon System acquisition (951578). This assignment will follow-up on our previous report (PSAD-79-9).
- Improvements Needed in Acquisition of Rail Mass Transit Equipment, Department of Transportation.
- Survey of UMTA's Acquisition of a Commuter Railroad Tunnel in Philadelphia, PA.
- Survey of DOD's Affordability Policy

Some expected results of this work include a strengthening of the role of project managers at DOE as well as the preparation of better data to support their major acquisitions; we expect to identify obstacles to further implementing A-109 and propose actions leading to further strengthening of Defense directives; at the Department of Transportation we expect that in order to insure that Federally funded transit projects meet their intended goals and objectives, DOT may (1) develop criteria that meets OMB standards for certifying the procurement systems of grant recipients and (2) review and certify transit authority procurement systems as a condition for grant award.

#### Planned assignments

- Survey of the Coast Guard's Efficiency and Effectiveness in Acquiring Major Systems.

IPS ANNEX B  
 RESOURCES - FUNDING PROFILE 1  
 (Dollars in Millions)

Mar 19, 80  
 5000.2 (Annex B to Encl 4)  
 Annex to be completed for each alternative:  
 1) In Constant (base) year dollars  
 2) In Escalated dollars using current  
 FYDP rates and ground rules

	FY 19 PRIOR	FY 19__	FY 19__	FY 19__	FY 19__	FY 19__	FY 19__	TOTAL PROGRAM
Acquisition Quantities to be Procured 2 Development Production Deliveries								
DEVELOPMENT PHASE RDTE& Validation Phase Full Scale Development Phase Other System Costs TOTAL RDTE& APPROPRIATION MILCON O&M 3 MILPERS 3 TOTAL DEVELOPMENT PHASE								
PRODUCTION PHASE PROCUREMENT 4 System Cost 5 Flyaway, Rollaway, Sailaway Other System Costs Initial Spares Other Line Item Procurement 6 TOTAL PROCUREMENT APPROPRIATION MILCON O&M 3 MILPERS 3 TOTAL PRODUCTION PHASE								
OPERATING AND SUPPORT PHASE MILPERS O&M 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 DoD Instruction 5000.33 (reference (u)). Use as many columns as necessary to show every year of acquisition funding and operation and support funding until steady state operations are achieved.
- 2 Identify the number of Development and Production units to be acquired 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 DoD Instruction 5000.33 (reference (u)).
- 6 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.
- 7 Procurement costs associated with operating and owning a weapon system such as modifications, replenishment spares, ground equipment, etc.

LOE 3016

LINE-OF-EFFORT: How is the development and acquisition of major programs affected by cooperating with foreign countries in the development, production, or sale of systems?  
(See Appendix III for relationship of this LOE with the ID international affairs issue area.)

MAJOR ISSUES

The United States has traditionally relied upon its own development and production capability to provide for its military equipment needs. Rarely has it acquired foreign developed systems.

At this time, however, conventional weapons have become very costly and very complex. For the United States and the other North Atlantic Treaty Organization (NATO) countries the question becomes one of how to structure weapon system procurements to gain the best military posture and the best economic benefits by all participants. Approaches include cooperative development and production or unilateral development and production of systems by specific nations for NATO-wide purchase. Cooperation in achieving a strong conventional posture is outlined in the May 1978 Long Term Defense Plan endorsed by all the NATO defense ministers.

The Long Term Defense Plan is a blueprint for both national and NATO-wide planning to facilitate greater cooperation among NATO allies for the standardization and interoperability of weapon systems and to design machinery to identify and implement programs to this end. Efforts recommended or underway by DCD in support of the plan include harmonizing of military requirements, negotiating bilateral Memorandums of Understanding to remove national restrictions on defense trade and cooperation in military research and development, encouraging the establishment of dual production lines for weapon systems, and coordinating of long-term development of weapon systems through a "family-of-weapons" arrangement.

ACHIEVEMENTS IN THE LOE UNDER THE  
EXISTING AND PROPOSED PROGRAM PLAN

Objectives under existing and proposed plan

The LOE objectives of the existing plan remain valid for this plan--to identify the impact cooperative efforts will have upon U.S. military effectiveness and prerogatives the Congress usually has under unconstrained acquisitions. Specific questions to be addressed in achieving the objective are:

1. How will U.S. weapon costs be affected by the family of weapons concept?
2. What effect will implementation of this concept have on the U.S. technology base?
3. What are the prerequisites for successful cooperation under the family of weapons concept?
4. How are U.S. acquisition management practices affected when a foreign country takes the lead in developing joint programs?
5. Are cooperative production efforts with our allies compatible with U.S. competitive contracting procedures?
6. What are the military and economic benefits and liabilities resulting from family of weapons cooperative efforts in NATO?
7. What effect do cooperative arrangements have on U.S. procurement policies such as A-109?

#### Results achieved

In 1979 (PSAD-79-13) we evaluated benefits and drawbacks of the F-16 coproduction and found that it appeared to have produced support for additional NATO cooperative programs. Later that same year (PSAD-79-26) we found political and industrial impediments to transatlantic cooperation. In a March 1981 report (MASAD-81-17) on codevelopment of a runway cratering munition (JP-233) being developed in the United Kingdom we found that deviation from DOD acquisition policies was costly. In our report on Theater Nuclear Modernization MASAD-81-15, March 2, 1981, we reported on implications resulting from deployment of two new missile systems in Europe.

Our two 1981 reports, both of which had intense congressional interest as the work was being conducted, have already received considerable attention in the press and by the Congress. We expect more discussions during the FY 1982 authorization and appropriations hearings.

An International Division report on arms export control (ID-81-18) dated January 19, 1981, discusses the conflict between U.S. policy of controlling exports of military equipment containing U.S. technology and the desire to increase development and production agreements with NATO allies.

We have found support for additional cooperative programs yet there are political and industrial impediments to cooperation in transferring advanced technology and foreign industry taking the lead in system development. There are also acquisition management problems for DOD when the U.S. fails to adhere to its acquisition management practices.

#### WORK REMAINING UNDER THE LOE

##### Strategy for the upcoming planning period

For the next 13 months we plan to continue to examine the basic issues relating to U.S. participation in the development, production, and sale of weapon systems. Because of the preliminary nature of our previous efforts we believe continued work on the questions to be addressed under this LOE is appropriate.

##### Ongoing assignments

- Review of the Navy's Advanced Light Weight Torpedo Program including the British Sting Ray Torpedo.
- Review of the Army's Pershing Missile Program for use in TNF modernization.

##### Planned assignments

- Family of Weapons Concept
- U.S. Initiatives to Acquire Foreign Developed Systems
- Harmonization of U.S./NATO Requirements
- Follow-on work on the Air Force cratering munition (JP-233)

We expect to be able to show that there are unique complex acquisition management problems when DOD participates in cooperative development and/or production agreements with foreign countries. Further, there may be political and industrial impediments to international agreements concerning the development, production, or sale of major weapon systems that preclude making agreements for certain technologies. Also, we expect to be able to determine whether foreign industry is capable of developing systems to meet U.S. needs--does harmonization of requirements affect U.S. military equipment performance?

LOE 3017

LINE-OF-EFFORT: Is the Defense Department and its components requesting multiyear contracting authorization for weapon systems where considered advantageous to the Government and have the results been beneficial to the Government?

MAJOR ISSUES

The GAO, the congressionally appointed Commission on Government Procurement, and others including involved agencies, have advocated greater use of multiyear contracting by the government. The Department of Defense and the Office of Management and Budget have indicated support of this concept. News media articles report the administration plans to experiment with buying weapons with long term orders which would involve multiyear contracting. Major weapon system programs offer the potential for considerable savings by using multiyear contracting arrangements. These programs often cost billions of dollars and their development and procurement spans 8-12 years or more. Each of the contracting phases of weapon systems acquisition may span a period of years, e.g., demonstration/validation 2-3 years, full-scale development 3-7 years, and procurement 3 years upwards. All phases are candidates for cost savings through the use of multiyear contracting. Administration officials argue that longterm contracts for equipment could reduce spending 10-20 percent per unit because prime contractors would be able to maintain stable relationships with subcontractor and material suppliers over longer periods. We believe the estimated savings range is reasonable.

In view of the magnitude of Federal investment in acquiring major weapon systems, and our support of multiyear contracting as a better way to control and lessen the cost of such procurement, it is necessary that we make a continuing assessment of the success or failures of this form of contracting.

WORK PLANNED UNDER THE LOE

LOE objectives

Our objective for the next 18 months is to determine the extent of multiyear contracting being used, potential applications, and the detriments and/or benefits being experienced as a result, together with any recommendations we could make for furthering this strategy. Specific questions to be addressed in achieving this objective are:

1. What programs are using multiyear contracts?
2. Have the overall advantages and disadvantages of multiyear contracting been considered?

3. Have the various type of contracts been brought to the attention of decision makers during the appropriate phase of the acquisition cycle?
4. Has an acquisition strategy on contracting been developed? What is it?
5. What advantages would have occurred if multiyear contracts were used? Determine where it would be advantageous or disadvantageous?
6. Can a trend be established where multiyear contracts for specific acquisitions are advantageous to the Government?
7. What are the impediments to multiyear contracting? Directives? Regulations? Authorization/Appropriations?
8. What are DOD's plans concerning future multiyear contracts? Are they establishing criteria for future acquisitions? What are the criteria?

#### Strategy for the upcoming planning period

This is a new LOE on a subject which will receive considerable attention over the next several years. As with the other newly established LOE's described in this plan, there is a learning process involved. We plan to develop an expertise through attendance at agency or industry meetings and transfer this knowledge to GAO staff at our conferences, briefings, and work plans. While no reports have been issued, our position was presented by the Director, MASAD, in testimony on November 17, 1980 and March 10 and 31, 1981.

Initially we plan in calendar year 1981 to conduct a survey to determine which major DOD acquisitions are using multiyear contracts. In that survey we plan to answer the above questions and to identify which major acquisitions would benefit from multi-year contracts. We believe that our annual individual acquisition program assignments will contribute to this LOE by identifying potential applications.

#### Planned assignments

Potential programs identified as likely candidates by DOD for multiyear contracting include the Air Force's cruise missile, F-16 aircraft, and satellite programs. Our survey would use these, and others, as a means to develop the objectives stated for the LOE. The potential for sizeable dollar savings and more timely acquisition are two areas we expect to highlight.

## LOE 3018

LINE-OF-EFFORT: What has been the impact or potential impact of increased use of acquisition strategies such as preplanned product improvements which provide for planned efficient growth in capabilities?

### MAJOR ISSUES

Almost every major program grows in capability and experiences changes in configuration. Further, these modifications have become increasingly important and expensive, particularly to the Department of Defense. In fact, DOD expects few new program starts during the 1980's. Instead, expectations are that big improvements in electronics and ordnance will cause many modifications to major weapon systems. This trend results from a number of factors. Major DOD weapon systems like aircraft and ships have 20 to 30 year service lives, but changes in threats and technological improvements change very frequently, every 4 to 8 years. Thus, up to a point, evolution through product improvement may provide a more cost effective means of improving capabilities than starting new programs.

Planning for modifications early in the acquisition cycle can make these changes easier and less costly. Planning for growth and change includes making provision for future computer, space and weight needs, developing standard architectures and subsystem interfaces, and developing modular designs. Early planning for these features translates into earlier availability and enhanced mission accomplishments.

### WORK PLANNED UNDER THE LOE

#### LOE objectives

Our objective under this new LOE is to surface specific corrective actions that could be taken during the acquisition process to plan for future improvement modifications. To accomplish this objective we plan to determine (1) the extent of agency consideration given to planning for future major modification of systems early in the acquisition cycle, (2) the amount of planning ahead for modifying existing systems and, (3) the effects this planning has on costs and availability. Specific questions to be addressed in achieving the objective are:

1. Is policy guidance adequate to insure that planning for system changes/modifications is performed early in the acquisition cycle?
2. Determine whether early planning for change is feasible in all major acquisitions?



3. What expenditures/financial obligations are required early in the acquisition process to adequately plan for later changes? What are the expected benefits?
4. Can agencies do more to make provision for and expedite modifying a system throughout its service life?
5. Do acquisition strategies on new systems include requirements for contractors to design systems with ease of replacement and upgrading of subsystems in mind?
6. What are the organizational barriers to the early planning for modifications and are there ways to overcome them?

#### Strategy for the upcoming planning period

We plan, during the next 18 months, to address all six questions, however, emphasis will be placed on questions 1, 2 and 3. We currently have an assignment on a "Survey of Modifications to DOD Weapon Systems". When the survey is completed in August 1981, we will be able to assess whether our objective can be met and to evaluate our progress in answering the questions under this LOE.

#### Planned assignments

Further assignments being considered are on Naval surface ships and on Air Force and Navy aircraft acquisitions.

## CHAPTER 6

AREA-OF-CONCERN: Determine the adequacy of technology base activities to support development of major programs.

Technology base activities encompass the earliest phase of the acquisition process, including basic and applied research programs. Basic research provides the fundamental knowledge from which new technology can be developed. Applied research attempts to use this knowledge to develop and test the feasibility of new technological concepts.

The technology base programs within DOD, Department of Energy (DOE) (Weapons), National Aeronautics and Space Administration (NASA), and other agencies provide the foundation upon which rests our future national security and technological leadership in weapons, space and aeronautics. The development of new systems containing the latest state-of-the-art improvements require a continuous flow of basic scientific knowledge and innovative technology.

The Federal Government has invested heavily to develop and maintain a strong technology base. This base is comprised of numerous Government-owned and operated laboratories, federally funded contractor operated research centers, the DOE weapons complex, non-profit research institutes, academic institutions and private industry.

The fiscal year 1982 DOD budget request for R&D totals about \$20 billion of which \$3.7 billion is for technology base programs. NASA and DOE do not break out technology base activities separately, but the NASA R&D budget totals over \$4 billion and DOE weapons totals about \$2.3 billion.

Within DOD, including the three military services, there are over 70 in-house laboratories employing about 60,000 people. The value of these facilities is currently estimated at over \$11 billion. In addition to performing in-house research, the laboratories are responsible for managing DOD research contracts and for providing technical advice and assistance to industry, universities and other performers.

NASA accomplishes its technology base work through research centers, each providing expertise in particular areas of space and aeronautics research. Most of these facilities are owned and operated by NASA and much of the research is done in-house. However, the research centers also provide contract management and technical advice to others.

DOE's technology base work is performed, in close coordination with DOD, at three national laboratories and seven Government-owned, contractor operated plants which develop, produce, test and maintain the nuclear arsenal. These facilities are unique and are not duplicated elsewhere in Government or industry.

The line-of-effort related to this area of concern is described below. For the reason cited, three LOEs under the existing plan are combined to form the new LOE.

## LOE 3019

LINE-OF-EFFORT: Does the Management and Oversight of Technology Base Programs Insure That Technology Resources Are Being Used In the Most Efficient and Effective Manner and Support the Development and Acquisition of Agency Programs?

### MAJOR ISSUES

The Congress has continually shown concern that Federal research and development efforts are being applied to the best possible programs, that we are gaining the most out of the funds being spent, and that the result of these programs are being put to use quickly and in the most productive ways. It has frequently noted the difficulty in determining the total Federal effort being given to a particular technical area or problem. In many instances several agencies conduct research in the same technical area which may seem duplicative or unneeded. Situations of this kind are especially evident between the military services and, to some extent, between DOD and NASA or DOE because of the similarity in their objectives.

In view of the limited resources available to support the many competing programs in national defense, space and aeronautics, it is vital that technology base efforts be directed to the most critical and necessary needs, and that the results derived from the programs are used to achieve the greatest possible benefits.

### ACHIEVEMENTS IN THE LOE UNDER THE EXISTING PROGRAM PLAN

In the existing program plan, technology base work was accomplished under three separate LOE's which dealt with management and oversight of technology base activities: specific technology base programs; and availability and use of technology base resources. We found, however, that in many instances the work initiated under the separate LOEs tended to overlap to such an extent that the specific objectives of each LOE became obscured. As a result, under the new program plan all technology base work will be consolidated under a single LOE which will emphasize specific technology development programs while permitting work, as needed, in the management oversight and resource areas.

Therefore, the following sections of this LOE will discuss our objectives and achievements for the three LOEs in the existing plan, and the objectives of the new LOE.

#### Objectives under existing plan

Our objectives under the three previous LOEs were to provide the Congress with broad oversight of the technology base activities of DOD, NASA and the DOE nuclear weapons complex, and to inform the agencies of any deficiencies noted.

Specific objectives included the following issues:

- Development of mission objectives and long range planning for technology base activities.
- Whether programs support the agency mission; are meeting their stated goals and are being conducted in the most efficient and effective manner.
- Whether programs have an identified focal point for coordination of similar research being done in several agencies or services, and that the proper agency is serving the function.
- Whether programs receive adequate peer review and evaluation, and address the major technical deficiencies as perceived by the Congress and/or top level agency management.
- Whether there is proper balance between research conducted in-house and that contracted out to maintain an adequate in-house expertise to manage technology programs, and
- Whether mission agencies' technology base resources are adequate and being used in the most effective and efficient manner.

#### Results achieved

Our work has been quite successful in establishing better inter-agency coordination of technology base programs, requirements, and other activities. We have also provided the Congress with information in the form of briefings, questions and reports on several technology development programs, and on the problems being faced by the DOD laboratories and DOE weapons complex regarding management, facilities and equipment, and personnel issues.

Summary information on completed and on-going assignments for the three LOEs is presented in Appendix IV.

#### DOD technology base: results achieved

Laboratory management officials perceive many barriers and constraints on their ability to effectively meet their objectives and goals. These include various regulatory restrictions and a lack of adequate resources in the form of funding, facilities and equipment, and personnel.

Our overview of this area has increased the DOD's awareness of these issues and they have initiated several studies including a DOD-wide Laboratory Management Task Force to ascertain the extent of the problems and what needs to be done to solve them.

After we complete our ongoing work relating to laboratory management issues, we will reduce our emphasis in this area until any DOD initiatives resulting from our work and their studies can be implemented.

Our evaluation of selected high technology development programs within DOD has provided the Congress with greater visibility of their status, thereby permitting better oversight and control of these programs.

#### DOE nuclear weapons complex: results achieved

Much of our work in DOE related to the need for better DOD/DOE interface and coordination for developing long-range plans regarding weapons, nuclear materials and facilities and manpower requirements. As the result of our work, DOD and DOE have established a joint study group to address long-range nuclear weapons needs and agreed to develop a stable long-range baseline for determining facilities, manpower and special nuclear material requirements.

We have also issued several classified reports on specific technology development programs which provided cognizant Congressional Committees with an overview of their status.

The DOE weapons complex is covered under this LOE because of its close ties to technology innovation; its closely held manufacturing processes; and the highly classified nature of the nuclear weapons program, making rigid control of information pertaining to the complex mandatory.

#### NASA: results achieved

Our work dealing with technology base activities at NASA addressed such questions as: Is NASA's technology base in space and aeronautics eroding to such an extent that it is adversely impacting on the agency's ability to perform its mission? Is there unnecessary duplication of effort between NASA and other Federal agencies in performing space and aeronautics R&D functions? Is NASA performing R&D that is external to its mission and should therefore be done by private industry or some other Federal agency? Is NASA funding its technology base activities at an adequate level? These questions have been the expressed concerns of the Congress as well as various professional councils and panels which advise NASA on space and aeronautical matters.

We provided briefings and reports to the Congress and NASA management highlighting the problems noted. As a result of our work, actions have been taken to improve coordination between NASA and other agencies performing aeronautical research in specific program areas.

WORK REMAINING UNDER  
THE LINE-OF-EFFORT

The purpose of this LOE is to maintain a general oversight of technology base activities within DOD, NASA, the DOE weapons complex, and other agencies. This includes evaluating specific technology development programs, and reviewing management processes, and the allocation and use of resources within the technology base area. Work under this LOE is not finite and will be a continuous effort to identify and evaluate significant programs and issues as they emerge.

Objectives under proposed plan

1. Surface specific, identifiable technology issues or concerns and enhance the possibility that corrective action might be taken by the Congress and/or executive agencies.
2. Improve agency operations relating to technology base activities.

Strategy for the upcoming  
planning period

During the next 18 months we plan to continue our reviews of selected technology development programs within the three agencies. Also, we will give special attention to the capabilities of the DOE nuclear weapons complex to develop and produce sufficient nuclear material and weapons to meet projected needs. Our efforts will be concentrated on determining whether:

- development of objectives and long-range planning for technology base activities are adequate,
- technology programs support agency needs, are meeting their stated goals and are being conducted in the most efficient and effective manner,
- multi-agency technology development programs are being properly coordinated and managed,
- technology base resources are adequate to meet agency needs and are being used effectively and efficiently.

Our selection of technology development activities to examine will be based on factors such as expressed Congressional interest, heavy funding and multi-agency participation.

As noted previously, our work in the laboratory management area will be phased down after we complete ongoing work. However, specific technology development programs will be selected for evaluation on the basis of their interface and applicability to major weapons systems or mission analysis issues under review by MASAD.

DOE's nuclear defense programs involves the efforts of both DOE and DOD. DOE's nuclear defense program encompasses nuclear material research and production; nuclear weapon research, development, testing and production; stockpile safety, security, maintenance and modernization; nuclear effects research; and naval reactors.

Military forecasters predict a significant increase in nuclear weapons research, testing, development and production over the next decade and beyond. But, while strong demand is building, so is concern in Congress that DOE's weapons complex cannot meet the challenge. Indications are that DOE's laboratory capability is eroding, nuclear testing is at an insufficient level, nuclear materials production capability is declining, component production plants are deteriorating and equipment is obsolete. Adding to the workload and further complicating a bad situation, many weapons in the nuclear arsenal must be replaced or modified.

Our DOE work will be heavily directed toward evaluating the capabilities of the research and production complex to meet future weapons requirements. We will also review significant technology developments as they emerge.

Our NASA technology base work will be primarily directed at evaluating specific new development programs in the areas of space applications and aeronautics. In view of the potential reduction in new starts for NASA due to proposed budget restrictions, much of our work in this agency will involve major systems rather than technology base issues.

#### Ongoing assignments

- DOD's High-Energy Laser Systems Test Facilities.
- DOE's Defense Activities--Progress and Problems.
- Assessment of Nuclear Weapons Test Program.
- DOE's Nuclear Weapons Complex--Alternatives and Costs.



- Nuclear Weapons Stockpile Improvement Program--Goals, Status and Issues.
- Handling of Scientific Data at Goddard Space Flight Center.
- NASA's Rotorcraft Technology Program.
- Survey of DOE's Nuclear Weapons Laboratories

Future assignments

- Management and Direction of DOD's High-Energy Laser Technology Development--Follow-up.
- Airborne Laser Laboratory.
- Standby Nuclear Material Production Facilities.
- Survey of Pantex Weapons Operation.
- DOE Capability of providing Necessary Quantities of Special Nuclear Materials.
- Status of NASA Projects to Satisfy Power Problems in Space.
- Improvement of Space Shuttle Thermal Protection System.
- Possible Duplication of Effort Between NASA and DOD in Ground Tracking and Data Acquisition Systems.
- NASA's Communication Research Program.

The FY 1982 DOD budget requests \$69.0 billion for research, development, and acquisition to support our military posture. Included are \$19.9 billion for RDT&E and \$49.1 billion for the procurement of weapon systems and other military equipment and supplies.

RDT&E FUNDING (\$M)

	<u>FY 81</u>	<u>FY 82</u> <sup>1/</sup>	<u>FY 83</u>
Strategic Warfare	\$3,469	\$4,435	\$4,613
Tactical Warfare	5,681	6,990	7,404
Intelligence & Communications	1,514	1,968	2,365
Science and Technology	3,157	3,754	4,602
Other	<u>2,233</u>	<u>2,774</u>	<u>3,009</u>
Total	<u>\$16,054</u>	<u>\$19,921</u>	<u>\$21,993</u>

PROCUREMENT FUNDING (\$M)

Strategic Forces	\$ 5,601	\$ 5,745	\$ 7,326
General Purpose Forces	31,019	33,856	39,636
Intelligence & Communications	3,818	4,391	5,830
Airlift & Sealift	816	1,240	1,335
Other	<u>3,697</u>	<u>3,869</u>	<u>4,225</u>
Total	<u>\$44,951</u>	<u>\$49,101</u>	<u>\$58,352</u>

<sup>1/</sup>The new administration increased the total Defense FY 82 budget by \$25.8 billion. Significant portions of that increase are for RDT&E and procurement of major weapons and will increase the \$69 billion proposed by the Carter Administration.

PSAD/AMG

ACCOMPLISHMENT REPORTS

10/01/79 to 3/31/01

<u>Code</u>	<u>Division Control No.</u>	<u>Date</u>	<u>Description</u>	<u>Type of Accomplishment</u>
951343	PSAD/AMG-80-1	10/30/79	Full disclosure of costs on Congressional Data Sheets for DOE's Tekamak Project	Other benefits
951455 951489	PSAD/AMG-80-2	01/30/80	Congress appropriated funds for only one of five SURTASS tow-ships for which funding had been requested	Measurable saving: nonrecurring \$119,400,000
951512	PSAD/AMG-80-3	03/13/80	Improved management of the Advanced Strategic Air launched Missile (ASAIM) weapon system program. The Department of Defense will follow its Defense Systems Acquisition Review Council process on the program	Savings not measurable
951322	PSAD/AMG-80-4	05/06/80	The Department of Defense adopted changes in management policy and procedures for major weapon system programs which were recommended by the GAO to effect improvements in and increase the efficiency of Government operations	Other benefits

PSAD/AMG

ACCOMPLISHMENT REPORTS

10/01/79 to 3/31/81

<u>Code</u>	<u>Division Control No.</u>	<u>Date</u>	<u>Description</u>	<u>Type of Accomplishment</u>
951502	PSAD/AMG-80-5	09/12/80	Reduction of fiscal years 1980 and 1981 funding for the Air Force ASALT (Advanced Strategic Air Launched Missile) program	Measurable savings nonrecurring \$41.8 million Other benefits
951513	PSAD/AMG-80-6	09/30/80	GAO recommended the Air Force delete the requirement for certain B-52G electronic equipment which was not needed for the B-52G's future mission. The Air Force concurred and deleted this equipment from its force and budget planning.	Measurable savings nonrecurring \$8.0 million

MASAD/SDA

ACCOMPLISHMENT REPORTS

10/1/80 to 3/31/81

<u>Code</u>	<u>Division Control No.</u>	<u>Date</u>	<u>Description</u>	<u>Type of Accomplishment</u>
951469	FSAD/AMG-01-1	10/27/80	Extension of F101DFE limited development program and deferral of a production decision	Other Benefits
951549	MASAD/SDA-01-1	01/19/81	Work relating to our review of the LAMPS MK III antisubmarine warfare weapons system led to reduction of \$15 million in advance procurement funding of this system	Measurable savings nonrecurring \$15.0 million
951505 951453	MASAD/SDA-01-2	01/22/81	Budget reduction by the Congress as a result of issues raised by GAO concerning the Precision Location Strike System	Measurable savings nonrecurring \$15.9 million
951507	MASAD/SDA-01-3	02/03/81	The Tactical Air Command (TAC) reduced Maverick missile single rail and triple rail launcher requirements	Measurable savings nonrecurring \$7.5 million

## RESEARCH AND DEVELOPMENT

## ACCOMPLISHMENT REPORTS

10/01/79 to 03/31/81

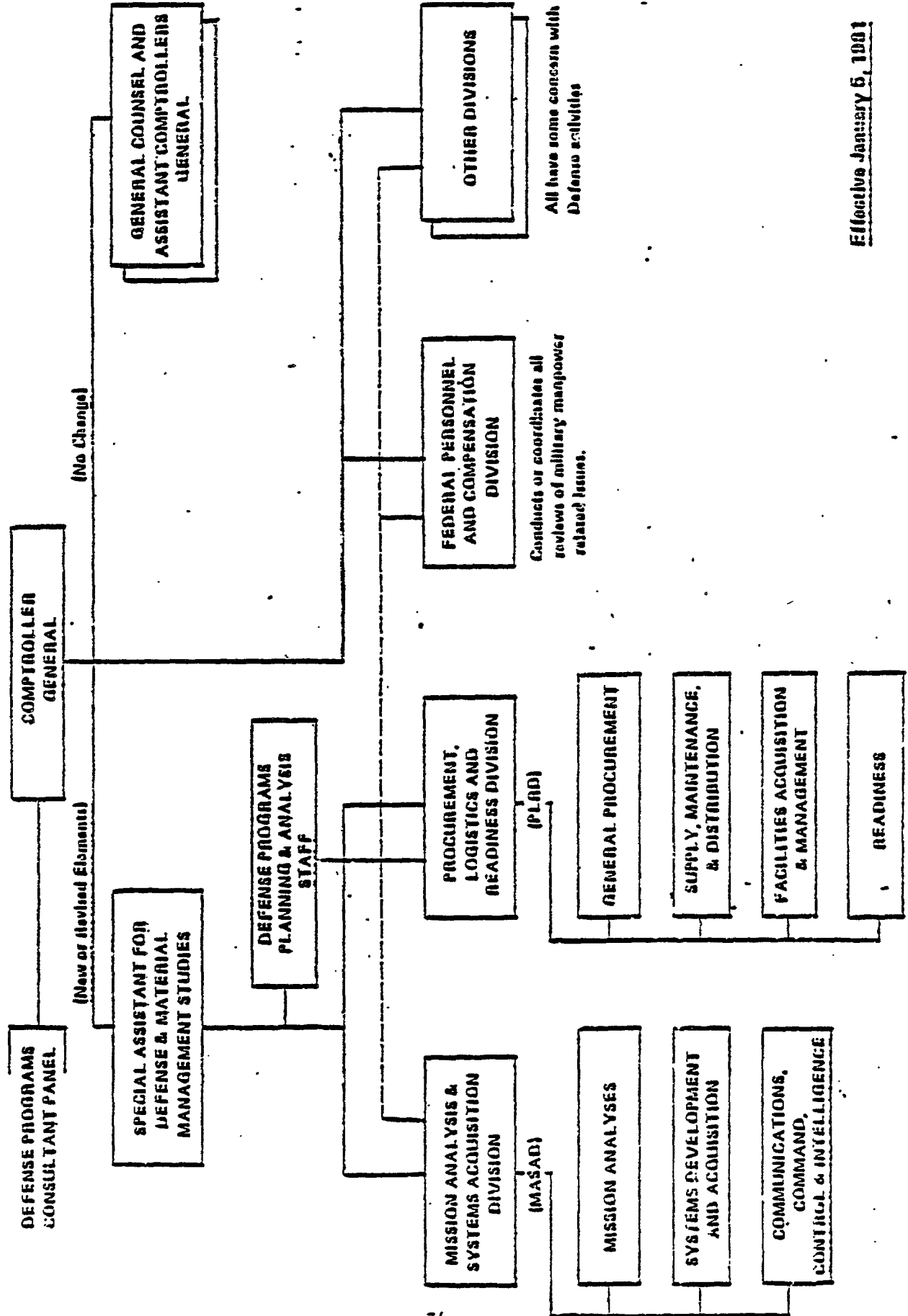
<u>Code</u>	<u>Division Control No.</u>	<u>Date</u>	<u>Description</u>	<u>Type of Accomplishment</u>
952244	PSAD/RD-80-1	10/24/79	Air Force Systems Command Program Manager has taken action to obtain copies of contractors' independent research and development projects	Other benefits
952221	PSAD/RD-80-2	03/31/80	Management improvements by DOD and DOE will strengthen the effectiveness of the nuclear weapons research program through better program planning, direction, and measurement	Savings not measurable
952213	PSAD/RD-80-3	04/16/80	Improving the nuclear weapon requirements forecasts will result in greater efficiency and better utilization of DOE's nuclear material production facilities	Savings not measurable
951545	HASAD/SDA-81-4	02/26/81	GAO recommended the C-X contractor be required to test and demonstrate C-X landing and takeoff capabilities on unpaved runways because its mission calls for such operation. The Air Force concurred and completed a contract modification to require this demonstration and testing.	Other benefits

INTERRELATIONSHIPS BETWEEN SYSTEMSDEVELOPMENT AND ACQUISITIONAND OTHER ISSUE AREAS

The organizational chart reflecting GAO's structure for conducting Defense studies is shown on the following page. As indicated in the chart, all Divisions have some concern with Defense activities but major responsibilities rest with MASAD and PLRD, and FPCD which conducts or coordinates all reviews of military manpower related issues. Agreements worked out with these and other Divisions are presented below.

1. Agreements have been reached between MASAD and PLRD with regard to each Division's responsibilities on military preparedness matters, analyses of the Department of Defense's equipment procurement programs, and integrated logistic support matters. (See pp. 75 and 76.)
2. Agreements have been reached between MASAD and EMD with regard to responsibilities for (1) safety and regulation of facilities and materials used to produce nuclear weapons, and (2) with respect to acquisition reviews of major energy projects. (See pp. 77 and 78.)
3. International Division. Since there is a potential for overlap in ID's international affairs issue area special attention is given by SDA in planning work related to codevelopment or coproduction of major systems by foreign countries. (See p. 78.)
4. Agreements have been reached between MASAD and FPCD with regard to the reasonableness of extending MASAD's major weapons system reviews to manpower issues. (See p. 78.)

**GENERAL ACCOUNTING OFFICE**  
**HEADQUARTERS ORGANIZATION TO CONDUCT**  
**DEFENSE AND MATERIAL MANAGEMENT STUDIES**



Effective January 6, 1981



MASAD AND PLRD AGREEMENTSMilitary Readiness

Both PLRD and MASAD have important roles in reviewing military readiness. While these roles are distinctly different they are closely related. PLRD's primary emphasis is on the readiness of U.S. Forces to respond to any of the contingencies foreseeable in the near term with existing equipment. Consequently, its primary interest is on matters such as supply support, the state of readiness of military units, maintenance, and the reliability of readiness reporting by the services. MASAD is concerned with mission analyses and threat assessments from the standpoint of requirements for weapons to be developed for deployment as much as 5, 10, or even 15 years in the future. To fully understand the many ramifications of military readiness, both Divisions must be knowledgeable of the roles and mission of the military services.

Equipment Requirement Analyses

Requirement analyses, for the purpose of the agreement, were defined as analyses and/or validation of the need for a particular type of equipment, with certain operating characteristics, and in the quantities specified. Requirements for systems designed primarily for combat support are based on the nature of the logistics systems and other matters such as quantities of war reserve materials, prepositioning policies, and foreign and domestic transportation facilities.

PLRD's responsibility relates to the following matters:

- Requirements determinations for the procurement of additional quantities of all deployed systems.
- Requirements determinations for new major logistics/support systems, as opposed to combat systems.
- The traditional supply-type functions: Cataloging and standardization, inventory management, requirements, from the standpoint of stock levels, pipeline needs, etc.

MASAD's responsibility relates to the following matters:

- The determination of mission needs.
- The development and procurement of new types of weapons or other items of material which have not previously been acquired and used by the Government.

Integrated Logistic Support

PLRD has primary responsibility for all detailed reviews relating to integrated logistic support systems.

MASAD is responsible for acquisition cycle activities including reviewing system design considerations. These early stages of development are characterized by change upon change as the system designers attempt to produce designs which meet many requirements. These early efforts include analyses of the effects of alternative hardware designs on operational performance and on ownership considerations. The design decisions made determine the ultimate effectiveness of the system, as well as dictate the system's logistic support requirements.

PLRD's area of responsibility begins with evaluating the adequacy of the Integrated Logistic Support (ILS) planning to meet the logistic support requirements of the system. This planning commences in about the middle of the acquisition process after the system design is fairly well established. While the two areas of responsibility are different--MASAD evaluating system design and PLRD evaluating ILS planning--close coordination of this work will be necessary. MASAD will, for example, keep PLRD informed of the consideration given to such factors as reliability, maintainability and operational readiness in the design process and PLRD will keep MASAD informed of common logistic support problems which need close consideration in the design of future systems. In this manner, both divisions can work toward the common objective of improving system effectiveness and reducing ownership costs.

MASAD AND EMD AGREEMENTSMajor Energy Acquisitions

MASAD's responsibilities relating to systems development and acquisition is oriented toward how the acquisition process is applied to specific energy projects. The systems development and acquisition process is a sequence of activities starting with the agency's exploration of alternatives to fill a void and extends through to the introduction of a system into operational use or otherwise successful achievement of program objectives.

EMD's primary emphasis has been on energy policy and program evaluation dealing with economy, efficiency, and effectiveness. This included evaluations not only of cost, scheduling and performance of major energy systems acquisition but also analysis of the policies supporting energy programs.

MASAD will coordinate all efforts in this area with EMD.

Safety and Regulation of  
Facilities and Materials  
Used to Produce Nuclear Weapons

MASAD is responsible for all reviews looking at the research and development and production of nuclear weapons, including all materials used in producing those weapons, and the safety of such production and the handling of weapons materials when not in the reactor facility.

MASAD is responsible for any reviews aimed at assessing the sufficiency and ability of nuclear facilities to produce adequate nuclear materials to support the type of weapon systems the United States needs in its arsenal.

- EMD is responsible for all overall work relating to the regulation of safety of the operations of nuclear facilities and the control over waste material.
- EMD is responsible for all broad reviews of how adequately DOE is carrying out its safety responsibility regarding the operations of nuclear facilities.
- EMD is responsible for any review looking at the issue of whether the Department of Energy or the Nuclear Regulatory Commission should regulate the safety of nuclear facilities involved in producing any nuclear material.

MASAD, thus, is responsible for looking vertically at all stages of a nuclear weapon's development. EMD, on the other hand, is responsible for looking horizontally at the safety of all nuclear facilities.

### MASAD AND ID AGREEMENTS

#### International Affairs

The International Division (ID) has lead division responsibility in international policy and political matters and is involved in reviewing decisions concerning new approaches to weapons systems development and production. i.e., codevelopment/coproduction with foreign countries. The events leading up to the codevelopment/coproduction decision are influenced by basic international policy/political issues and any reviews of these events should be lead by ID. However, once the codevelopment/coproduction decision has been made, MASAD concerns deal with the impact that these broader new approaches to weapons systems--such as codevelopment with NATO --will have on U.S. military capability and the traditional procurement practices, as well as on the ability of the U.S. defense industry to retain its ability to respond to DOD's needs.

Since there is a potential overlap with concerns addressed in the International Affairs issue area, MASAD-originated assignments under LOE "How are U.S. acquisition and procurement problems affected by cooperating with foreign countries in the development, production, or sale of systems?" have "front-end" coordination and agreement with ID. All final reports resulting from assignments under this LOE will be coordinated with ID.

### MASAD AND FPCD

The reasonableness of extending MASAD's major weapons system reviews to manpower issues, when appropriate, has been agreed to by representatives of MASAD and FPCD. MASAD will include manpower issues when they are judged to be critical. However, not every weapons review will contain a manpower assessment.

In order to provide the MASAD staff with guidance for the extension of their reviews to selected manpower issues, FPCD is developing an Audit Guide, which then will be used by the MASAD staff.

MAJOR COMPLETED AND  
ONGOING WORK

LOEs 3008, 3009, and 3010 have been eliminated in this plan and a new single LCE established. Results achieved on assignments completed and results expected on ongoing assignments under 3008, 3009, and 3010 are presented in this appendix.

MAJOR COMPLETED AND ONGOING WORK

LOE: Are Technology Base Programs Adequately Supporting Mission Agency Needs? (3009)

Objective: To study the technology base programs of mission agencies to identify the most significant issues. Programs with expressed Congressional interest, heavy funding and/or multi-agency activities were the primary candidates for detailed review. The basic and applied research efforts being conducted in selected technical areas were examined to provide the Congress with an overview of the issues.

Completed WorkResults achieved or hoped to be achieved

DOD Should Determine Cost and Operational Effectiveness of Helicopter In-Flight Escape Systems. (PSAD-80-65, 7/14/80 Ltr Report to SecDef)

We reviewed the Department of Defense's efforts to develop helicopter in-flight escape systems to determine what actions were taken on our recommendations for development in our June 1973 report to the Congress. Primarily, we assessed the bases for subsequent decisions not to develop the escape systems, especially the one for the AH-1 Cobra attack helicopter. A definitive cost and operational effectiveness study had not been done to provide a sound basis for a decision. Accordingly, we recommended that a thorough and quantitative cost and operational effectiveness study be done of an in-flight escape system for the Cobra helicopter. DOD agreed with our recommendations.

DOD's Particle Beam Technology Program--Problems, Progress and Costs (C-PSAD-81-1, 11/19/80)

Even though all the three military services and DARPA has had research ongoing for over 20 years the resolution of basic technological and cost issues on particle beam weapons feasibility still persist. We recommended a change in program management to better address the problems needing resolution before informed decisions can be made on whether the technology can be weaponized.

DOD's High-Energy Laser Technology Program--Direction and Focus (C-PSAD-81-3, 12/02/80)

DOD is 5 years and \$1 billion away from deciding whether to prototype the first high-energy laser weapon. Program direction has been determined by the individual services and DARPA which has resulted in a fragmented approach to solving technology problems. We recommended the high-energy laser program management be consolidated in OSD. We also recommended that the Secretary of Defense make an assessment on where the best pay-off for Defense is considering laser technology, dollars and schedule.

Completed  
Work

DOD's Use of Remotely Piloted Vehicle Technology Offers Opportunities for Saving Lives and Dollars (MASAD-81-20, Report to the Congress)

Management Improvements Will Strengthen Advanced Research and Development Efforts for Nuclear Weapons Safety, Security, and Command and Control. (C-PSAD-80-6, 12/28/79. Ltr. to DOD and DOE)

The DNA's Satellite X-ray Facility—Is it the Key to Satellite Survivability Analysis? (C-PSAD-81-5, 01/30/81) (Ltr. to DOD)

DOE's Nuclear Weapons Complex—Alternatives and Cost (Cong. Request) Oral plus briefing paper.

Results achieved or hoped  
to be achieved

We examined the status of remotely piloted vehicle technology, reasons for its limited application by the Department of Defense, and the potential for applying this technology to non-military uses. We found that experts believe there are various advantages to using unmanned vehicles over manned aircraft for certain military missions and have identified user reluctance and lack of support as hindering the greater use of remotely piloted vehicles by DOD. We recommended that the Congress scrutinize proposed manned aircraft developments to assure that DOD gives adequate consideration to the use of remotely piloted vehicle technology for appropriate missions.

DOD provides DOE with general program guidance for research and development work to improve nuclear weapons. Neither agency established priorities, goals, and objectives. Defense has initiated procedures to prioritize military needs in the annual guidance to Energy. Energy also stated that translating research goals and priorities into a plan addressing military needs could increase the effectiveness of weapons laboratory work.

SXTF is planned to provide a major laboratory simulation capability for measuring system-generated electromagnetic pulse effects that would be induced in satellites by x-rays from nuclear weapon detonations in space. We recommended program termination.

The briefing discussed the trend toward deterioration of nuclear weapons facilities and the obsolescence of equipment which is hampering the weapons complex capability. The briefing included observations that funding provided through the past administration would not allow a turn around of the problem. Budget estimates received from the present administration indicates a fix may now be put in motion.

Completed  
Work

"A Look at NASA's Aircraft  
Energy Efficiency Program"  
(PSAD-80-50, July 28, 1980)

Results achieved or hoped  
to be achieved

The National Aeronautics and Space Administration (NASA) initiated the Aircraft Energy Efficiency program to provide by 1985 the technology for making future transport aircraft up to 50 percent more fuel efficient than today's aircraft. The original goals of the program were highly optimistic. Several technologies offering significant fuel efficiency opportunities probably will not be ready for several years after 1985, and estimated costs have risen significantly.

We found there is a need for

--NASA to adopt a standard format for concisely reporting the status of major aeronautical programs to the Congress,

--DOD and NASA to formalize their responsibilities in certain areas of technology development and

--an aeronautics policy which would clarify NASA's role.

NASA disagreed with our recommendations; how DOD and OSTP took or promised to take action which would (1) formalize the organization and responsibilities of DOD and NASA in the areas of composite materials technology and (2) develop a policy statement on aeronautics research and development to guide NASA's programs in this area.

Note: This LOE has been expanded to include all work dealing with technology base activities and the DOE weapons complex. As a result, it has been given a new title to reflect its broader scope and all ongoing work has been transferred to this LOE.

New LOETitle:

Does The Management and Oversight of Technology Base Programs Insure that Technology Resources are Being Used in the Most Efficient and Effective Manner and Support Mission Agency Needs?  
(3009)

Ongoing  
Work

Impact of Personnel  
Constraints on the DOD  
Research and Development  
Laboratories Operations.

Results of our work to date indicates that staffing problems in the DOD laboratories may not be as severe as a DOD task force report implies. We will recommend that the results of the report be used as a basis to initiate corrective action before more definitive data is obtained.



Ongoing WorkDOE's Defense Activities--  
Problems and Progress

Past GAO reporting has provided Congress with independent evaluations of specific segments of DOE's defense activities. We are developing a report to provide Congress with an improved perspective of problems and issues facing DOE's defense programs and progress being made to resolve them.

Nuclear Weapons Test  
Program--Status and Future

Considering the recent history of fewer nuclear tests and the current efforts to reverse this trend, we plan to make an assessment of DOE and DDA's action plans and capability to accomplish the ambitious test program.

High-Energy Laser National  
Test Facility

The objective of this assignment is to evaluate the HELIOTF program to determine if it is structured and managed to meet the efficiency and economy goals intended by Congress.

Survey of the Handling of  
Scientific Data at Goddard  
Space Flight Center

Our work to date indicates that the way that NASA manages the acquisition and retrieval of scientific data requires costly and time consuming manipulation before it can be used by the scientific community. We plan to identify the specific problems with NASA's current data management practices and recommend appropriate courses of action. One potential recommendation is that NASA implement a centralized data management system.

Status of the Helistat  
Program

The Helistat is a Forest Service program to develop a lighter-than-air-vehicle propelled and guided by four helicopters to carry logs from remote forest areas. Use of such a vehicle will permit logging operations in unaccessible terrain without the need to build roads. We found that the development program is using obsolete technology and will not result in a system which can be produced in quantity if the demonstration is successful. We are recommending that the Secretary of Agriculture reevaluate the need for this program, and if it continues, it should be redirected to assure that useable technology results. The Navy is providing technical management for the program.

MAJOR COMPLETED AND ONGOING ASSIGNMENTS

LOE: How Can the Management and Oversight Of Technology Base Activities Be Improved? (3002)

Objectives: To study the technology base management systems of mission agencies to identify specific processes or mechanisms which warrant additional attention because of problems noted, or because of their potential impact on the effectiveness of the overall systems.

Completed WorkResults achieved or hoped to be achieved

Federal R&D Laboratories-- Directors' Perspectives on Management (PSAD 80-8, 11/28/79) Report to the Congress

This information report highlighted the role R&D laboratories play in managing funds, discusses management techniques common to most of them, and identifies constraints to effective operations as perceived by laboratory directors. The report provided insight on the issues to the Congress and agency management, and served as a source for several GAO follow-on reviews dealing with the specific problems identified.

Uncertain Requirements Complicate Planning and Production Decisions for Nuclear Materials (C-PSAD-80-3, 12/10/79)

Nuclear materials are vital to the Nation's nuclear weapons program and our national defense. For that reason, DOE's materials requirements planning process is extremely important. We found that DOE's long-range materials planning for decisionmaking was inadequate. DOE agreed to develop a long-range weapon requirements baseline for determining requirements for facilities, manpower and material.

Desirability of Continuing the Nuclear Weapons and Other Military Related Activities Under DOE (In-house issue paper to C.G., 05/09/80) document was also provided to a congressional committee for information.

The continuing question as to whether nuclear weapons activities should more appropriately be assigned outside DOE was examined. Our study did not identify any significant benefits of transferring the nuclear weapons functions elsewhere.

Ongoing Work

Note: This LOE has been terminated - all ongoing work dealing with technology base activities and the DOE weapons complex has been transferred to LOE 3009.

MAJOR COMPLETED AND ONGOING ASSIGNMENTS

LOE: Are Mission Agency Technology Base Resources Being Used in the Most Efficient and Effective Manner? (3010)

Objectives: To study the adequacy and use of resources to maintain a viable in-house laboratory research capability within the mission agencies.

Completed WorkResults achieved or hoped to be achieved

Interagency Laboratory Use: Current Practices and Recurring Problems (PSAD-79-97, 9/4/79, Letter to Subcommittee)

Obtaining services from laboratories in another Federal agency is one of many types of inter-agency cooperation in research and development. Interagency laboratory use is one means to more efficiently use the vast and varied research and development resources of the Federal Government. This report explores the extent and types of interagency laboratory use; scrutinizes and advantages, as well as constraints, and management problems associated with interagency laboratory work; and suggests approaches to congressional oversight of the area.

The State of Basic Research in DOD Laboratories (MASAD-81-5, 2/19/81, Letter to SecDef.)

The level of basic research at the in-house laboratories has seriously decline and DOD's research growth is planned for the external research community. We recommended that DOD's laboratory revitalization program consider whether the present level of in-house research is adequate to maintain the health and vitality of the laboratories.

Staffing Implications of Tracking and Data Relay Satellite System and Remote Sensing Authorities (PSAD-80-47, 5/28/80)

This assignment was a congressional request from the Chairman and Ranking Minority Member of NASA's Senate Appropriations Subcommittee. We reported that there would be a reduction of over 200 civil service positions associated with tracking and data systems at Goddard as a result of NASA's decision to consolidate these activities. However, we pointed out that NASA plans to put the displaced civil service employees in other positions.

Ongoing Work

Note: This LOE has been terminated - all ongoing work dealing with technology base activities and the DOE weapons complex has been transferred to LOE 3009.

UNITED STATES GOVERNMENT

GENERAL ACCOUNTING OFFICE

*Memorandum*

May 20, 1981

TO : Program Planning Committee  
 Heads of Divisions and Offices  
 Regional Managers

FROM : Executive Secretary, PPC - *Richard L. Fogel*

SUBJECT: PPC (and Management) Session on MASAD's  
 Program Plan for the Systems Development  
 and Acquisitions Issue Area (PPC-81-12,  
 4/28/81)

A summary description of the decisions reached as a result of the subject sessions follows.

PURPOSE

To assess the progress of GAO's work in the issue area and to obtain the PPC's guidance on the direction of effort described in MASAD's proposed plan.

CONCLUSIONS REACHED/  
ACTIONS TAKEN OR PLANNED

1. Problems With DOD Systems Development and Acquisition.  
 The PPC expressed concern that GAO, as well as others, continually identify problems in developing major weapons systems but that nothing seems to change in the way DOD develops such systems. A discussion followed on what systemic problems exist when DOD develops and acquires major systems and whether anything can be done to improve the entire procurement process as well as what can be done to improve specific decisions at key points of individual systems. MASAD pointed out that change is, in fact, taking place but that the operation is so complex that it is essential to continue attending to specific increments to achieve ultimately the overall improvements desired.

The PPC initiated this discussion because it wanted to get a better feel for the extent to which GAO could expect results from its work in this issue area. It recognized the difficulty of securing any changes in the way the entire major system acquisition process works as opposed to getting incremental improvements made to specific systems during their development.

But it, nevertheless, wanted MASAD to better articulate what GAO's strategy should be. The LOEs to be approved are listed in Attachment I to the action memorandum, and the PPC directed MASAD to (1) state its objectives, strategies, and goals to improve both overall system-wide management problems and individual systems problems and (2) better explain what it expects to achieve as a result of our systemic work and individual system reviews. The PPC added that MASAD should work with CPP on these modifications so the plan can be approved by mid-June. MASAD understood the PPC's concern and agreed to address this strategy issue in its revisions to the plan.

MASAD emphasizes that GAO's role in this area has been to surface the issues/problems disclosed by reviewing major systems acquisitions. The Congress and DOD then must decide to deal with the results, either in the agencies' systemic decision making process, or in individual acquisition activities. The PPC wants MASAD to more clearly articulate in its plan what exactly GAO's role is.

To further understand the nature of the systemic problems in the major acquisition area as opposed to specific problems with individual systems, the PPC raised the following points.

Focusing Attention on Problems of Developing Major Weapons Systems. The PPC asked whether any systems have been identified as "successful" and whether there are systemic lessons to be learned from that success. MASAD said the F-16 is a successful system not only because of strict design controls and ample resources (people and dollars) but also because of simple "luck". MASAD added that decisions on weapons systems are often political. This focus has contributed to development and acquisition decisions and problems. It also makes it almost impossible to "turn-off" a system once it is in the acquisition pipeline (which extends as much as 15 years).

The PPC and MASAD recognized the need to effect change to be an important issue and discussed possible alternatives to help focus attention on problems of developing and acquiring major weapons systems such as a case study of a successful acquisition, the effect of the high/low mix trade-off on acquisition or a summary report identifying problems in developing/acquiring major systems (both weapons and non-weapons). MASAD said it will continue its strategy of focusing attention on this problem by issuing summary report(s) that will highlight specific problems (e.g., funding constraints, over-sophistication of design, poor management, etc.) already identified in recent work. Also, MASAD will

discuss what action DOD has/has not taken as a result of our work and annually advise the GAO Budget Committee of this information.

Problems With Sophisticated Systems. The PPC questioned the trade-off issues and why DOD, in some cases, opts for apparently overly complex and sophisticated systems instead of "elegantly simple" pieces of equipment. MASAD stated that systems development and acquisition decisions are necessarily considered relative to resource constraints, especially people and dollars. With limited resources, DOD has chosen complex systems over simpler ones to achieve mission needs. For example, an aircraft requires not only a pilot but also many supporting (administrative, maintenance) personnel. So fewer but more complex planes which can achieve the mission with fewer people may be chosen over simpler systems which require more support staff. MASAD noted that many of the systems becoming operational now have been in the acquisition pipeline for 8 to 10 years. This problem is not a surprise to Defense management—they frequently trade off simplicity for sophistication to reduce large staffing requirements. MASAD said that it will address these issues in the "trade-offs" LOE (p. 34) and make any revision to the plan deemed necessary.

2. Individual Weapon Systems Work. The PPC was concerned that a user or reader of the plan be able to make the connection between the individual LOE objectives and the assignments intended to address those objectives; that the plan should better describe how problems are being considered by GAO in the total management context and not just as they relate to particular systems acquisitions, namely the major weapons systems reviews. The PPC's interest zeroed-in on better defining why MASAD keys some weapons systems to one LOE and other systems to a different LOE. The PPC wants MASAD to more clearly explain the criteria it uses in assigning weapons reviews to different LOEs. MASAD will do this as it revises its plan as described in point 1.

MASAD then explained how it selects the systems for annual review and the influence this work has on the other LOEs in the issue area. From the DOD's Selected Acquisition Reports system and other information identifying major defense acquisitions, MASAD chooses the 20 to 25 weapons systems to review because of their high visibility and/or their probability of experiencing problems in the particular acquisition phase of the system. MASAD has identified key topics to be considered when evaluating individual systems. Where potential problems are perceived--systems to topics--the annual review concentrates on the problems for the respective system.

MASAD noted that its weapons systems work acts as a "springboard" for reviews on other problems such as cost estimating or test results. This has led to some noticeable management

improvements, such as the elevated importance to the individual program management offices which manage specific system acquisitions.

3. Periodically Communicating Major Acquisition Issues to Federal Agencies. In a related matter the PPC referred to the Comptroller General's January 21, 1981, letter to the Secretary of Defense outlining defense issues needing attention, and asked (1) whether a similar letter should be sent on a recurring basis and (2) if similar letters should be sent to non-defense agencies by MASAD or other divisions. MASAD pointed out that the Defense Secretary has established task forces and is stressing the need to tighten up the acquisition process as a result of the letter. MASAD agrees that letters which pull issues together do have value.

MASAD added that DOD's high level newly organized office to address waste and mismanagement will be useful to GAO as a conduit for action on our work. MASAD noted that this office has been characterized as the "eyes and ears of the Secretary" and has been under consideration for about 2 years. It is an upper management level unit within the DOD's Office of the Secretary; it is not a field office operation.

On the basis of the discussion and the positive reception of our recent letter, the PPC believes that periodic contacts with DCD on issues GAO believes need addressing is worthwhile and the PPC requested Tom Morris to work out the timing and content of such an effort.

4. The Administration's Defense Proposals. The possible \$25 billion injection of funds into weapons procurement next year can cause significant problems in assuring its effective use. MASAD pointed out that it is closely monitoring the situation and is in a position to relate its work to any areas of significantly increased funding approved by Congress.

The PPC would like Tom Morris to develop a plan for effectively monitoring, at least, the "add on" expenditures proposed by the new Administration so that GAO will be in a position next year to advise the appropriation committees on what DOD did with the money.

5. Civil Agency Major Acquisitions. MASAD explained that it selects civil agency systems to review based on regional office suggestions, targets of opportunity surfaced by other divisions in the course of their work, and/or the system's visibility or public concern. MASAD considers that 15 percent of its issue area work is adequate for civil agency coverage (plus 12 to 15 percent for NASA systems) even though about half of the Federal

acquisition dollars are civilian related. MASAD indicated that the other GAO divisions are actually doing major acquisitions work but under their own issue area codes. MASAD has no problem with such coding, however, since the programs those divisions review sometimes have an acquisition focus, for example, ADP or VA hospital activities.

The PPC asked MASAD to delineate how it decides whether it or another division should do such work. MASAD stated that if the issue, in reviewing a major civil acquisition is primarily related to the question of need or utility in terms of a program's objective, the GAO division having responsibility for the subject issue area does the work. If the issue relates to efficient and effective procurement of the system once the basic policy decisions have been made, MASAD will do the work. The PPC agreed to that approach.

MASAD stated that civil agency major acquisitions need considerable GAO audit attention since their acquisition personnel are typically unskilled in major acquisition processes, unlike those in defense agencies who are expert in this field. MASAD noted that with the recent appointment of a new group director, civil agency work will get better direction than previously.

6. OMB Circular A-109--GAO's Position. MASAD pointed out that it does not advocate a cookbook or step-by-step procedural approach to A-109. It views the Circular as a policy guideline for major acquisitions with particular "steps" to be taken when they make sense. The ongoing assignment of assessing the impact of A-109 on weapons system acquisitions is to evaluate both the implementation of the guidelines as well as the impact of not following them. This particular job is also looking at how A-109 effects the 10 to 15 year period it takes to develop and acquire a system. MASAD expects the results of this job to help address the Circular's viability as a tool for facilitating acquisitions.
7. Coordination. The PPC expressed its concern over MASAD coordination by referring to the "critical material shortages" LOE as an example. MASAD explained that the plan's LOE does not accurately describe the issue area's concern and, as written, could appear to conflict with EMD's and PLRD's interests in materials and defense stockpiles. MASAD agreed to revise this LOE to more precisely reflect its focus and objectives. The concern for shortages in this issue area centers on the extent that such shortages are considered in the acquisition decision making process; not on how to solve the materials shortages per se. Further, MASAD's interest in shortages is broader than the availability



of raw materials. The availability of critical production components--such as electronic "bits and pieces"--are to be scrutinized in this LOE for their impact on the acquisition process.

MASAD stated that it would work with EMD and PLRD to define interdivisional boundary agreements to clarify roles on shortages and on other related areas where likely boundary problems may arise. MASAD, in Appendix III--item 5, identifies the need for such coordination in other areas of interest to both MASAD and PLRD. The PPC instructed MASAD to submit these agreements to OPP.

8. Multiyear Contracting--Status. MASAD commented that it believes the Congress is beginning to understand the difference between multiyear contracting--which is advantageous to efficient procurement--and multi-year funding. MASAD suggests that current Congressional action to allow multiyear contracting may be enacted by this Congress and MASAD, in its multiyear contracting LOE, is prepared to assess the advantages and disadvantages as the Congress considers approving the authority to contract on a multiyear basis. MASAD added that (1) such contracting should be considered only for relatively stable programs, and (2) such contracting should not be considered until after the first year of the production phase of a program. The PPC agreed with this position.
9. Access to Information. The PPC asked if MASAD is facing any access to records problems in the issue area. MASAD noted one: the Defense Systems Acquisition Review Council's (DSARC) deliberations leading to acquisition decisions are not made available to GAO although they should be. This problem may become an issue for resolution because the current assignment of DOD's affordability policy will involve DSARC data. The PPC agreed to assist the division in resolving the problem, if needed.
10. Congressional Interest in the Issue Area. The PPC is concerned with the Congress' perception and use of our work in the area and wants MASAD to keep a record of the specific legislation and appropriation changes made as a result of GAO's systems development and acquisition efforts, as well as any changes made by DOD because of our work.

MASAD noted that it believes the Congress, notably the appropriation and armed services committees/ subcommittees, make extensive use of the issue area's work, especially the over 500 questions GAO prepares annually on the major weapons systems studied each year.

OCR affirmed the importance and usefulness of MASAD's activities in the area and noted that feedback from the "Hill" was positive. OCR did indicate however, that appropriation staff believed that our weapons work would be even more useful if it was provided in a December/January timeframe. This would allow the staff more time to read the material. The PPC, therefore, wants MASAD to work with OCR to possibly revise our timeframes to issue our reports a month earlier for the FY 1983 reporting cycle.

OCR made an additional point; that the division distribute its products not only to the principal users or audience, but also to other parties who show or have an interest such as individual staff-members. This would help increase the use of the information and reduce possible adverse effects to anyone caught unaware of the availability of information.

11. Specific Job Guidance. The PPC raised questions on the following efforts identified in the plan.

- (a) The annual information report on the financial status of major Federal (defense and civilian) acquisitions (p. 21). The question was whether GAO is the proper place for preparing the information. While some 3,000 copies of the report are distributed, the PPC was concerned with the utility of the information. MASAD will assess the report's usefulness by querying the principal customers and inform OPP of the need for GAO to prepare the annual report; perhaps another organization should be doing this work.
- (b) The planned assignment on the Department of Interior's Central Arizona \$1.9 billion Water and Power Resources Project (p. 25). MASAD agreed to re-assess the need to do this job since the PPC questioned who is interested in this job given the political nature of this project, and what impact would GAO have.
- (c) Efforts to establish DOD project manager accountability (pp. 34-39). The PPC asked what was being done to zero-in on the problem of project manager turnover and the accountability of individuals for systems cost growth.

MASAD explained that the time period for system development and acquisition runs as long as 15 years, but a system's project manager changes about every 4 years and as a result accountability for cost containment is lost. FPCD is involved in a review of military officers performance evaluation processes, which does not include weapons systems project managers' evaluations. The PPC believes work in this subject will eventually aid more efficient acquisitions. Both MASAD and FPCD agreed to consider efforts in this area.

- (d) Survey of the planning and acquisition practices of the Urban Mass Transportation Administration (p. 51). MASAD agreed that it will not do this planned work should proposed budget reductions be passed by the Congress.

12. Regional Office Involvement. Several points were raised which directly and indirectly concerned regional office activities relative to the issue area.

Regional input to the program plan was used by MASAD in developing the plan. The PPC felt that the Los Angeles region's document was especially useful because it focused on the strategic issues of systems development and acquisition as opposed to a job-by-job focus. MASAD added that LOEs were developed by Cincinnati and Washington, and Atlanta, Denver and Philadelphia also provided substantive input.

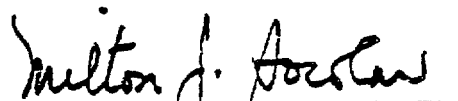
On training and expertise in the issue area, MASAD said that both headquarters and field expertise are used by the division. Generally, the regional staffs have the "nuts and bolts" knowledge about issue area activities as do some division staff. Additionally, headquarters group directors are experts in the broader issues such as air, land, or sea warfare.

MASAD makes extensive use of non-GAO defense related training activities for both headquarters and regional staffmembers as a way to develop expertise. MASAD has arranged for DOD to allow 80 GAO staff to participate free of charge in various DOD procurement courses. MASAD commented that it coordinates training needs with the GAC training section and looks to the in-house facilities for general, overall training while viewing the non-GAO facilities as cost-free opportunities for specialized training.

The front end goal procedure as it relates to the automatic priority ones accorded the annual weapons systems reviews was discussed. The PPC and MASAD concurred that automatic priority ones for the weapons work would end with the weapons systems review cycle that begins in the Spring of 1982. The PPC emphasized that the front end goal is a means to facilitate regional office staffing; it is not a guarantee. When the annual weapons reviews require "goal" regions, the priority one should not be necessary. However if a non-goal region should be involved, or a region with a goal could not otherwise staff a review, then a priority one designation would be justified.

13. Use of Staff Resources for Assignment Planning. The PPC inquired about the amount of resources MASAD is dedicating to assignment planning through division controlled permanent codes. MASAD agreed that it would take a look at the need for these job planning resources and let the PPC know, through OPP, whether it considered this investment to be beneficial--especially given GAO's tight budget prospects for next fiscal year.

Approved:

  
 Acting Comptroller General  
 of the United States

cc: Special Assistant to the Comptroller General  
 for Defense Studies, Thomas D. Morris  
 Director, Defense Programs Planning and Analysis,  
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