

REFERENCE BOOK

ON

NATO RATIONALIZATION, STANDARDIZATION AND INTEROPERABILITY (RSI)

VOLUME TWO

DEPARTMENT OF DEFENSE OFFICIAL DIRECTIVES AND
STATEMENTS OF SECRETARY OF DEFENSE, UNDER SECRETARY
OF DEFENSE (R & E), CONCERNING R S I

COMPILED BY



DTIC QUALITY INSPECTED 3

AMERICAN DEFENSE PREPAREDNESS ASSOCIATION
1700 NORTH MOORE STREET
ARLINGTON, VIRGINIA 22209

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NOVEMBER 1, 1979**

AMERICAN DEFENSE PREPAREDNESS ASSOCIATION

NATO RSI REFERENCE BOOK

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AMERICAN DEFENSE PREPAREDNESS ASSOCIATION

NATO RSI REFERENCE BOOK

SECTION 11

DOD DIRECTIVES

OFFICIAL PUBLISHED AND UNPUBLISHED
DIRECTIVES OF THE DEPARTMENT OF
DEFENSE ON RSI AND RELATED MATTERS



DRAFT

11 OCT 1979



NUMBER 2010.6

Department of Defense Directive

SUBJECT: Standardization and Interoperability of Weapon Systems and Equipment within the North Atlantic Treaty Organization

- Reference:
- (a) Department of Defense Directive 2010.6 "Standardization and Interoperability of Weapon Systems and Equipment within the North Atlantic Treaty Organization (NATO)," March 11, 1977, (hereby canceled)
 - (b) Public Law 94-361, section 802 Title 41, United States Code 10a-10d
 - (c) Department of Defense Directive 5000.1, "Major System Acquisition," January 18, 1977
 - (d) through (m) see enclosure 1

A. REISSUANCE AND PURPOSE

This Directive reissues reference (a) providing Department of Defense policy and responsibilities for standardization and interoperability of weapon systems and equipment within the North Atlantic Treaty Organization (NATO).

B. APPLICABILITY

The provisions of this Directive apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, the unified and specified commands,

and the Defense Agencies (hereafter referred to collectively as "DoD Components").

C. DEFINITIONS

The definitions used in this Directive and others essential to understanding international defense cooperation are contained in enclosure 2.

D. POLICY

1. Objective. In accordance with Public Law 94-361, Sec. 802 (reference (b)), it is the policy of the United States that equipment procured for US forces stationed in Europe under the terms of the North Atlantic Treaty should be standardized or at least interoperable with equipment of other members of NATO. Pursuant to this Congressional mandate, the Department of Defense shall as a matter of priority, seek new concepts and methods of defense equipment cooperation with our Allies to improve NATO's military effectiveness and provide for equitable economic and industrial opportunities for all participants. We will also seek greater compatibility of doctrine and tactics to provide a better basis for arriving at common NATO requirements. The goal is to achieve standardization of entire systems where feasible and to gain the maximum degree of interoperability throughout Alliance military forces.

2. Priorities. The five top priority areas for interoperability and standardization have been established by the Joint Chiefs of Staff and endorsed by the NATO Military Committee. These areas are: command, control, and communication systems; cross-servicing of aircraft; ammunition; and compatible battlefield surveillance/target designation/acquisition systems. The fifth, interoperability and standardization of components and spare parts, are goals in all programs.

3. Consideration of Worldwide Requirements. The need for U.S. forces to meet worldwide commitments is not a basis for failure to maximize interoperability and standardization of systems within NATO. The majority of U.S. general purpose forces are planned and equipped for a European conflict. In such a conflict U.S. units will normally be employed under the operational command of NATO and will fight as a part of multinational formations. This operational concept makes Alliance interoperability and standardization imperative.

4. Three Major U.S. Approaches. The U.S. will pursue three major approaches in its effort to achieve increased Alliance standardization and interoperability:

a. Establishment of general and reciprocal procurement Memoranda of Understanding (MOU) with NATO member nations. These

are intended to encourage bilateral arms cooperation by waiving "buy national" restrictions and establishing regular review of armaments programs and trade.

b. Negotiation of dual production of already or nearly developed systems. Under this approach, a nation that has already developed a system that is valuable to the Alliance would permit others to produce this system and thus avoid their undertaking redundant development programs. Dual production programs can lead to the near-term introduction of the latest technology in NATO's deployed forces, with a more efficient use of resources.

c. Creation of families of weapons (program packages) still in research and engineering. This approach concerns systems not yet developed. Under this concept participating NATO nations would reach early agreement on the responsibility for developing complementary weapons systems within a mission area. Our approach is to examine the weapons which member nations plan to develop in the next few years, aggregate these weapons by mission area, and then coordinate development and production of equipment whenever feasible.

5. NATO Planning. Fundamental to the success of the three major U.S. approaches is the improvement of the management structure of arms cooperation within the Alliance. To this end the U.S. must support the implementation of the new Alliance Periodic Armaments Planning System

(PAPS) and NATO Armaments Planning Review (NAPR). PAPS is a systematic procedure the Conference of National Armaments Directors (CNAD) would use to identify Alliance mission needs, and seek cooperatively developed equipment solutions. The NAPR is a process which includes annual national submissions to NATO on equipment replacement schedules for major systems; it thus provides a means to review national armaments plans and identify opportunities for armaments cooperation. It is expected that NAPR will eventually fold into PAPS and then from a single system that shall assist the NATO Army, Navy and Air Force Armaments Groups in their tasks of cooperative armaments developments.

6. Economic Guidelines. DoD elements will apply the following economic guidelines when considering cooperative development and production opportunities with our NATO allies.

a. The Department of Defense shall not normally enter government-to-government compensatory coproduction or offsetting procurement agreements with other nations. Rather, industry should normally be relied upon to arrange for efficient means of arms collaboration on each program or project. If commercial industrial arrangements are not sufficient to satisfy any particular governmental desire for greater industrial or technical participation, then government-to-government agreements, which may include compensatory arrangements, may be considered in accordance with Deputy Secretary of Defense Memorandum of 4 May 1978 (reference

(d)), and other related instruction form ASD(ISA). The DoD component proposing a compensatory arrangement must make its request for an exception to policy to the ASD(ISA), and must attempt to justify the exception with information showing expected net benefits of the compensatory agreement. Improvement to NATO RSI will be a positive consideration. The request must also describe how the proponent proposes to meet the compensatory commitment.

b. Departments or agencies proposing a collaborative project will insure that appropriate arrangements are made to exchange cost data between prospective governmental and industrial participants. Such data exchange is necessary in support of cost estimates of alternative modes of development and production, prior to governmental commitment to any particular mode.

c. Since collaborative programs impact on more than one national budget, it is the responsibility of the proponent agency to assess the overall impact of the program on NATO budgets. Codevelopment may reduce overall NATO R&D budgets, but follow-on national coproduction may be more costly than procurement from a single producer. Proponent agencies should assess the net impact of such arrangements.

d. Commercial implications of technology transfers proposed in support of a collaborative project should be considered in weighing the cost and benefits of that project. These considerations should include

an estimate of how the commercial applications of the technology transfer might affect U.S. commercial competitiveness in future international markets. ISA shall assist proponents in these assessments.

7. Third Country Transfer/Sales Authorization. Because of relatively small domestic force requirements, our European Allies must often export arms to make production economical. Therefore, the Department of Defense shall seek approval for U.S. third country transfer/sales policies governing cooperative armaments projects that are in concert with the Administration's policy of conventional arms transfer restraint, while encouraging maximum NATO participation in cooperative projects. This will facilitate the fielding of the most cost-effective weapons by all NATO Allies. In general, these policies shall permit sales by NATO Allies participating in cooperative programs to any nation to which the U.S. would be willing to sell the same equipment in similar quantity. Specific authorizations will be developed in coordination with the Department of State.

8. Technology Transfer. As required to support standardization and interoperability, DoD Components will encourage the transfer of technology, foreign intelligence, and military information. The proposed transfer must also be consistent with the terms of the National Disclosure Policy to the NATO Allies, and specifically shall:

a. Include political-military considerations in determining the releasability of technical data and other information.

b. Pursue a policy to foster an early mutual exchange of technological and other information with NATO Allies to promote the development and adoption of standardized or interoperable weapons systems and equipment by NATO nations in accordance with Department of Defense Directive 5000.2 (reference (g)) and Department of Defense Instruction 2015.4 (reference (k)).

c. Conclude international agreements, where required, to establish a legal basis for classified data exchange. See Department of Defense Directive 5230.11 (reference (l)), DoD Directive 5530.3 (reference (i)), and DoD Instruction 2050.1 (reference (j)).

d. Take the necessary steps to provide qualified contractors from NATO nations with such classified and unclassified information necessary to compete for U.S. military contracts. Since the eligibility of foreign governments to receive U.S. classified military information under the National Disclosure Policy must be determined on a case-by-case basis, advance planning must be instituted to assure that there is consideration of foreign participation early in the development cycle of those programs. See Under Secretary of Defense (Research and Engineering) Memoranda of 10 November 1978, (reference (n)) and 2 February 1979,

(reference (o)) and DoD Directive 5200.12 dated 15 June 1979 (reference p). When full access to such information is not deemed possible, where feasible:

(1) Exclude nonreleasable information from presolicitation and preaward presentations.

(2) Seek exceptions to the National Disclosure Policy.

(3) Notify the Deputy Secretary of Defense in advance of proposed denials of classified military information that would hinder major international cooperative research, development, or logistics undertakings. An information copy will be provided to the Under Secretary of Defense, Research and Engineering, and the Assistant Secretary of Defense (ISA).

e. Where full access is not possible, encourage foreign participation as subcontractors to U.S. prime contractors.

f. Report to the Foreign Disclosure Automated Data System (FORDAD) on DD Form 1822, Report of Disclosure or Denial of U.S. Classified Military Information within 15 days all disclosure actions related to equipment standardization or interoperability in NATO.

9. International Agreements. General and reciprocal procurement MOUs provide for broad access of signatory nations to each others' procurement processes. These may provide minimum essential government control and guidance. Programmatic agreements that spell out bidding and procurement activities on proposed defense system may also be developed when necessary. Interagency coordination through ASD(ISA) should be completed prior to the initiation of negotiations on international agreements.

10. Foreign Military Sales (FMS) Charges. In accordance with the Arms Export Control Act (AECA), as amended (reference (e)), DoD may reduce or waive for sales resulting from Alliance cooperative projects various FMS charges such as nonrecurring cost recoupment charges, asset use charges, tooling rental charges and administrative cost charges. See enclosure 2, definitions. All NATO cooperative projects must be properly certified to the Congress. In addition, direct costs for services of U.S. Government (USG) officials may be reduced or waived for family of weapons related FMS transactions. When bilateral or multilateral programmatic MOUs with NATO Allies (other than the general, reciprocal procurement MOUs) are negotiated which seek to improve Alliance weapons development and standardization, the USG will encourage Alliance sharing of developmental costs in amounts at least equal to proposed U.S. reduction of FMS charges, taking into account the NATO members reciprocal waivers or reductions of similar charges on their sales to the USG. Sales transactions, both FMS and commercial, will be

exempt from these charges only to the extent provided for in the agreements. At the time that FMS Letters of Offer and Acceptance are prepared for such sales, the Military Departments will identify to the Director, DSAA, those LOA's which are exempt from any portion of these charges by virtue of their being in implementation of the charges which have been excluded from the transactions.

11. Contractor Teaming Arrangements. Teaming arrangements between firms of two or more NATO nations are desirable and encouraged. Such arrangements may be entered prior to or after contract award for a program. Such teaming arrangements allow and facilitate firms of two or more countries to complement the unique capabilities of each other to offer the best combination of capabilities. In addition, such teaming arrangements help overcome obstacles to improved standardization and interoperability of equipment in NATO.

a. In other Research and Development (R&D) projects which may have application for two or more NATO nations, and where no specific percentage of NATO country participation is required, the acquisition strategy shall encourage NATO teaming at the earliest possible time. Furthermore, the source selection evaluation plan in the RFP shall include NATO industrial teaming as a primary factor along with technical, schedule, cost and management.

b. The government will normally recognize the integrity and validity of contractor teaming arrangements, provided they are identified and company relationships are stated in a proposal. Under a contractor teaming arrangement, the prime contractor is fully responsible for the performance of the contract.

c. In special cases the U.S. Government may require teaming to enhance NATO standardization and interoperability and may require a minimum level of contract participation by firms located in other NATO countries. The degree of subcontracting opportunities to be set aside for sources within other NATO countries will be determined on a case-by-case basis. When a decision is made to set aside a specific minimum percentage, the Request for Proposal (RFP) will require that prime contractors' responses contain a detailed proposal for subcontracting that percentage with industries located within the NATO countries. This NATO subcontracting proposal will be evaluated as part of the management section of the ranked evaluation criteria during source selection. Failure to submit a proposal containing a commitment to a NATO subcontracting program in the minimum amounts specified in the solicitation will render such a proposal unresponsive.

d. The government shall insure all contracts require the prime contractor (and his subcontractors) to provide options for license agreements with contractors of participating countries at some later date (to provide the patents, data, data rights, know-how and any other information necessary to establish a viable second production source).

12. Steps to be Taken in the Acquisition Process. In order to include NATO standardization and interoperability as a basic goal in acquisition programs for both major and minor equipment, DoD components shall:

a. Seek agreement with Alliance members on threat, doctrine, operational concepts, military mission needs, and weapon system requirements.

b. Work within NATO to establish cooperative programs as early in the acquisition process as possible to attain the most effective approach to interoperable or standard weapon systems and equipment.

c. Establish common program management and review methods.

d. Utilize the family of weapons (program package) and cooperative production approaches, where feasible..

e. Make the strengthening of NATO RSI a positive consideration in determining U.S. interest in transferring to NATO technical data packages (TDP) on weapons systems.

f. Evaluate, early in the acquisition cycle, already fielded U.S. and Allied systems, system derivatives and subsystems to determine whether they will allow greater interoperability within the Alliance.

- g. Use, to the maximum extent possible, test data developed by other NATO countries.
- h. Modify U.S. specifications in those cases in which unique U.S. specifications are an impediment to U.S. adoption of an otherwise cost-effective Allied system or Allied adoption of a U.S. system.
- i. Consider coproduction of one another's systems, system derivatives, subsystems, and components.
- j. Coordinate with USDR&E and ASD(ISA), in accordance with DoD Directive 5530.3 (reference (i)) and DoD Instruction 2050.1 (reference (j)), before the onset of negotiations on international agreements that involve NATO arms' cooperation and weapons standardization.
- k. Include in competition (source selection) in the acquisition process, those NATO countries with whom the U.S. has general and reciprocal procurement MOUs.
- l. Ensure NATO interoperability, especially for C3, ammunition and other consumables.
- m. Develop logistics support systems that are standardized or at least interoperable with those of other NATO nations.

n. Seek to establish NATO configuration control procedures.

o. Use the metric system of measurements when it is deemed to be in the best interest of the Department of Defense, and consistent with operational, economic, technical, and safety requirements.

E. RESPONSIBILITIES

1. The Advisor to the Secretary and Deputy Secretary of Defense for NATO Affairs shall:

a. Advise the Secretary and Deputy Secretary of Defense on NATO-related issues that need high level attention.

b. Review DoD participation in the NATO Long Term Defense Program.

c. Advise the Secretary and Deputy Secretary of Defense on RSI issues that need high-level attention, and monitor the DoD acquisition process for compliance with RSI objectives.

d. Review NATO related matters, including RSI, with the Under Secretary of Defense (Policy), Under Secretary of Defense (Research and Engineering), Assistant Secretary of Defense (ISA), Assistant Secretary

of Defense (PA&E), Assistant Secretary of Defense (MRA&L), and the Secretaries of the Military Departments in areas of their responsibility, as appropriate.

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

a. Formulate, in coordination with the Assistant Secretary of Defense (International Security Affairs), DoD R&D, acquisition, and program policies for standardization and interoperability and provide guidance for implementation of these policies; coordinate U.S. positions on Alliance weapons requirements and complementary schedules for new weapons development and production; and coordinate with Allies on their R&D efforts in standardization and interoperability of weapons systems and subsystems.

b. Represent the United States and implement standardization and interoperability policy at the NATO CNAD and at other appropriate international fora, and ensure and monitor DoD representation in appropriate groups and subgroups of the CNAD. Representation shall be coordinated with the Department of State, through ISA; the Military Departments; the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) (ASD(MRA&L)) for standardization interests at subsystem and component level; the Assistant Secretary of Defense (Communications Command, Control and Intelligence) (ASD(C3I)); and other agencies.

c. Ensure that the Military Departments adequately consider standardization and interoperability in the defense system acquisition process. The review and decision making process for acquisition of systems shall consider applicable new systems and their derivatives, subsystems, and components that are under development or in production by NATO Allies; the evaluation and adjustment of schedules to accommodate possible joint testing and codevelopment with NATO Allies; providing NATO Allies appropriate opportunities to participate in developing or producing new U.S. systems; and interoperability of U.S. systems with those of Allies as prescribed by Department of Defense Directive 5000.2 (reference (g)).

d. Ensure that the opportunities for selection of other than a unique U.S. system are realistically considered throughout the annual PPBS cycle and at each milestone in the system acquisition process in accordance with DoD Directives 5000.1 and 5000.2 (references (c) and (g)).

e. Assist the Military Departments and other DoD Components in obtaining information on Allied systems and subsystems.

f. Consult with the Joint Chiefs of Staff (JCS) on the interaction of standardization and interoperability, strategy, force objectives and military requirements.

g. Provide technical positions on exchange of technology with NATO Allies, and monitor ongoing programs involving the transfer of technology.

h. Initiate actions in conjunction with the milestone review process to prevent unnecessary duplication and encourage configuration control of weapon system production.

i. Review appropriate DoD responses to inquiries from elements of NATO on planning, programming and other management aspects of equipment standardization and interoperability below the system level to include applicable NATO Standardization Agreements (STANAG) and Allied Publications (APs). These responses will be prepared by the Joint Chiefs of Staff (JCS).

j. Promulgate guidance to the Military Departments on contract placement and contract administration matters necessary to implement NATO standardization policies.

k. Review DoD procurement policies and regulations and, where appropriate, incorporate revisions to ensure that Allied sources have a reasonable opportunity to compete with U.S. sources for DoD business.

l. Ensure, in soliciting and evaluating proposals, that adequate consideration is given to potential NATO savings or increased combat capability expected to result from the procurement of standardized or interoperable items.

m. Ensure that unique U.S. technical requirements do not unnecessarily preclude procurement of otherwise cost-effective Allied defense articles.

n. Ensure that DoD implements the policies for all procurement programs and activities outlined in this Directive, including those below the major system threshold.

o. Review, as required, Military Department's statement of the potential impact of impending technology transfers on the U.S. economy when such transfers can be identified as having significant commercial implications.

p. Inform industry of U.S. policies concerning arms cooperation with NATO and the status of individual initiatives and encourage U. S. Industry involvement in NATO cooperative programs and efforts to implement them (such as multinational training).

q. Ensure that military specifications and standards conform to the international treaty agreement of NATO and that such treaty agreements involving materiel items are implemented to the maximum extent practicable (reference (h)).

r. Foster international treaty agreements of NATO which conform to existing military specifications and standards through representation on NATO committees and working parties (reference (h)).

s. Seek the advice of US Mission NATO (USNATO) and American Embassies in NATO capitals on developments in U.S. weapon system policies, practices, and initiatives that could impact on NATO or individual NATO countries. Also, keep these American Embassies (specifically including ODC) informed of such developments. As appropriate, NATO ODCs should advise Washington of potential opportunities for cooperation stemming from host-country equipment plans or programs.

t. Ensure that the Military Departments are kept fully informed regarding those programs which are likely candidates for standardization and rationalization so that plans may be considered early for foreign participation.

u. Ensure that interoperability with NATO is demonstrated during test and evaluation.

3. The Assistant Secretary of Defense (International Security Affairs) shall:

a. Coordinate, in conjunction with USDR&E, overall DoD policy on NATO standardization and interoperability.

b. Act as the principal point of contact within the Department of Defense for the Department of State and other U.S. government agencies and appropriate NATO countries and agencies, and coordinate with those organizations on matters concerning standardization and interoperability.

c. Initiate action to change policies, procedures, regulations or laws that impede the achievement of standardization and interoperability within NATO.

d. Monitor the political and economic factors that affect standardization and interoperability.

e. Prepare for the Secretary of Defense the annual report to the Congress on Rationalization and Standardization within NATO.

f. Review proposals for compensatory agreements and recommend action thereon to the Deputy Secretary of Defense.

4. The Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) shall:

a. Develop DoD logistics policies and guidelines that support and facilitate OUSDRE programs for standardization and interoperability of equipment within NATO.

b. Ensure representation of the United States at international logistics activities involved in NATO standardization and interoperability.

5. The Chairman of the Joint Chiefs of Staff shall:

a. Advise on the interaction of NATO ESI with strategy, military requirements, R&D, and force planning.

b. Monitor R&D matters of concern to the JCS in the area of weapon systems, munitions and supporting systems.

c. Identify opportunities for and impediments to improved interoperability of U.S. forces within NATO. These impediments shall be reported, as appropriate, to the Secretary of Defense and the proper Military Departments for priority attention and action.

d. Effect harmonization with our Allies doctrine and operational concepts.

e. Ensure there is U.S. representation at international military logistics meetings, to include the NATO Military Agency for Standardization.

f. Coordinate equipment standardization and interoperability policies, and programs with the NATO Military Committee, and the U.S. National Military Representative to the Supreme Headquarters Allied Powers Europe (SHAPE).

g. Instruct the US European Command (USEUCOM) and advise the U.S. National Military Representative at the Supreme Headquarters Allied Powers Europe (SHAPE) to have the Office of Defense Cooperation (ODC) in American Embassies in NATO capitals actively support the cooperative armaments programs.

6. The Deputy Under Secretary of Defense (Policy Review) shall ensure that:

(a) The National Disclosure Policy (NDP) fosters the mutual exchange of R&D information for the development of standardized or interoperable equipment by NATO while protecting U.S. interests, and,

b. Application of the NDP is consistent among DoD departments and agencies.

7. The Secretaries of the Military Departments shall:

a. Ensure that standardization and interoperability is a basic conceptual approach in the development, procurement, and product improvement of all systems with a partial or total application to NATO.

b. Establish close and parallel relationships with NATO organizations and NATO Allies for the development of agreed to doctrine and operational concepts; the definition of proposed mission needs and weapon systems requirements; and close collaboration in the acquisition of standardized or interoperable systems and subsystems.

c. In coordination with USDR&E, encourage early contacts between U.S. development activities and NATO Allies' development organizations to consider reciprocal and mutually beneficial exchange of technology, cooperative, or interdependent R&D programs, and appropriate licensed production arrangements to permit possible adoption of each other's systems.

d. Give appropriate weight to standardization and interoperability considerations in the source selection process and include new weapon systems and derivatives of NATO Allies in their cost analyses to determine whether these systems meet U.S. requirements on a cost-competitive basis.

e. Ensure that the make-or-buy decisions on procurement systems by prime contractors permit NATO Allies to compete for subcontracts.

f. Include in applicable System Acquisition Review documentation an analysis of how a program will contribute to or degrade NATO standardization and interoperability, including consideration of alternative systems of NATO Allies, co-development, and co-production, and the action program to advocate cooperation in R&D and acquisition programs.

g. Provide representation at appropriate groups under the NATO CNAD and Military Agency for Standardization (MAS) and provide service coordination on standardization matters developed within the International Military Staff to include STANAG and AP. Proposed U.S. positions shall be coordinated with USDR&E.

h. In coordination with OASD(MRA&L), develop and coordinate US positions on STANAGS to include assemblies, components, spare parts and material, and implementing those STANAGS ratified by the US through appropriate military specifications, standards, technical orders and related publications.

i. Prepare a statement of the potential impact of impending technology transfers on the US economy when such transfers can be identified as having significant commercial implications. The Military

Departments are encouraged to consult with industry and knowledgeable US Government agencies in assessing commercial implications of technology transfers.

j. Ensure, immediately upon determination that a weapons program is a candidate for NATO rationalization and standardization, that the technology and information, or portions thereof, are releasable for Allied participation in cooperative programs. The Deputy Secretary of Defense will be promptly advised of any programs where information release is rejected on grounds of unacceptable technology transfer. USD(R&E) and ASD(ISA) will also be informed of such a conclusion.

k. Evaluate (for specific projects for which standardization is being considered) the NATO-wide economic costs and savings associated with (1) standardized vs. non-standardized approaches and (2) alternative approaches for implementing standardization agreements (e.g., evaluate the cost/savings that could be achieved if there is only one production line vs. minimal codevelopment, etc.).

1. Through OUSDRE and ISA, keep USNATO and the American Embassies in NATO capitals apprised of the status of current and potential weapon system developments and procurements/productions, and of potential standardization/interoperability issues.

8. The Assistant Secretary of Defense (Program Analysis and Evaluation) shall:

a. Ensure that standardization and interoperability goals are an integral part of the DoD PPBS.

b. Establish the basis for acceptable cost analyses of NATO systems and equipment.

c. Review cost and operational analyses associated with systems to be employed in Europe that emphasize standardization or interoperability.

9. The Assistant Secretary of Defense (Communications, Command, Control and Intelligence) shall focus DoD efforts to achieve interoperable communications, command and control within NATO. In coordination with the Military Departments, the ASD/C3I shall support the development and procurement of standard or interoperable NATO communications, command and control equipment.

10. The Head of the DoD Steering Group for NATO Rationalization/Standardization shall coordinate and provide necessary guidance within established DoD policy for NATO standardization activities.

11. The Director, European Region of OASD(ISA) shall chair the group that includes members from the DoD Components. The group shall:

a. Meet at the call of the chairman, but not less often than quarterly.

b. Submit reports with appropriate recommendations to the Secretary of Defense.

c. Supervise preparation of an annual report to the Congress on progress towards standardization and interoperability within NATO.

12. The Defense Systems Acquisition Review Council (DoD Directive 5000.2 (reference (g))) shall:

a. Ensure that major development and procurement programs include NATO standardization and interoperability goals as a basic conceptual approach. (See paragraph D.11. above, Steps to be taken in the Acquisition process).

b. Ensure that R&D and acquisition programs are carried out in conformance with applicable international agreements, where applicable.

c. Review requirements for worldwide deployments that are additive to those for NATO and minimize their impact on Alliance standardization and interoperability.

d. Ensure that consideration is given to modifying U.S. specifications in those cases where specifications are an impediment to U.S. adoption of a cost-effective Allied system.

F. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Forward two copies of implementing regulations to the Assistant Secretary of Defense International Security Affairs within 120 days. Recommended changes should be forwarded to the Office of the Assistance Secretary of Defense, International Security Affairs, European Region, NATO Standardization Division, Washington, DC 20301.

Deputy Secretary of Defense

Enclosures - 3

1. References
2. Definitions
3. Bibliography

REFERENCES, continued

- (d) Deputy Secretary of Defense memorandum, "General Policy on Compensatory Coproduction and Offset Agreements with Other Nations," May 4, 1978
- (e) Arms Export Control Act, as amended
- (f) DoD Directive 2140.2, "Recoupment of Nonrecurring Costs on Sales of USG Products and Technology," January 5, 1977
- (g) DoD Directive 5000.2, "Major System Acquisition Process," January 28, 1977
- (h) DoD Directive 4120.3, "Defense Standardization and Specification Program" February 10, 1979
- (i) DoD Directive 5530.3, "International Agreements," November 3, 1976
- (j) DoD Instruction 2050.1, "Delegated Approval Authority to Negotiate and Conclude International Agreements," July 6, 1977
- (k) DoD Instruction 2015.4, "Mutual Weapons Development Data Exchange Program (MWDDEP) and Defense Development Exchange Program (DDEP)," November 5, 1963
- (l) DoD Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations," March 2, 1979
- (m) DoD Directive 5000.3, "Test and Evaluation," April 11, 1978
- (n) Under Secretary of Defense (Research and Engineering) memorandum, "Access by Foreign Contractors to Technical Information," 10 November 1978
- (o) Under Secretary of Defense (Research and Engineering) memorandum, "Access by Foreign Contractors to Technical Information," 2 February 1979

REFERENCES, continued

- (d) Deputy Secretary of Defense memorandum, "General Policy on Compensatory Coproduction and Offset Agreements with Other Nations," May 4, 1978
- (e) Arms Export Control Act, as amended
- (f) DoD Directive 2140.2, "Recoupment of Nonrecurring Costs on Sales of USG Products and Technology," January 5, 1977
- (g) DoD Directive 5000.2, "Major System Acquisition Process," January 28, 1977
- (h) DoD Directive 4120.3, "Defense Standardization and Specification Program" February 10, 1979
- (i) DoD Directive 5530.3, "International Agreements," November 3, 1976
- (j) DoD Instruction 2050.1, "Delegated Approval Authority to Negotiate and Conclude International Agreements," July 6, 1977
- (k) DoD Instruction 2015.4, "Mutual Weapons Development Data Exchange Program (MWDDEP) and Defense Development Exchange Program (DDEP)," November 5, 1963
- (l) DoD Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations," March 2, 1979
- (m) DoD Directive 5000.3, "Test and Evaluation," April 11, 1978
- (n) Under Secretary of Defense (Research and Engineering) memorandum, "Access by Foreign Contractors to Technical Information," 10 November 1978
- (o) Under Secretary of Defense (Research and Engineering) memorandum, "Access by Foreign Contractors to Technical Information," 2 February 1979

REFERENCES, continued

- (d) Deputy Secretary of Defense memorandum, "General Policy on Compensatory Coproduction and Offset Agreements with Other Nations," May 4, 1978
- (e) Arms Export Control Act, as amended
- (f) DoD Directive 2140.2, "Recoupment of Nonrecurring Costs on Sales of USG Products and Technology," January 5, 1977
- (g) DoD Directive 5000.2, "Major System Acquisition Process," January 28, 1977
- (h) DoD Directive 4120.3, "Defense Standardization and Specification Program" February 10, 1979
- (i) DoD Directive 5530.3, "International Agreements," November 3, 1976
- (j) DoD Instruction 2050.1, "Delegated Approval Authority to Negotiate and Conclude International Agreements," July 6, 1977
- (k) DoD Instruction 2015.4, "Mutual Weapons Development Data Exchange Program (MWDDEP) and Defense Development Exchange Program (DDEP)," November 5, 1963
- (l) DoD Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations," March 2, 1979
- (m) DoD Directive 5000.3, "Test and Evaluation," April 11, 1978
- (n) Under Secretary of Defense (Research and Engineering) memorandum, "Access by Foreign Contractors to Technical Information," 10 November 1978
- (o) Under Secretary of Defense (Research and Engineering) memorandum, "Access by Foreign Contractors to Technical Information," 2 February 1979

DEFINITIONS

A. Codevelopment. A development project to which more than one government contributes effort or resources.

B. Collocation (Colocation). The physical placement of two or more detachments, units, organizations, or facilities at a specifically defined location.

C. Commonality. A quality which applies to materiel or systems possessing like and interchangeable characteristics enabling each to be utilized or operated and maintained by personnel trained on the others without additional specialized training; and/or having interchangeable repair parts and/or components; and applying to consumable items interchangeably equivalent without adjustment.

D. Compatibility. The characteristic or ability of systems to co-exist and function in the same environment without mutual interference.

E. Compensatory Offset Agreements

1. Government-to-government compensatory coproduction and offset agreements: Such agreements are those which have the effect or create the impression, of obligating the Department of Defense to place orders for

systems or components in foreign countries, or to require U.S. private contractors to place orders and subcontracts in foreign countries, as a condition for the sale of U.S. defense articles to those countries or for other foreign participation in a mutual defense program.

2. Private compensatory coproduction and offset agreements. May be between U.S. companies and foreign companies, entities or governments. They have the effect of obligating the U.S. company to place orders or subcontracts in foreign countries as a condition for the sale of U.S. defense articles to those countries.

F. Cooperative Projects (Term of reference used in the Security Assistance Act of 1979) A project described in an agreement under which NATO or one or more countries thereof, agrees to (1) share with the U.S. the costs of research and development, testing and evaluation (RDT&E) of certain defense articles, and the costs of any agreed joint production ensuing therefrom, in furtherance of NATO standardization and interoperability; or (2) bear the costs of RDT&E of certain defense articles and to have such articles produced for sale to, and licensed for production within, other participant member countries including the U.S., and the U.S. agrees to bear the costs RDT&E of other defense articles and to have such defense articles produced for sale to, and licensed for production within, other participant member countries in order to further the objectives of rationalization of the industrial and technological resources within the NATO.

G. Cooperative Research and Development. Any method by which governments cooperate to make better use of their collective research and development resources to include technical information exchange, harmonizing of requirements, codevelopment, interdependent research and development, and agreement on standards.

H. Coproduction. Any program wherein the US Government, either through diplomatic or Ministry of Defense to Department of Defense agreement:

(1) enables an eligible foreign government, international organization, or designated commercial producer to acquire the technical information and "know-how" to manufacture or assemble in whole or in part an item of U.S. defense equipment for use in the defense inventory of the foreign government; or (2) acquires from a foreign government, international organization, or foreign commercial firm, the technical information to manufacture domestically a foreign weapon system for use by the Department of Defense. It includes government-to-government licensed production arrangements. It does not include: (1) overseas or domestic licensed production based on direct commercial arrangements with U.S. contractors in which the US Government is involved solely on the basis of U.S. export or import licensing, or (2) the provision of technical data for the purpose of providing information for maintenance, repair, overhaul, or operation of a defense item, without permission to manufacture the item or its components.

I. Dual Production. As used in the NATO context, it is the co-production of the same weapon system on both sides of the Atlantic Ocean. Although it implies independent production sources, it is often used in cases where some parts or components of the weapon system are produced on only one side of the Atlantic Ocean.

J. Electronic Interoperability. A special form of interoperability whereby two or more electronic equipments, especially communications equipments, can be linked together, usually through common interface characteristics and so operate the one to the other. See also interoperability.

K. Family of Weapons. A weapons family is composed of related and complementary weapons systems in a particular mission area. For example, systems in an air-to-ground munitions family could be defense suppression, antiarmor, antipersonnel, and airfield attack, etc.

L. Identical. The degree of standardization where either materiel, doctrines or procedures agree in every detail.

M. Harmonization. The process and/or results of adjusting differences or inconsistencies to bring significant features into agreement.

N. Independent European Program Group (IEPG). The IEPG was created in November 1975, as an independent forum to promote closer inter-European cooperation in the development, production and procurement of defense equipment. Its members are Belgium, Denmark, France, Germany, Greece, Italy, Luxembourg, Netherlands, Norway, Turkey and the United Kingdom.

O. Interchangeability. A condition which exists when two or more items possess such functional and physical characteristics as to be equivalent in performance, fit and durability, and are capable of being exchanged one for the other without alteration of the items themselves or of adjoining items, except for adjustment.

P. Interconnection. The linking together of interoperable systems.

Q. Interoperability. The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together. See also logistic interoperability and electronic interoperability.

R. Licensed production. See coproduction.

S. Logistics Interoperability. A form of interoperability whereby the service to be exchanged is assemblies, components, consumables or spare parts. Logistics interoperability will often be achieved by making such assemblies, components, consumables and spare parts interchangeable, but

can sometimes be a capability less than interchangeability when a degradation of performance or some limitations are operationally acceptable. See also interoperability.

T. Memorandum of Understanding (MOU). An international agreement between two or more parties. When used in the context of NATO programs, it usually refers to government-to-government agreements negotiated between allied defense agencies and signed by officials of the executive branch of governments, usually at or below the ministerial level.

U. National Policy and Procedures for the Disclosure of Classified Military Information to Foreign Governments and International Organizations (U) (Short Title: National Disclosure Policy) (NDP-1).

Promulgates national policy and procedures in the form of specific disclosure criteria and limitations, definitions of terms, release arrangements and other guidance required by U.S. departments and agencies having occasion to release classified U.S. military information to foreign governments and international organizations. In addition, it establishes and provided for the management of an interagency mechanism and procedures which are required for the effective implementation of the policy.

V. Rationalization. Any action that increases the effectiveness of Allied forces through more efficient or effective use of defense resources committed to the alliance. Rationalization includes consolida-

tion, reassignment of national priorities to higher alliance needs, standardization, specialization, mutual support improved interoperability, or greater cooperation. Rationalization applies to both weapons/material resources and non-weapon military matters.

W. Specialization. An arrangement within an alliance wherein a member or group of members most suited by virtue of technical skills, location, or other qualifications assume(s) greater responsibility for a specific task or significant portion thereof for one or more members.

X. Standardization. The process by which members nations of NATO achieve the closest practicable cooperation among forces, the most efficient use of research development, and production resources, and agree to adopt on the broadest possible basis, the use of: (a) common or compatible operational, administrative, and logistic procedures; (b) common or compatible technical procedures and criteria; (c) common, compatible, or interchangeable supplies, components, weapons, or equipment; and (d) common or compatible tactical doctrine with corresponding organization compatibility.

Y. Teaming Arrangements. An agreement of two or more firms to form a partnership or joint venture to act as a potential prime contractor, or an agreement by a potential prime contractor to act as a subcontractor under a specified acquisition program, or an agreement for a joint proposal resulting from a normal prime contractor-subcontractor, licensee-licensor, or leader company relationship.

Z. Transatlantic Dialogue (TAD). The TAD comprises negotiations between representatives of the North American nations (United States and Canada) and the IEPG under the auspices of the Conference of National Armament Directors concerning the ways to improve cooperation in the development, production and procurement of NATO defense equipment in order to make the best possible use of Alliance resources.

BIBLIOGRAPHY

- (d) Department of Defense Instruction 2010.4, "US Participation in Certain NATO Groups Relating to Research, Development, Production and Logistics Support of Military Equipment," December 12, 1967.
- (e) Department of Defense Directive 2010.7, "Policy on Rationalization of NATO/NATO member Telecommunications Facilities," June 13, 1977
- (f) Department of Defense Directive 2010.8, "Department of Defense Policy for NATO Logistics,"
- (g) Department of Defense Directive Plan 2010.8, "Department of Defense NATO LOGMAP,".
- (h) Department of Defense Directive 2015.4 "Mutual Weapons Development Data Exchange Program (MWDDEP) and Defense Development Exchange Program (DDEP)," November 5, 1963
- (i) Department of Defense Directive 2050.1, "Delegate Authority to Negotiate and Conclude International Agreements," July 6, 1977
- (j) Department of Defense Directive 2140.2, "Recovery of Nonrecurring Costs on Sales of USG Products and Technology," January 5, 1977
- (k) Department of Defense Directive 3100.3, "Cooperation with Allies in Research and Development of Defense Equipment," September 27, 1963
- (l) Department of Defense 3100.4, "Harmonization of Qualitative Requirements for Defense Equipment of the United States and Its Allies," September 27, 1963
- (m) Department of Defense Directive 4120.3, "Defense Standardization and Specification and Specification Program," February 10, 1979

- (n) Department of Defense Directive 4120.18, "Use of the Metric System of Measurement," December 10, 1976
- (o) Department of Defense Directive 5000.3, "Test and Evaluation," January 19, 1973
- (p) Department of Defense Directive 4630.5, "Compatibility and Commonality of Equipment for Tactical Command, Control and Communications," January 28, 1967
- (q) Department of Defense Directive 5000.1, "Major System Acquisitions," January 18, 1977
- (r) Department of Defense Directive 5000.2, "Major System Acquisition Process," January 18, 1977
- (s) Department of Defense Directive 5000.19, "Policies for the Management and Control of Department of Defense Information Requirements," March 12, 1976
- (t) Department of Defense Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations," March 2, 1979
- (u) Department of Defense Instruction 5230.17, "Procedures and Standards for Disclosure of Military Information to Foreign Activities," September 23, 1977
- (v) Department of Defense Instruction 5230.18, "The Department of Defense Foreign Disclosure Automated Data System (FORDAD)," July 10, 1973
- (w) Department of Defense Rationalization/Standardization Within NATO. Fifth Report, A Report to the United States Congress by Harold Brown, Secretary of Defense, January 1979

- (x) Memorandum, Deputy Secretary of Defense, General Policy on Compensatory Coproduction and Offset Agreements With Other Nations, May 4, 1978
- (y) National Policy and Procedures for the Disclosure of Classified Military Information to Foreign Governments and International Organizations (NDP-1/9), February 1, 1979



Department of Defense Directive

SUBJECT: Major System Acquisitions

References: (a) DoD Directive 5000.1, "Major System Acquisition," January 18, 1977, (hereby canceled)
(b) DoD Directive 5000.2, "Major System Acquisition Process," January 18, 1977, (hereby canceled)
(c) DoD Directive 5000.30, "Defense Acquisition Executive," August 20, 1976 (hereby canceled)
(d) through (f), see enclosure 1

A. REISSUANCE AND PURPOSE

This Directive reissues reference (a), cancels references (b) and (c), and updates the statement of acquisition policy for major systems within the Department of Defense. This Directive also implements the concepts and provisions of Office of Management and Budget (OMB) Circular A-109 (enclosure 2).

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

Each DoD official who has direct or indirect responsibility for the acquisition process shall be guided by the objectives of OMB Circular A-109 (enclosure 2) and shall make every effort to:

1. Ensure that an effective and efficient acquisition strategy is developed and tailored for each system acquisition program.
2. Minimize the time from need identification to introduction of each system into operational use including minimizing time gaps between program phases.
3. Achieve the most cost-effective balance between acquisition and ownership costs and system effectiveness.
4. Correlate individual program decisions with the Planning, Programming, and Budgeting System (PPBS).

5. Maximize collaboration with United States allies.

6. Integrate support, manpower, and related concerns into the acquisition process.

D. POLICY

1. General. The provisions of this Directive and OMB Circular A-109 (enclosure 2) apply to the acquisition of major systems within the Department of Defense. The principles in this Directive should also be applied, where appropriate, to the acquisition of systems not designated as major. Responsibility for the management of system acquisition programs shall be decentralized to DoD Components except for the decisions retained by the Secretary of Defense.

2. Specific

a. Analysis of Mission Areas. As part of the routine planning for accomplishment of assigned missions, DoD Components shall conduct continuing analyses of their mission areas to identify deficiencies in capability or more effective means of performing assigned tasks. During these ongoing analyses, a deficiency 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 a deficiency in an existing system, a decision to establish new capabilities in response to a technologically feasible opportunity, or a significant opportunity to reduce the DoD cost of ownership. Development of a new system may be undertaken after assessment of alternative system concepts including:

(1) Change in United States or North Atlantic Treaty Organization (NATO) tactical or strategic doctrine.

(2) Use of existing military or commercial systems.

(3) Modification or product improvement of existing systems.

c. Designation of Major Systems. Only those systems which the Secretary of Defense shall make the milestone decisions shall be designated as major. Normally, this shall be done at the time the Mission Element Need Statement (MENS) is approved by the Secretary of Defense. In addition to the criteria set forth in OMB Circular A-109 (enclosure 2), the decision to designate any system as major may 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, and procurement funds.

(4) Congressional interest.

d. Affordability. Affordability shall be considered at every milestone. A program normally shall not proceed into concept exploration unless sufficient resources are or can be programmed for Phase 0 or into the Full-Scale Development Phase unless sufficient resources are or can be programmed over the remaining life of the program to execute the program in the manner prescribed by the Secretary of Defense. Affordability, a function of cost, priority, and availability of fiscal and manpower resources, shall be established and reviewed in the context of the PPBS process. Specific facets of affordability to be reviewed at milestone decision points are set forth in DoD Instruction 5000.2 (reference (d)).

e. Acquisition Time. A primary objective of management shall be to minimize the time it takes to acquire material and facilities to satisfy military needs. Particular emphasis shall be placed on minimizing the time from a commitment to acquire an operable and supportable system to deploying it with the operating force. Commensurate with risk, such approaches as developing separate alternatives in high-risk areas, experimental prototypings of critical components, combining phases, or omitting phases are encouraged.

f. Tailoring. OSD and DoD Components shall exercise judgment and flexibility to encourage maximum tailoring in the acquisition process while stimulating a competitive environment. Tailoring of the acquisition strategy shall be noted in the MENS or the Decision Coordinating Paper (DCP). Approval of such tailoring will be included in the Secretary of Defense Decision Memorandum (SDDM).

g. Standardization and Interoperability. Equipment procured for the use of personnel of the Armed Forces of the United States stationed in Europe under the terms of the North Atlantic Treaty should be standardized or at least be interoperable with equipment of other members of NATO. Accordingly, NATO rationalization, standardization, and interoperability (RSI) are basic considerations in acquisition of systems having a partial or total application to Europe. Refer to DoD Directive 2010.6 (reference (e)).

h. 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. The line official shall be held accountable for the decision.

3. Milestone Decisions and Phases of Activity. Four milestone decisions and four phases of activity comprise the normal DoD acquisition process for major systems.

a. Milestone 0 Decision. Approval of MENS and authorization to proceed into Phase 0--Concept Exploration--which includes solicitation, evaluation and competitive exploration of alternative system concepts. Approval to proceed with concept exploration also means that the Secretary of Defense intends to satisfy the need.

b. Milestone I Decision. Selection of alternatives and authorization to proceed into Phase I--Demonstration and Validation.

c. Milestone II Decision. Selection of alternative(s) and authorization to proceed into Phase II--Full Scale Development--which includes limited production for operational test and evaluation. Approval to proceed with Full Scale Development also means that the Secretary of Defense intends to deploy the system.

d. Milestone III Decision. Authorization to proceed into Phase III--Production and Deployment.

4. Documentation for Milestone Decisions

a. Milestone 0

Mission Element Need Statement (MENS). Each major system acquisition program requires a MENS approved by the Secretary of Defense. DoD Components shall prepare MENS to document major deficiencies in their ability to meet mission requirements. Joint MENS shall be prepared to document major deficiencies in two or more DoD Components. The MENS, as described in enclosure 2 to DoD Instruction 5000.2 (reference (d)), shall be limited to 5 pages including Annexes.

b. Milestones I, II, and III .

(1) Decision Coordinating Paper (DCP). The DCP provides basic documentation for use by Defense Systems Acquisition Review Council (DSARC) members in arriving at a recommendation for the Secretary of Defense. It includes: a program description, goals and thresholds, a summary of the DoD Component's acquisition strategy, system and program alternatives, and issues affecting the decision. The DCP, as described in enclosure 3 to DoD Instruction 5000.2 (reference (d)), shall be limited to ten pages including Annexes.

(2) Integrated Program Summary (IPS). The IPS summarizes the DoD Component's acquisition planning for the system's life cycle and provides a management overview of the program. The IPS, as described in enclosure 4 to DoD Instruction 5000.2 (reference (d)), shall be limited to fifty pages including all Annexes except Annex B, Resources - Funding Profile.

(3) Milestone Reference File (MRF). A temporary MRF shall be established within OSD to provide a central repository for existing program documentation and references for referral during each milestone review.

c. Milestones 0, I, II, and III

Secretary of Defense Decision Memorandum (SDDM). An SDDM documents each milestone decision, establishes program goals and thresholds, reaffirms established needs and program objectives, and provides the direction and guidance to OSD, OJCS, and the DoD Component for the next phase of acquisition.

E. 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 (DAE) determines to be necessary.

2. The Defense Acquisition Executive (DAE)

a. The DAE is the principal advisor and staff assistant to the Secretary of Defense for the acquisition of defense systems and equipment.

b. The DAE shall be designated by the Secretary of Defense and shall serve as the permanent member and Chairman of the DSARC.

c. In coordination with the permanent members of the DSARC, the DAE shall:

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

(2) Monitor DoD Component compliance with the policies and practices in OMB Circular A-109 (enclosure 2), this Directive, and DoD Instruction 5000.2 (reference (d)).

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

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

d. The DAE is specifically delegated authority to:

(1) Designate action officers who will 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) Issue instructions and one-time, Directive-type memoranda in accordance with DoD Directive 5025.1 (reference (f)).

(3) Obtain such reports and information as may be necessary to the performance of assigned functions.

3. The Under Secretary of Defense for Policy shall be a permanent member of the DSARC. On occasion, he may design someone to represent him at a given DSARC.

4. The Under Secretary of Defense Research and Engineering (USDR&E) is a permanent member of the DSARC and shall be responsible for policy and review of all research, engineering development, technology, test and evaluation, contracting, and production of systems covered by this Directive. On occasion, he may design someone to represent him at a given DSARC. In addition he/she shall:

a. Monitor, in conjunction with the Assistant Secretary of Defense (Program Analysis and Evaluation) (ASD(PA&E)), DoD Component procedures for analysis of mission areas.

b. Coordinate MENS provided by DoD Components.

c. Coordinate, together with Assistant Secretary of Defense (Comptroller) (ASD(C)) and ASD(PA&E), the interface of the acquisition process with the PPBS.

5. The Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) (ASD(MRA&L)) is a permanent member of the DSARC and shall be responsible for policy on logistic and manpower planning for new systems and for ensuring that logistic planning is consistent with system hardware parameters, logistics policies and readiness objectives.

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

7. The Assistant Secretary of Defense (Program Analysis and Evaluation) is a permanent member of the DSARC and shall:

a. Monitor, in conjunction with USDR&E, 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 USDR&E and ASD(C), the interface of the acquisition process with the PPBS.

8. The Chairman, Joint Chiefs of Staff (JCS) or his designated representative shall be a permanent member of the DSARC.

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

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

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.

c. Ensure that a program manager is assigned and that a program manager's charter is approved as soon as feasible after Milestone 0.

d. Establish career incentives to attract, retain, motivate and reward competent program managers.

e. 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.

11. The Program Manager is responsible for acquiring and fielding, in accordance with instructions from line authority, a cost effective solution to the approved mission need that can be operated and supported within available resources.

F. ORDER OF PRECEDENCE

This Directive and DoD Instruction 5000.2 (reference (d)) are first and second in order of precedence for major systems acquisition except where statutory requirements override. Any Department of Defense issuance in conflict with this Directive or DoD Instruction 5000.2 (reference (d)) shall be canceled within 90 days of the effective date of this Directive unless changed as appropriate.

H. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. DoD Component heads will prepare implementing documents consistent with good management practice. Forward one copy of implementing documents to the Under Secretary of Defense (Research and Engineering) within 180 days of the date of this Directive.

Enclosures - 2

1. References
2. OMB Circular A-109, "Major System Acquisitions," April 5, 1976

REFERENCES, continued

- (d) DoD Instruction 5000.2, "Major System Acquisition Procedures,"
(in coordination)
- (e) DoD Directive 2010.6, "Standardization and Interoperability of
Weapon Systems and Equipment within the North Atlantic Treaty
Organization (NATO)," March 11, 1977
- (f) DoD Directive 5025.1, "Department of Defense Directives System,"
November 18, 1977



EXECUTIVE OFFICE OF THE PRESIDENT

OFFICE OF MANAGEMENT AND BUDGET

WASHINGTON, D.C. 20503

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

(No. A-109)

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

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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.

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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.

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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:

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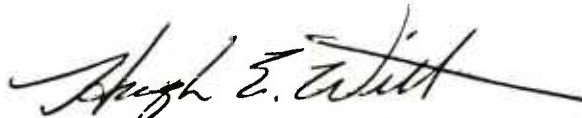
a. Policy directives, regulations, and guidelines as they are issued.

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.

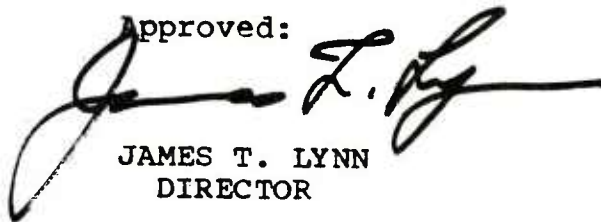
This information will be used by the OMB, in identifying major system acquisition trends and in monitoring implementations of this policy.

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

(No. A-109)



Department of Defense Instruction

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" (in coordination)
 - (c) DoD Directive 5000.35, "Defense Acquisition Regulatory System," March 8, 1978
 - (d) through (p) see Enclosure 1

A. PURPOSE

This Instruction replaces DoD Directive 5000.2 (reference (a)) to provide revised supplementary procedures for Department of Defense (DoD) use in implementation of DoD Directive 5000.1 (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. He shall advise the Secretary of Defense when such an action is taken.

2. Major System Listings. The Executive Secretary of the Defense System 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) (ASD(C)), shall maintain a listing of programs for which selected Acquisition Reports (SARs) are required.

3. Milestone 0 Documentation

a. Mission Element Need Statement (MENS)

(1) Purpose. A MENS is the document upon which the Milestone 0 decision is based. It identifies and defines: (a) a specific deficiency within a mission area; (b) the relative priority of the deficiency within the mission area; (c) the 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(s) 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 production funds. A MENS is not required for programs, regardless of size, directed toward developing and maintaining a viable technology base.

(2) Scope. The deficiency identified in a MENS should be defined as narrowly as possible so that there is a reasonable probability of correcting the deficiency by developing 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 leading to the Milestone I decision.

(3) Format. Enclosure 2 contains the format of a MENS along with explanatory information regarding its preparation. The MENS will not exceed five pages including annexes.

(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 prior to POM submission is 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 Defense Intelligence Agency.

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

within twenty 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 which shall assume responsibility for milestone decisions on the program.

b. Secretary of Defense Decision Memorandum

(1) When the DAE plans to recommend approval of the MENS and designation of a system as major, the action officer shall prepare an 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 such advisors as the DAE considers appropriate for the action. The Milestone 0 SDDM will also establish the date for the Milestone I review.

(2) Upon approval of the MENS by an SDDM and designation of a system as major, the DoD Component may take necessary programming action to incorporate required resources into the Planning, Programming, and Budgeting System (PPBS).

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. 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, Policy or his designated representative
- (c) Under Secretary of Defense, Research and Engineering or his designated representative
- (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 his designated representative

(2) Principal Advisors.

- (a) For communications, command, control, and intelligence (C³I) matters: Assistant Secretary of Defense (Communications, Command, Control, and Intelligence)
- (b) For NATO affairs: Advisor to the Secretary of Defense and Deputy Secretary of Defense on NATO Affairs
- (c) For acquisition strategy and producability 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 intelligence matters: Director, Defense Intelligence Agency
- (f) For test and evaluation matters: Director of Test and Evaluation
- (g) For independent costing: Chairman of the Cost Analysis Improvement Group
- (h) For Logistics Support: (to be designated by MRA&L)

b. DSARC Reviews. The DAE is responsible for convening formal meetings, as required 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 Secretary of Defense Decision Memorandum (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 which would require a DSARC meeting. In this case, the SDDM shall be prepared by the action officer and coordinated in accordance with paragraph C.3.e.(4). before it is forwarded to the Secretary of Defense for his decision.

c. Milestone Review Process.

(1) Milestone Planning Meetings. Planning meetings 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.

(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 prior to a DSARC meeting. The action officer shall insure 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 will be made to resolve major issues prior to 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 prior to 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 DSARC advisor on the DCP shall be determined by his staff representative in sufficient 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 or 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 having 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 fifteen workdays following the DSARC meeting.

d. Milestone Planning Schedule.

Event	Schedule in Relation to Date of DSARC Meeting
(1) Milestone Planning Meeting	- 6 months
(2) "For Comment DCP" and IPS	- 3 months
(3) DCP Comments to DoD Components	- 2 months
(4) "Final DCP" and updated IPS	- 15 workdays
(5) OSD Cost Analysis Improvement Group (CAIG) Briefing	- 15 workdays
(6) OSD Test and Evaluation (T&E) Briefing	- 15 workdays
(7) Manpower and Logistics (MRA&L) Briefing	- 15 workdays
(8) Defense Intelligence Agency (DIA) Report to DSARC Chair	- 10 workdays
(9) DSARC Chair's Prebrief (OSD Staff Only)	- 5 workdays
(10) CAIG Report	- 3 workdays
(11) T&E Report	- 3 workdays
(12) DSARC Meeting	0
(13) SDDM issued to DoD Component	+ 15 workdays

e. Milestone I, II and III Documentation.

(1) Decision Coordinating Paper (DCP). A DCP provides the primary documentation for use by the 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 (IPS). The IPS summarizes the implementation plan of the DoD Component for the life cycle of the system. The IPS shall provide 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). An MRF shall be established at each milestone to provide a central location for existing program documentation referenced in the DCP and IPS to be used during the milestone review. 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 for use of DoD personnel needing more detailed information.

(4) Secretary of Defense Decision Memorandum (SDDM).

(a) The SDDM documents the Secretary of Defense's milestone decision including approval of cost, schedule, performance and supportability goals and thresholds, and such other direction as appropriate. 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 an SDDM to reflect revised thresholds and updated program direction resulting from threshold breaches or projected breaches reported by the DoD Component. He shall also prepare and coordinate an SDDM when programming or budgeting decisions (including congressional direction) affect thresholds or program direction contained in the previous SDDM. This will be done within forty workdays after submission of the Presidential Budget to Congress. In the case of congressional direction, the SDDM will be prepared and coordinated forty workdays after the legislation is enacted.

f. DSARC Executive Secretary. The Defense Acquisition Executive (DAE) shall designate a permanent Executive Secretary who shall administer and coordinate the DSARC process as well as:

- (1) Maintain and distribute periodic status reports,
- (2) Make administrative arrangements for Milestone Planning Meetings, DSARC Pre-Briefs 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 an SDDM is issued, and
- (6) Control attendance at Pre-briefs 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, Research and Engineering for systems involving research and development, 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 which 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 paragraph C.3.f of this Instruction,
- (3) Present the DSARC Chair's Pre-Briefing,
- (4) Monitor the Milestone planning schedule, and
- (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 program to DoD issuances that are part of DARS. Principal issuances which 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, and other factors (e.g., environmental conditions) which bear on the missions of the various components of the Defense Department. 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. Threat. The effectiveness of a proposed weapon system in its intended threat environment is a fundamental concern of the acquisition effort and should be considered by the program manager from the outset.

An interactive analysis (i.e., a study of the system-threat interaction) shall be conducted prior to Milestone I and shall be updated in greater specificity prior to each subsequent milestone. The intelligence used for the interactive analysis shall be provided by the DoD Component intelligence organization direct to the program manager and to DIA. Analyzing system concepts and specific systems in this manner will allow program managers to identify threat parameters (such as, numbers, types, mix, or characteristics of projected enemy systems) which 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 prior to its use in the interactive analysis, review CIP output, and report his findings and conclusions in writing to the DAE not later than ten 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.

3. Acquisition Strategy.

a. Acquisition strategy is the conceptual basis of the overall plan that a program manager follows in accomplishing the specific goals and objectives of his program. It reflects the management concepts that shall be used in directing and controlling the program to ensure that the system being acquired shall satisfy the approved mission need. Although acquisition strategy encompasses the entire acquisition process, the strategy can be detailed for the Phase 0 activities, at the time of issuing the solicitation to competitively explore alternative system design concepts. However, sufficient planning must be accomplished for succeeding program phases (including production) for those considerations which 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, 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 feasible after Milestone 0. The program acquisition strategy is unique for each program and should be tailored by the program manager to the circumstances surrounding his program. 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 formal document requiring separate higher level approval, the program manager shall be required to keep all management levels informed of his 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 and production. The strategy for production shall be updated at Milestone III.

4. 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 his management decision making. A realistic work breakdown structure which 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.

b. Programming 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 and cost estimates which, if changed significantly, might alter the Secretary of Defense milestone decision. PPBS actions by the DoD Components and the OSD staff, which 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 in the PPBS document proposing the change.

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 costing factors and adjustments for inflation 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. This life cycle cost estimate shall be updated for each subsequent milestone. These cost estimates shall be developed concurrently with development activities 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(s) 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 costs, 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 immediately reporting actual and projected threshold breaches 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 an 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 proposers 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 deemed 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, 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. Authorization to proceed into the next acquisition phase must 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 will 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 will be used as a factor in determining the selection of alternative concepts. At Milestones II and III, a favorable decision will 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 item(s) 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 and the DoD Component's other major systems in the mission area in the latest program or budget submission.

(c) Analysis of variation in unit cost with production rate (Milestones II and III).

(d) Where program cost estimates exceed latest budget projections, identification of potential offsets necessary to provide the resources to execute the remaining phase(s) of the program in the manner recommended to the DSARC.

h. Timeliness. When technical and cost risks are low or when the urgency to counter a threat transcends high technical and cost risks, DoD Components should give consideration to minimizing acquisition cycle time by planned concurrency. This may include overlapping, combining, or omitting the phases of the acquisition process or by overlapping or combining development test and evaluation with operational test and evaluation. The amount or degree of such concurrency should be based on the extent of potential savings in acquisition time balanced against cost and technical risks and/or national urgency in each acquisition program. In order to achieve timely deployment, consideration should also be given to accepting system performance growth after deployment.

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

5. Competitive Concept Development. 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 feasible range of acquisition and support alternatives to satisfy the mission need shall be considered. Foreign contractors should be included in solicitations wherever feasible. At a minimum, solicitations shall outline the need in mission terms; schedule objectives and constraints; system cost objectives; and operating and deployment constraints. Maximum use should be made of functional specifications which include only minimum requirements. Specifications stated in detailed or "how to" language should be avoided wherever possible. Solicitations should not specify or reference government specifications or standards unless such specifications or standards are required by law or are justified by health, safety, or similar considerations. Solicitations should normally not specify standard support concepts; but if nonstandard support concepts are proposed, they should be accompanied with estimates of the cost to implement them.

6. Contracting.

a. Pre-RFP 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 development phase and maintained as long as economically practical throughout the acquisition cycle of the system. In addition, both the government and its contractors should breakout components for competition throughout the acquisition cycle to the maximum extent possible. Techniques and procedures which result in cost auctioning between prospective contractors or where by technical ideas or data is shared with other contractors without prior authorization of the source (i.e. technical leveling) are prohibited.

c. Socio-Economic Program Implementation. Government socio-economic programs must be considered throughout the system acquisition process. Particular emphasis shall be placed on contracting with small and disadvantaged business firms.

7. Design Considerations.

a. Standardization in Engineering Design. Standardization shall be applied in design during the Full Scale Development (FSD) phase to reduce cost of production and operational support and to accelerate timely operational readiness through optimum utilization of existing or co-developed subsystems, equipment, components, parts, and materials common to other systems and available in supply. Standardization shall be optimized to enhance reliability, maintainability, supportability, and life-cycle cost

but shall not compromise essential performance or excessively inhibit the application of new technology and innovative, advanced design. A standardization program, including a parts control program, shall be applied in accordance with methods and objectives described in 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 assure adequate production facilities 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 is executable.

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 in order to satisfy the mission need set forth in the MENS. It establishes required readiness and activity rates and provides the basis for all integrated logistics support planning. An initial operational concept and system readiness objective must be developed by Milestone I and maintained current 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, 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 should 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 fully support peacetime readiness objectives and the wartime concept of employment shall be developed by Milestone III. These requirements shall be based upon considerations including available Operational Test and Evaluation (OT&E) 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, etc.

g. Deployment Requirements. When deployment is a requirement, transportability shall be a system selection and design factor. The transportability of individual systems and components and units equipped with such systems in programmed military and Civil Reserve Air Fleet aircraft or other transportation modes shall be evaluated. Tradeoffs between transportability and combat effectiveness may be appropriate. Both inter-theatre and intra-theatre transportability shall be considered.

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

8. Reliability and Maintainability (R&M). Goals and thresholds shall be proposed in the DCP for system R&M parameters directly related to operational readiness, mission success, maintenance manpower cost, and logistic support cost. R&M goals and thresholds shall be defined in operational terms and shall include both Contractor Furnished Equipment (CFE) and Government Furnished Equipment (GFE) elements of the system.

a. R&M goals shall be realistically achievable in service. Insofar as 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 prior to 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 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.

9. Logistics. Integrated logistic support plans and programs, including NATO or bilateral Allied support, shall be structured to meet system readiness (both peacetime readiness and wartime employment) objectives, tailored to the specific system. Beginning early in the system development process, both DoD 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 FSD, and firm requirements shall be established prior to Milestone III. Logistics and manpower planning shall be adjusted based on follow-on test and evaluation and other appropriate reviews. Prior to Milestone III, a strategy shall be developed for follow-on support in accordance with DoD Directive 4100.35 (reference (h)).

10. 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 interface(s) between computers and plans to achieve that interface must be identified early in the life cycle. Plans for software development, documentations testing, and update during operation and deployment require special attention.

b. Computer resource planning shall be accomplished prior to 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 5010.21 (reference (i)).

11. Command and Control Systems: The major characteristics of command and control systems which require special management procedures are a rapidly evolving technological base and multiple requirements for internal and external interfaces. Following the documentation of a command and control major system requirement in a MENS approved by the Secretary of Defense in an SDDM, the design and testing of such systems should, in most cases, be accomplished in an evolutionary manner. These command

and control systems will 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 will 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/user needs and the documentation necessary for operational employment. When these objectives are achieved, the DoD Component will 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 (post-Milestone II) development phase.

12. 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.

b. Consider NATO doctrine and NATO member threat assessments. In development of MENS, mission needs of NATO members should be considered. In general, NOFORN data shall not be included in MENS.

c. Solicit NATO member contractors for bids and proposals on US systems/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) Wherever a Secretary of Defense determination has not already been made, determine whether a waiver of "Buy American" restrictions is appropriate.

(4) Develop plans for further international cooperation in subsequent phases of the acquisition cycle (cooperative development, co-production, sub-contracting, etc.)

e. In subsequent phases of the acquisition cycle, DoD Components shall:

- (1) Continue to expand and refine plans for international cooperation.
- (2) Recommend US position on third-country sales, recoupment of R&D costs or sharing foreign R&D costs, and release of technology.
- (3) Develop plans for host nation 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 will be canceled within 90 days of the effective date of this Instruction unless changed as appropriate.

G. EFFECTIVE DATE AND IMPLEMENTATION

This Instruction is effective immediately. One copy of each implementing document shall be forwarded to the Under Secretary of Defense (Research and Engineering) within 180 days of the date of this Instruction.

Enclosures

1. References
2. Mission Element Need Statement Outline
3. Decision Coordinating Paper Outline
4. Integrated Program Summary Outline
5. DoD Policy Issuances Related to Acquisition of Major Systems

REFERENCES

- (d) DoD Instruction 7000.3, "Selected Acquisition Reports (SAR)," September 23, 1975
- (e) DoD Directive 4120.3, "Defense Standardization and Specification Program," June 6, 1973
- (f) DoD Instruction 4120.19, "Department of Defense Parts Control Systems," December 16, 1976
- (g) DoD Instruction 5000.36, "System Safety Engineering and Management," November 6, 1978
- (h) DoD Directive 4100.35, "Development of Integrated Logistics Support for Systems/Equipments," October 1, 1970
- (i) DoD Instruction 5010.21, "Configuration Management Implementation Guidance," August 6, 1968
- (j) DoD Directive 5000.19, "Policies for the management and Control of Information Requirements," March 12, 1976
- (k) Military Standard 881A, "Work Breakdown Structures for Defense Material Items," April 25, 1975
- (l) DoD Directive 5000.3, "Test and Evaluation," April 11, 1978
- (m) DoD Directive 5000.34, "Defense Production Management," October 31, 1977
- (n) DoD Instruction 7000.2, "Performance Measurement for Selected Acquisitions," June 10, 1977
- (o) DoD Directive 4155.1, "Quality Program," August 10, 1978
- (p) DoD Instruction 5000.33, "Uniform Budget/Cost Terms and Definition," August 15, 1977

MISSION ELEMENT NEED STATEMENT
OUTLINE

The Mission Element Need Statement (MENS) shall be prepared in the format shown below. The MENS shall not exceed 5 pages including Annexes. Supporting documentation should be referenced.

A. MISSION

1. Mission Areas. Identify the mission area(s) addressed in this MENS. (A need can be common to more than one mission area. When this is the case, the multiple mission areas should be identified.)

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 or in terms of an exploitable technology. 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 Defense Intelligence Agency and provide specific references from which the threat description is derived. Quantify the threat in numbers and capability. 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 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 (e.g., excessive manpower, logistic support requirements, or 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, and manpower considerations.

5. Standardization/interoperability with NATO, as well as 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

The DCP shall be prepared in the format shown below. The DCP shall not exceed 10 pages, including annexes. Supporting documentation should be referenced.

Part I: State the direction needed from the Secretary of Defense, including deviation from policy contained in DoD Directive 5000.1.

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

Part III: Summarize system and program alternatives considered and the reasons why the preferred alternative was selected.

Part IV: Summarize the program acquisition strategy with emphasis on the next phase.

Part V: Identify and assess issues affecting the SECDEF's Milestone decision.

ANNEXES

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

	Last Approved by SECDEF <u>1/</u>		Current Estimate	Recommended to SECDEF At This Milestone <u>2/</u>	
	Goal	Threshold		Goal	Threshold
	(a)	(b)	(c)	(d)	(e)
<u>COST 3/ 4/</u> RDT&E <u>5/</u> Procurement Flyaway					
<u>SCHEDULE 4/ 6/</u> Next Milestone IOC					
<u>PERFORMANCE 7/</u> Operational Availability <u>8/ 9/</u> Mission Reliability <u>9/ 10/</u> Weight Range Speed Sortie Rate <u>11/</u>					
<u>SUPPORTABILITY AND MANPOWER 7/</u> Manning <u>12/</u> Maintenance- related R&M <u>9/ 13/</u> PDL Consumption Spares <u>14/</u>					

- 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.
- 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 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 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 logistics-related R&M parameters if appropriate.

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

	FY 19 PRIOR	FY 19	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 <u>1/</u> RT&E Funding (Approved FYDP)										
PRODUCTION System Cost <u>2/</u> (Long Lead Requirements) Initial Spares Total Procurement Cost <u>1/</u> Procurement Funding (Approved FYDP)										()
MILCON During Development During Production Total MILCON MILCON Funding (Approved FYDP)										
Total Program Acquisition Cost <u>1/</u> RT&E, Procurement and MILCON Funding (Approved FYDP) Difference ()										
Estimated Other Resources Requirements <u>3/</u> During Development During Production										
OPERATING AND SUPPORT O&M MILPERS Procurement <u>4/</u> Total Operating and Support Cost <u>1/</u>										
Total Life Cycle Requirements										

1/ Definitions should be in accordance with DoD Instruction 5000.33.

2/ Equal to Weapon System Cost as defined in DoDI 5000.33; for Shipbuilding, Outfitting and Post Delivery Costs will be included.

3/ Other Life Cycle related costs (i.e., Installation, Project Manager Office, Civilian Salaries, etc.) funded by other appropriations; e.g., O&M & MILPERS during Development and/or Production phase. Also, Production Base Support (Industrial Facilities), shore-based training facilities, and other system peculiar costs identified as a separate line item, or as a portion of a separate line item, in another part of the Procurement Budget. Identify the content of this entry.

4/ Procurement costs associated with operation/owning a weapon system such as modifications, replenishment spares, ground equipment, etc.

DCP ANNEX C
LIFE CYCLE COST

CONSTANT DOLLARS (MILLIONS)

<u>ALTERNATIVE</u>	<u>DEVELOPMENT</u>	<u>PRODUCTION</u>	<u>O&S</u>	<u>TOTAL</u>
A 1				
A 2				
A 3				
o				
o				
o				

CURRENT DOLLARS (MILLIONS)

<u>ALTERNATIVE</u>	<u>DEVELOPMENT</u>	<u>PRODUCTION</u>	<u>O&S</u>	<u>TOTAL</u>
A 1				
A 2				
A 3				
o				
o				
o				

INTEGRATED PROGRAM SUMMARY (IPS)

The IPS summarizes the implementation plan of the DoD Component for the complete acquisition cycle with emphasis on the phase the program is entering. The IPS shall be limited to 50 pages (inclusive of all annexes except Annex B) with no more than two pages required per topic. Where further detail is available in a published study or plan, these documents shall be referenced in the IPS and provided for inclusion in the Milestone Reference File (MRF). The classification of the IPS should not be higher than SECRET. Wherever it is possible, data should be displayed 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

The topics that are indicated below shall normally be included in the IPS.

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, describe briefly 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, this section shall describe the analytical/coordination tasks remaining and provide a schedule for completion of the analysis prior to the scheduled DSARC meeting.
4. Threat Assessment. Provide an up-to-date summary of the threat including discussion of critical intelligence parameters (CIPs).
5. System Vulnerability. Describe vulnerability to detection, interference, and attack and program actions to minimize these vulnerabilities.
6. Organizational and Operational Concept. Describe the organizational structure associated with the system and the general 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 as needed (but not repeating) other sections of the IPS. Discuss the rationale for any deviations from standard procedures prescribed in DoD Directive 5000.1 and DoD Instruction 5000.2. 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.

9. Contracting. Provide a summary of information in the contracting plan. At a minimum, this section shall include: (a) the overall program contracting plan (e.g., 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(s) performance under contracts in the current program phase; and (c) major contracts to be awarded in the next program phase, e.g., summary of workscope, contract type(s), sources solicited/selected, scheduled award date(s), special terms or conditions, data rights, warranties, estimated cost or price including incentive structures. Where considered appropriate, reference should be made to other portions of the IPS or to documents in the MRF for additional detail. This paragraph should not include contractor sensitive data.

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 (m)). Additionally:

a. At Milestone I. Identify new manufacturing technology needed for each concept considered for demonstration and validation.

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. If the review is not complete at the time the IPS is submitted, this section will describe the tasks remaining and provide a schedule for completion prior to the scheduled DSARC meeting.

11. Data Management. Discuss how data requirements imposed on contractors will be selected and tailored to fit the particular needs of the program and the project manager.

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 (j)).

b. Work Breakdown Structure (WBS). Identify and explain any deviations from MILSTD 881A (reference (k)).

c. Contractor Data Base. Discuss how the contractor's internal data base will 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 will be minimized by using the highest level of the WBS that will serve management needs.

12. 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 (DT&E) and Operational Test and Evaluation (refer to DoD Directive 5000.3, reference (l)).

13. Cost. Address the elements listed below. Discussion shall be consistent with Annexes A, B, and C and shall address such displays in expanded detail where appropriate.

a. Life Cycle Cost. Discuss the underlying assumptions pertaining to the life cycle cost estimates including the impact of Foreign Military Sales (FMS), 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 (m)), and

(3) Exceptions to implementation of Cost/Schedule Control Systems Criteria and alternative cost control procedures to be used (refer to DoD Directive 7000.2, reference (n)).

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. Programming and Budgeting. Discuss the sources and applications of funds, as necessary, to explain IPS Resource Annex C.

14. Logistics. Summarize information contained in the Integrated Logistics Support Plan and present related management issues and risk areas. Backup data shall be displayed in Annex E (refer to DoD Directive 4100.35, reference (h)). Additionally:

a. At Milestone I.

(1) Identify mission requirements (including any NATO member requirements) that significantly impact 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 which are common to other programs/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 Research, Development, Test and Evaluation 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 (e.g., manpower, spares, depot maintenance) to meet readiness objectives.

(2) Estimate the capability of current and planned support systems to meet logistic objectives (e.g., resupply time).

(3) Identify contract provisions for logistics support (e.g., 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.

15. Reliability and Maintainability (R&M). 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.

16. Quality. Summarize the independent quality assessments required by DoD Directive 4155.1 (reference (o)) and provide the status of action taken or in process as a result of the recommendations contained in the independent quality assessments.

17. Manpower. Specify the system activity level used to estimate/ 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 tradeoff analyses among design and support elements impacting manpower,

(b) job task identification,

(c) the manpower analyses planned during full-scale development, and

(d) planned test and evaluation 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 programmed into DoD Component personnel and training systems.

(3) Summarize plans for evaluating manpower requirements during follow on test and evaluation.

18. 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 and/or support of the system.

(3) Reference plans for validation of proficiency criteria and personnel performance.

19. Facilities. Describe any new government or industry facilities required for production or support of the system. Identify cost and schedule constraints imposed by facilities limitations (e.g., training, testing, or maintenance).

20. Energy, Environment, and Safety. Summarize the environmental and energy impacts of developing, producing, and operating the DCP systems alternatives. Additionally, prior to the Milestone II and III decisions, summarize the results of system safety analyses and specify actions pending

on any unresolved significant system safety hazards. This summary shall cite management decisions, if any, to accept the risks associated with significant identified hazards.

21. Computer Resources. Address the following factors as applicable:

(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.

22. International Programs. Summarize action taken with regard to NATO RSI considerations listed in paragraph E.12. of the basic instruction and identify approved, pending, and potential foreign military sales.

IPS ANNEX A

RESOURCES - COST TRACK SUMMARY 1/
(Millions of Dollars)

	FY Constant (Base Year) \$			Escalated \$
	Planning/ Development Estimate 2/	SDDM (Date) 3/	Current Estimate 4/	Current Estimate 4/
<u>DEVELOPMENT PHASE</u>				
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				
<u>PRODUCTION PHASE</u>				
PROCUREMENT				
System Cost 7/				
Flyaway	() 6/	() 6/	() 6/	() 6/
(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				
TOTAL OPERATING & SUPPORT PHASE				
TOTAL LIFE CYCLE REQUIREMENTS				
AVERAGE ANNUAL SYSTEM O&S COSTS				
No. of Systems: No. of Years:				

- 1/ Apply footnotes as required to explain the chart. Adjustments to format are authorized to accommodate program; stub entries will be decided on at the initial Milestone Planning Meeting. Definitions should be in accordance with DoD Instruction 5000.33.
- 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 DoDI 5000.33.
- 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.).

IPS ANNEX B
 RESOURCES - FUNDING PROFILE 1/
 (Dollars in Millions)

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 RT&E Validation Phase Full Scale Development Flyaway, Rollaway, Sallaway Other System Costs TOTAL RT&E APPROPRIATION MILCON O&M 3/ MILPERS 3/ TOTAL DEVELOPMENT PHASE								
PRODUCTION PHASE PROCUREMENT 4/ System Cost 5/ Flyaway, Rollaway, Sallaway 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.
- 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, SCN or Other Procurement. If more than one applies, identify it separately.
- 5/ Equal to Weapon System Cost as defined in DoDI 5000.33.
- 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 operation/owning a weapon system such as modifications, replenishment spares, ground equipment, etc.

IPS ANNEX C
RESOURCES - SUMMARY OF SYSTEM ACQUISITION COSTS⁽¹⁾

<u>SOURCES OF FUNDING</u>	<u>CURRENT DOLLARS (MILLIONS)</u>
Department of the Army	\$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>
TOTAL FUNDING	\$XXXXXX

<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	<u>XXXXXX</u>
TOTAL FUNDING	\$XXXXXX

(1) Refer to DoD Instruction 5000.33 (reference (p)).

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

A. Current Manpower Estimate for Military Force Structure 1/

2/ UNIT TYPE	UNIT MANNING 3/		PROGRAM TOTALS 5/			
	PROGRAM ALTERNATIVE	REFERENCE SYSTEM	NO. OF UNITS 4/	ACTIVE MILITARY	RESERVE COMPONENT	OTHER

B. Contractor support and depot workload (Annual manhours per end item deployed) 6/:

	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 a naval shore based intermediate maintenance departments, show manning equivalent of the many-years of work attributable to the program 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, reserve component authorizations, and/or other to be identified in footnote. Unprogrammed requirements must be shown as "other".
6. Annual manyears of below-depot contractor support divided by the planned quantity of the system in the force structure, and the annual manyears 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 1.

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 ^{1/}			Current System ^{2/}
	Alt. 1	Alt. 2	Alt. 3	
1. System Readiness Objectives				
Peacetime Readiness 3/				
Wartime Employment 4/				
2. Design Parameters				
Reliability 5/				
Maintainability 6/				
Built-in-test Effectiveness 7/				
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 (e.g., Operational Readiness at peacetime utilization rate, supply and maintenance downtime rates (NORS and NORM)).

4. Appropriate wartime measure for the system (e.g., sortie generation rate, operational availability at combat utilization rate, station coverage rate).

5. Appropriate logistic-related reliability parameters (e.g., mean time between maintenance actions or removals).

6. Appropriate maintainability measures for the system (e.g., 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 (C)
5000.4	(D)	OSD Cost Analysis Improvement Group (PA&E)
5000.16	(D)	Joint Logistics and Personnel Policy and Guidance (JCS Publication No. 3) (MRA&L)
5000.23	(D)	System Acquisition Management Careers (PA&E)
5000.29	(D)	Management of Computer Resources in Major Defense Systems (USDRE)
5100.40	(D)	Responsibility for the Administration of the DoD Automatic Data Processing Program (C)
5220.22	(D)	Department of Defense Industrial Security Program (USDP)
5500.15		Review of Legality of Weapons Under International Law (GC)
7920.1	(D)	Life Cycle Management of Automated Information System (AIS) (C, MRA&L, C I)
7920.2	(D)	Major Automated Information System Approval Process (C, MRA&L, C I)

C. ADMINISTRATION - STANDARDIZATION OF TERMINOLOGY

5000.8		Glossary of Terms Used in the Areas of Financial, Supply and Installation Management (C)
5000.9	(D)	Standardization of Military Terminology (C)
5000.11	(D)	Data Elements and Data Codes Standardization Program (C)
5000.33		Uniform Budget/Cost Terms and Definition (C)

D. COMMUNICATION/INFORMATION MANAGEMENT

- 5000.19 (D) Policies for the Management and Control of Information Requirements (C)
- 5000.20 (D) Management and Dissemination of Statistical Information (C)
- 5000.22 Guide to Estimating Cost of Information Requirements (C)
- 5000.32 DoD Acquisition Management Systems and Data Requirements Control Program (C)
- 5230.3 (D) Information Releases by Manufacturers (PA)
- C-5230.3 (D) Public Statements on Foreign and Military Policy and on Certain Weapons (U) (PA)
- 5230.4 (D) Release of Information on Atomic Energy, Guided Missiles and New Weapons (PA)
- 5230.9 (D) Clearance of Department of Defense Public Information (PA)
- 5400.4 (D) Provision of Information to Congress (LA)
- 5400.7 (D) Availability to the Public of Department of Defense Information (GC)

E. CONTRACT MANAGEMENT

- 1100.11 (D) Equal Employment Opportunity, Government Contracts (MRA&L)
- 4000.19 (D) Basic Policies and Principles for Inter-services, Interdepartmental and Interagency Support (MRA&L)
- 4105.60 Department of Defense High Dollar Spare Parts Breakout Program (USDRE)
- 4105.62 (D) Selection of Contractual Sources for Major Defense Systems (USDRE)
- 4140.41 Government-Owned Materiel Assets Utilized as Government-Furnished Materiel for Major Acquisition Programs (USDRE)
- 4160.22 (D) Recovery and Utilization of Precious Metals (MRA&L)

5010.8	(D)	DoD Value Engineering Program (MRA&L)
7800.1	(D)	Defense Contract Financing Policy (USDRE)

F. INTEGRATED LOGISTICS

4100.35	(D)	Development of Integrated Logistic Support for Systems/Equipments (MRA&L)
4130.2	(D)	The Federal Catalog System (MRA&L)
4140.19		Phased Provisioning of Selected Items for Initial Support of Weapons Systems, Support Systems, and End Items of Equipment (MRA&L)
4140.40	(D)	Basic Objectives and Policies on Provisioning of End Items of Material (MRA&L)
4140.42		Determination of Initial Requirements for Secondary Item Spare and Repair Parts (MRA&L)
4151.7		Uniform Technical Documentation for Use in Provisioning of End Items of Material (MRA&L)
5100.63		Provisioning Relationships Between the Military Departments/Defense Agencies and Commodity Integrated Material Managers (MRA&L)

G. INTERNATIONAL COOPERATION

2000.3	(D)	International Interchange of Patent Rights and Technical Information (GC)
2000.9	(D)	International Co-Production Projects and Agreements Between the U.S. and other Countries or International Organizations (USDRE)
2010.6	(D)	Standardization and Interoperability of Weapon Systems and Equipment within the North Atlantic Treaty Organization (NATO) (ISA)
2010.7	(D)	Policy on Rationalization of NATO/NATO Member Telecommunication Facilities (C I)
2015.4		Mutual Weapon Development Data Exchange Program (MWDDEP) and Defense Development Exchange Program (DDEP) (USDRE)
2035.1	(D)	Defense Economic Cooperation with Canada (ISA)

2045.2		Agreements with Australia and Canada for Qualification of Products of Non-Resident Manufacturers (USDRE)
2100.3	(D)	United States Policy Relative to Commitments to Foreign Governments Under Foreign Assistance Programs (ISA)
2140.1		Pricing of Sales of Defense Articles and Defense Services to Foreign Countries and International Organizations (C)
2140.2	(D)	Recoupment of Nonrecurring Costs on Sales of USG Products and Technology (C)
3100.3	(D)	Cooperation with Allies in Research and Development of Defense Equipment (USDRE)
3100.4	(D)	Harmonization of Qualitative Requirements for Defense Equipment of the United States and Its Allies (USDRE)
3100.8		The Technical Cooperation Program (TTCP) (USDRE)
4155.19		NATO Quality Assurance (USDRE)
5100.27	(D)	Delineation of International Logistics Responsibilities (MRA&L)
5230.11	(D)	Disclosure of Classified Military Information to Foreign Governments and International Organizations (USDP)
5230.17	(D)	Procedures and Standards for Disclosure of Military Information to Foreign Activities (USDP)
5530.3	(D)	International Agreements (GC)

H. PLANS - CONSERVATION OF RESOURCES

4170.9		Defense Contractor Energy Shortages and Conservation (USDRE)
6050.1	(D)	Environmental Considerations in DoD Actions (MRA&L)

I. PLANS - MATERIAL AVAILABILITY, WAR RESERVE AND MOBILIZATION

3005.5	(D)	Criteria for Selection of Items for War Reserve (MRA&L)
4005.1	(D)	DoD Industrial Preparedness Production Planning (USDRE)
4005.3		Industrial Preparedness Production Planning Procedures (USDRE)
4005.16	(D)	Diminishing Manufacturing Sources and Material Shortages (DMSMS) (USDRE)
4100.15	(D)	Commercial or Industrial Activities (MRA&L)
4151.16	(D)	DoD Equipment Maintenance Program (MRA&L)
4210.1		Department of Defense Coded List of Material (USDRE)
4210.7		Controlled Materials Requirements (USDRE)
4210.8		Department of Defense Bills of Materials (USDRE)
4410.3		Policies and Procedures for DoD Master Urgency List (MUL) (USDRE)
4410.4	(D)	Military Production Urgencies System (USDRE)
5160.54	(D)	Industrial Facilities Protection Program - DoD Key Facilities List (USDP)
5220.5	(D)	Industrial Dispersal (USDRE)

J. PRODUCTION, QUALITY ASSURANCE, TEST AND EVALUATION

4155.1	(D)	Quality Program (USDRE)
4200.15		Manufacturing Technology Program (USDRE)
5000.3	(D)	Test and Evaluation (USDRE)
5000.34	(D)	Defense Production Management (USDRE)
5000.38	(D)	Production Readiness Reviews (USDRE)
5010.19	(D)	Configuration Management (USDRE)
5010.20	(D)	Work Breakdown Structures for Defense Material Items (USDRE)

5160.65 (D) Single Manager Assignment for Conventional
Ammunition (USDRE)

K. RESOURCE MANAGEMENT

7000.1 (D) Resource Management Systems of the
Department of Defense (C)

7000.2 Performance Measurement for Selected
Acquisitions (C)

7000.3 Selected Acquisition Reports (SAR) (C)

7000.10 Contract Cost Performance, Funds Status
and Cost/Schedule Status Reports (C)

7000.11 Contractor Cost Data Reporting (CCDR)
(C, MRA&L, PA&E)

7041.3 Economic Analysis and Program Evaluation
for Resource Management (C)

7045.7 The Planning, Programming and Budgeting
System (C)

7200.4 (D) Full Funding for DoD Procurement Programs (C)

L. TECHNICAL MANAGEMENT - GENERAL

1130.2 (D) Engineering & Technical Service -
Management and Control (MRA&L)

5010.12 Management of Technical Data (MRA&L)

5100.36 (D) Department of Defense Technical Information
(USDRE)

5100.38 Defense Documentation Center for Scientific
and Technical Information (DDC) (USDRE)

5100.45 Centers for Analysis of Scientific and
Technical Information (USDRE)

5200.20 (D) Distribution Statements on Technical Documents
(USDRE)

5200.21 Certification for Access to Scientific and
Technical Information (USDRE)

- 7720.13 Research and Technology Work Unit
Information System (USDRE)
- 7720.16 Research and Development Planning Summary
(DD Form 1634) for Research and Development
Program Planning Review (USDRE)

M. TECHNICAL MANAGEMENT - DESIGN PARAMETERS

- 3224.1 (D) Engineering for Transportability (USDRE/MRA&L)
- 4100.14 Packaging of Material (MRA&L)
- 4120.3 (D) Defense Standardization and Specification
Program (USDRE)
- 4120.11 (D) Mobile Electric Power (MEP) Generating Sources;
Standardization of (USDRE)
- 4120.18 (D) Use of Metric System Measurement (USDRE)
- 4120.19 Department of Defense Parts Control System
(USDRE)
- 4120.20 Development and Use of Non-Government
Specifications and Standards (USDRE)
- 4120.21 (D) Specifications and Standards Application
(USDRE)
- 4140.43 (D) Department of Defense Liquid Hydrocarbon
Fuel Policy for Equipment Design, Operation,
and Logistics Support (MRA&L)
- 4151.1 (D) Use of Contractor and Government Resources
for Maintenance of Material (MRA&L)
- 4151.9 Technical Manual (TM) Management (MRA&L)
- 4151.11 Policy Governing Contracting for Equipment
Maintenance Support (MRA&L)
- 4151.12 Policies Governing Maintenance Engineering
within the Department of Defense (MRA&L)
- 4500.37 Ownership and Use of Containers for Surface
Transportation and Configuration of Shelters/
Special-Purpose Vans (MRA&L)

4500.41		Transportation Container Adaptation and Systems Development Management (MRA&L)
C-4600.3	(D)	Electric, Counter-Counter Measures (ECCM) Policy (U) (C ³ I)
4630.5	(D)	Compatability and Commonality of Equipment for Tactical Command and Control and Communications (USDRE)
5000.28	(D)	Design to Cost (USDRE)
5000.36		System Safety Engineering and Management (MRA&L)
5000.37		Acquisition and Distribution of Commercial Products (MRA&L/USDRE)
5100.50	(D)	Protection and Enhancement of Environment Quality (MRA&L)
5148.7	(D)	The Joint Tactical Communications (TRI-TAC) Program (C ³ I)
6055.2		Personal Protective Equipment (MRA&L)



NUMBER 2010.4
DATE December 12, 1967

ASD(I&L)/DDR&E
Department of Defense Instruction

SUBJECT U. S. Participation in Certain NATO Groups Relating to Research, Development, Production and Logistic Support of Military Equipment

- References:**
- (a) DOD Directive 5100.53, "U.S. Participation in Certain NATO Groups Relating to the Research, Development, Production and Logistic Support of Military Equipment," July 29, 1967
 - (b) DOD Directive 5105.20, "Defense Representation, United States Mission to the North Atlantic Treaty Organization," April 9, 1966
 - (c) DOD Instruction 2010.4, "U.S. Participation in Groups Established by the NATO Armaments Committee," April 6, 1964, (hereby cancelled)

I. PURPOSE AND APPLICABILITY

This instruction implements reference (a) and provides guidance to Department of Defense (DOD) components with respect to the U.S. participation in North Atlantic Treaty Organization (NATO) Groups, as defined in reference (a).

II. CANCELLATION

Reference (c) is hereby superseded and cancelled.

III. BACKGROUND

- A. By approval of C-M(66)33 (Revised) on May 25, 1966, the North Atlantic Council revised the NATO Organization and procedures concerning cooperation in military equipment matters. The purpose of the reorganization was to improve NATO's capacity as a discussion forum and clearing house for cooperative projects. Flexibility is the keynote, the procedures are minimized and the underlying principle is that when two or more countries agree to undertake a joint project, they shall proceed in a manner decided by themselves.
- B. The principal action groups are the Naval Armaments Groups, the Air Force Armaments Group, the Army Armaments Group and the Defense Research Group. These groups are empowered to establish subgroups as required for specific purposes.
- C. There is a Conference of National Armaments Directors to review progress, discuss outstanding problems and consider the broader aspects of cooperation. Between conferences, certain more routine matters are handled by designated representatives in the national delegations to NATO, meeting as the National Armaments Directors' Representatives (NADREPS).

IV. DEFINITIONS

- A. Cognizant Office of the Secretary of Defense (OSD) Office: The OSD office which monitors participation of U.S. Delegates in specified NATO Groups. The Cognizant OSD Office for specified NATO Groups will be listed in the periodic joint DDR&E/ASD(I&L) memoranda referred to below.
- B. Administrative Agent: The DOD component designated to arrange for participation by U.S. Delegates in specified NATO groups. Administrative Agents for specified NATO Groups will be designated periodically by joint DDR&E/ASD(I&L) memorandum.
1. Action Office: The office which is assigned responsibility by an Administrative Agent to conduct DOD participation in a NATO Group.
 2. U.S. Delegate: DOD representative appointed by an Administrative Agent to represent the U.S. at a NATO Group meeting.
 3. Principal Member: The U.S. Delegate appointed by an Administrative Agent to lead the U.S. Delegates and to be the U.S. spokesman at a NATO Group meeting.

V. DELINEATION OF ASSIGNED RESPONSIBILITIES

- A. The Cognizant OSD Office will:
1. Designate appropriate DOD components as Administrative Agents for specified NATO Groups.
 2. Review U.S. positions proposed by Administrative Agents and USNATO for NATO Group meetings.
 3. Coordinate proposed U.S. policy positions with interested Defense offices.
 4. Assist Administrative Agents and Action Offices, as appropriate, in briefing U.S. Delegates to NATO Group meetings and otherwise coordinate and guide their efforts.
 5. Monitor U.S. participation in NATO Groups and take DOD follow-up actions as required in support of Administrative Agent actions.
 6. Keep interested Defense and State offices advised on significant developments and problems related to assigned NATO Groups.
 7. As required in ref (a), obtain approval of proposed U.S. policy and negotiation positions, and keep cognizant

Defense offices informed as to the progress and status of NATO Group activities.

B. Designated Administrative Agents will:

1. Designate an Action Office for each NATO Group assigned and inform the Cognizant OSD Office accordingly.
2. Provide or arrange for U.S. Delegates to specified NATO Groups.
3. Review plans, actions and positions proposed by U.S. Delegates in assigned NATO Groups, coordinate same with other interested Administrative Agents, Military Departments and insure clearance with the Cognizant OSD Office prior to NATO Group meetings in all instances not covered by previous policy guidance.
4. Continually evaluate U.S. activities in NATO Groups to insure that U.S. participation meets overall U.S. objectives.
5. In special cases designated by the Cognizant OSD Office, circulate to all interested offices a Statement for each assigned NATO Group setting forth (a) the recommended U.S. long term objectives in that Group and plans for their accomplishment; (b) recommended U.S. immediate objectives for the next meeting of that Group; (c) other appropriate remarks on participation of U.S. Delegates in that Group. Maintain these Statements current and up to date with changes submitted when appropriate.
6. Appoint U.S. Delegates and the Principal Member for each NATO Group meeting from his own and other interested DOD components, and, to the extent feasible, assure continuity from U.S. forces outside the U.S., including those assigned to the United States Mission to NATO (USNATO). Appointments from USNATO must be approved by the United States Permanent Representative to the North Atlantic Council (PERMREP) and the OSD. When no Delegate is to be sent to a planned meeting, the OSD should be notified as soon as practicable of the U.S. non-representation.
7. Provide staff and administrative support for participation by U.S. Delegates in assigned NATO Groups. Support provided a U.S. Delegate will be financed on a non-reimbursable basis by the DOD component to which the Delegate is assigned, including the authorized travel and per diem expenses.
8. Designate, at the request of other Administrative Agents, U.S. Delegates for NATO Group meetings and make them available. In this regard, responsibilities in connection

with participation by U.S. Delegates in NATO Groups may be reassigned to other DOD components by mutual agreement and with approval of the Cognizant OSD Office.

9. Insure the OSD is fully informed concerning results of NATO Group meetings and of requirements for follow-up actions at DOD level.

C. Action Offices will:

1. Nominate, for Administrative Agent approval, U.S. Delegates and Principal Member for NATO Group meetings from offices, departments, agencies and commands having specific responsibilities for items to be discussed at the meeting. In this regard:
 - a. Include only those persons whose presence is required to accomplish U.S. objectives.
 - b. In special cases "Industrial Experts" may be nominated to attend NATO Group meetings when their attendance will enhance progress. However, in each case approval of their attendance must be obtained through USNATO.
2. Instruct the U.S. Delegation as follows:
 - a. The designated Principal Member is head of the Delegation and will formally represent the U.S. at the meeting. Other delegates will participate as he directs.
 - b. All members of the Delegation are, in fact, representatives of the U.S. and will assist the designated Principal Member in supporting U.S.-DOD approved positions.
 - c. USNATO staff officers will normally be assigned to monitor and assist the U.S. Delegation and to serve as the point of contact between the delegation and the U.S. Permanent Representative to the North Atlantic Council.
 - d. It is the overall U.S. objective in NATO Group meetings to develop and implement useful programs of work in accordance with the Group's terms of reference and the U.S. objectives, plans, actions and positions.
3. Prepare plans, actions and positions for assigned NATO Group meetings, coordinate with other participating DOD components and obtain approval thereof from Administrative Agent as required.
4. Insure U.S. Delegates are adequately briefed prior to meetings by other interested Action Offices, Administrative Agents, the Cognizant OSD Office and by USNATO as required to assure

consistency of U.S. positions.

5. Submit to USNATO as far in advance of meetings as possible, names, grades, U.S. and NATO security clearances, arrival and departure dates, hotel requirements of U.S. Delegates, requirements for support of presentations, and any other support requirements.
 6. Submit material to be circulated at NATO Group meetings through USNATO for timely distribution to other NATO members in order that they will be prepared to express official views thereon at meetings. If preparatory work cannot be completed in time for scheduled meetings, Principal Members should consider recommending deletion of concerned items from the agenda or postponement of the meeting.
 7. Submit meeting reports as prescribed in subsection VI. E.
- D. In carrying out the functions outlined in section III of reference (b), the United States Permanent Representative to the North Atlantic Council will:
1. Provide the U.S. representation to meetings of the National Armaments Directors' Representatives.
 2. Monitor meetings of NATO Groups to evaluate their effectiveness in serving U.S. and NATO interests and make recommendations thereon to Defense and State.
 3. Within capabilities, provide U.S. Delegates to NATO Groups as requested by Administrative Agents and approved by the Cognizant OSD Office.
 4. Maintain liaison with other NATO Delegations and the NATO International Staff, the Cognizant OSD Office and Action Offices for each NATO Group and keep the appropriate U.S. offices informed on important matters.
 5. Provide briefings, orientation and administrative support as feasible for U.S. Delegations and maintain files on each NATO Group.
 6. Process U.S. documents for release to NATO in connection with the work of NATO Groups.
 7. Accredite U.S. Delegates to NATO for NATO Group Meetings.

VI. PROCEDURES

- A. The NATO International Staff, normally in consultation with the

Chairman of NATO Groups, schedules meetings of these Groups and develops agendas for the meetings.

- B. USNATO notifies the OSD and Administrative Agents of scheduled NATO Group meetings and forwards appropriate suggestions to assist the U.S. Delegates in preparing for the meeting.
- C. The designated Administrative Agent will assign an Action Office and appoint U.S. Delegate and the Principal Member to prepare plans, actions and positions for the meeting and insure that:
 - 1. Any recommendations concerning meeting schedules or agenda are forwarded to USNATO in time for action to be taken.
 - 2. When appropriate, advance copies of U.S. positions are provided to the OSD and to USNATO.
 - 3. Delegations are briefed by the Cognizant OSD Office as required and report to USNATO prior to the meetings to receive latest guidance. When selection of a U.S. Delegate outside the U.S. makes personal DOD briefings impractical, the Administrative Agent will insure that such Delegates are fully informed as to U.S. positions on concerned agenda items.
- D. Arrangements for travel orders, funding, transportation, and clearances are the responsibility of the parent department or agency of the individual U.S. Delegate. Travel and per diem expenses for DOD personnel participating in meetings of NATO Groups will be financed on a non-reimbursable basis by the DOD component to which the personnel are assigned.
- E. Upon completion of each meeting, the head of the U.S. Delegation, assisted by the designated USNATO staff officer, will prepare a summary reporting message for dispatch from USNATO to Defense, State and other interested offices and activities. Specific note will be made of required U.S. actions, or changes in previously planned actions, together with steps for accomplishments.
- F. Administrative Agents may recommend to the OSD changes in the level of participation of U.S. Delegates in NATO Groups. They may also recommend to the OSD proposals for establishment or disestablishment of NATO Groups for further consideration by the other NATO countries, through the U.S. representative to the appropriate parent Group.

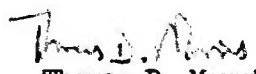
VII. COMMUNICATIONS

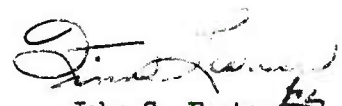
- A. Administrative Agents, Action Offices, and USNATO may communicate directly on technical and administrative matters relating to NATO Groups. Communications involving policy will be coordinated with the Office of the Secretary of Defense.

- B. All official written communications with the NATO International Staff and with NATO Group Delegates from other nations will be conducted through USNATO, with due regard for applicable U.S. disclosure policy directives, security regulations, and proprietary rights.
- C. Correspondence dealing with policy matters and originating with a department, agency, or command other than the Administrative Agent will be routed through the Administrative Agent, with copies to the Department of Defense, Department of State, and/or USNATO, as appropriate.

VIII. EFFECTIVE DATE AND IMPLEMENTATION

- A. This Instruction is effective immediately.
- B. Two (2) copies of each implementing Instruction shall be forwarded to the Director, Defense Research and Engineering and the Assistant Secretary of Defense (Installations and Logistics) within ninety (90) days.


Thomas D. Morris
Assistant Secretary of Defense
(Installations and Logistics)


John S. Foster
Director of Defense
Research and Engineering



June 13, 1977
NUMBER 2010.7

ASD(C³I)

Department of Defense Directive

SUBJECT Policy on Rationalization of NATO/NATO Member
Telecommunications Facilities

References: (a) through (e), see enclosure 1

A. PURPOSE

This Directive (1) establishes DoD policy governing the rationalization of NATO and NATO member telecommunications facilities, (2) expands on the policy guidelines of reference (a), and (3) delineates responsibilities and cites guidance for manpower utilization for the operation and maintenance of telecommunications systems in Europe.

B. APPLICABILITY

The provisions of this Directive apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, and the Defense Agencies.

C. OBJECTIVES

1. One of the principal U.S. objectives within the NATO Alliance is to achieve, in concert with our allies, a more effective and credible conventional Defense capability through rationalization of NATO Defense efforts.

a. Rationalization is the overall concept that includes such measures as (1) standardization; (2) restructuring of forces; (3) consolidation of support activities; (4) specialization of appropriate Defense tasks; and (5) increased mutual cooperation and support.

b. It includes mutual support actions such as interconnection, interoperation, collocation, consolidation, or integration of the separate NATO and NATO member national telecommunications.

2. The U. S. objective of rationalization of NATO telecommunications is to achieve the most effective telecommunications possible, with minimum costs, to support command and control for NATO headquarters organizations and the national forces supporting or committed to NATO during peacetime, crisis, and wartime. Rationalization must be approached on a broad scale so that each ally is aware that adding functions and costs in one area will be offset by savings in other areas. The long-term goal will be an overall matrix of rationalization/standardization programs which will result in each ally and the Alliance as a whole obtaining increased security for a given amount of resources expended.

3. Although a long-term goal is standardization of telecommunications equipment within NATO, rationalization of NATO telecommunications can be advanced through the interoperation of telecommunications among NATO forces which, in turn, can be accomplished through use of interoperable systems and standardization of procedures and language. Interoperability of systems should permit an increased level of telecommunications effectiveness, enhance the flexibility and survivability of telecommunications, and result in more efficient use of NATO and NATO member nations' defense resources.

4. Varying levels of interoperability are possible and the particular level to be pursued should be carefully selected, based on operational requirements and economic factors. Interoperability of systems and facilities depends, inter alia, upon interoperable equipment.

a. Alternatives for achieving interoperability include the use of common equipment, interoperable equipment, and noninteroperable but interface capable equipment.

b. To achieve interoperability on a short-term basis, a telecommunications cell of U. S. personnel and equipment at locations supporting combined operations can be provided.

5. A U. S. rationalization goal is interoperability of telecommunications, wherein NATO/NATO nations cooperate in, or make common use of, the results of research, development, production, and other resources in achieving the required degree of standardization or interoperable telecommunications equipment and systems.

D. POLICY

1. The United States shall adhere to U.S. ratified NATO standardization agreements (STANAGs) when designing or procuring telecommunications equipment. Where unique U.S. specifications are a major impediment to U.S. adoption of an otherwise cost-effective allied system, such specifications shall be reviewed explicitly by the Office of the Secretary of Defense (OSD) to determine whether an exception to the use of Allied specifications should be authorized.

2. Whenever the United States interacts with another NATO member nation, the telecommunications facilities of that nation shall be used to the maximum feasible extent, provided reliable telecommunications for U.S. use can be assured and that such use is deemed effective. U.S. will provide unilateral telecommunications, i.e., those wholly owned, operated, and maintained by the U.S. Government, or U.S. commercial enterprises, or a combination thereof, to be used by the United States to (a) provide minimum essential unilateral control of the U.S. Forces, and (b) complement NATO and NATO member nation telecommunications when NATO/host telecommunications are nonexistent, inadequate, or not cost effective for U.S. use.

3. Memoranda of Understanding, lease agreements, or similar documents should be consummated, covering those situations in which NATO or host nation assets are used to support U.S. telecommunications requirements or vice versa. DoD Directive 5530.3 (reference(c)) established procedures in implementation of Public Law 92-403 (reference(d)) and Title 1, United States Code, section 112b (reference(e)), and is to be adhered to in conducting any negotiations.

4. Interoperability is to be achieved on a planned, step-by-step basis, and efforts toward consolidated/collocated/interconnected/interoperable systems should result in mutually supported US/NATO/NATO member systems which satisfy NATO, other NATO members, and U.S. unilateral needs.

a. Integration proposals should be evaluated carefully and approved where there is assurance that adequate telecommunications are provided for essential U.S. needs and that the integrity of worldwide U.S. telecommunications is maintained.

b. In itself, a requirement for secure telecommunications supporting U.S. unilateral functions is not sufficient basis for U.S. ownership, operation, or maintenance if such security may be achieved through encryption or without red breakout except under U.S. control.

5. The least costly form of manpower, consistent with Defense requirements, will be used to accomplish the operation and maintenance of U. S. telecommunications systems in support of NATO.

a. In determining which form of manpower (U. S. Military, U. S. Civil Service, indigenous civilian, contract, or combination thereof) to employ, it is imperative that the worldwide operational integrity and security of the systems which are in support of U. S. Forces in Europe and the National Command Authorities not be degraded.

b. Manning determinations will also be consistent with the provisions of DoD Directive 1100.4 (reference (b)).

E. RESPONSIBILITIES

1. The Military Departments and Defense Agencies shall be responsible for adhering to the policy set forth in this Directive.

2. The Assistant Secretary of Defense (Communications, Command, Control and Intelligence) (C³ I) shall be responsible for monitoring application of policy stated herein.

F. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Forward 2 copies of implementing regulations to the Assistant Secretary of Defense (C³ I) within 60 days.


Deputy Secretary of Defense

Enclosure - 1
References

REFERENCES

- (a) DoD Directive 2010.6, "Standardization and Interoperability of Weapons Systems and Equipment Within the North Atlantic Treaty Organization (NATO)," March 11, 1977
- (b) DoD Directive 1100.4, "Guidance for Manpower Programs," August 20, 1954
- (c) DoD Directive 5530.3, "International Agreements," November 3, 1976
- (d) Public Law 92-403 (86 Stat. 619) August 22, 1972
- (e) Title 1, United States Code, Section 112b, "The Case Act"



March 2, 1979
NUMBER 2010.8

Department of Defense Directive

ASD (MRA&L)

SUBJECT: Department of Defense Policy for NATO Logistics

- References:
- (a) Secretary of Defense Memorandum, "DoD Policy for NATO Logistics," December 13, 1976 (hereby canceled)
 - (b) NATO Military Committee MC 36-2
 - (c) DoD Instruction 2000.8, "Cooperative Logistics Support Arrangements," February 14, 1964
 - (d) through (k), see enclosure 2

A. PURPOSE

Pursuant to the provisions of reference (a), this Directive (a) establishes Department of Defense policy and assigns responsibilities for the rationalization, standardization, and interoperability (RSI) of logistics with other nations in the North Atlantic Treaty Organization (NATO) alliance; and (b) authorizes the publication of the U.S. Logistics Master Plan (LOGMAP) for NATO, DoD 2010.8-P.

B. APPLICABILITY

The provisions of this Directive apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, the Defense Agencies, and the applicable Unified and Specified Commands (hereafter referred to as "DoD Components").

C. DEFINITIONS

Terms used in this Directive are defined in enclosure 1.

D. POLICY

1. Logistics Responsibility. In accordance with established NATO policy, the responsibility for logistic support to national component forces is, in general, with the nations concerned. Responsibility for coordination of logistic support arrangements is with the NATO Military Commanders (reference (b)).

a. Acceptance of the basic NATO precept that individual nations are responsible for logistic support should not foreclose

or inhibit members of the alliance from combining and rationalizing logistic resources, including cost sharing.

b. DoD Components, when delegated authority to do so, will actively attempt to conclude agreements on behalf of the U.S. Government for mutual logistic support with host nations and other members of the alliance. Such agreements must be within existing U.S. statutory authority,

2. Multinational Lines of Communication. U.S. military forces deployed in Europe need an assured flow of materiel and other resources to support any emergency or crisis.

a. Bilateral and multilateral agreements covering cooperative and preplanned arrangements for establishment and operation of logistic lines of communication (LOC) in the northern, central and southern NATO regions must be established and maintained. This must be done in harmony with other nations' requirements.

b. To ensure that required support will be provided, logistic support agreements must be signed with the applicable host nations.

3. Mutual Support Arrangements. Initiatives which enhance rationalization of logistic resources within NATO should be fostered continuously. Joint use of facilities and storage sites; collocated operating bases; NATO-shared POL supply pipelines; cross-servicing of aircraft and weapons systems; and cooperative supply, maintenance and transportation programs are some of the obvious candidate areas for priority consideration. Any such arrangements binding the U.S. Government must be executed in accordance with DoD Instruction 2000.8 (reference (c)) and references (d) through (h).

4. NATO Maintenance and Supply Organization (NAMSO). To the extent that it is effective in the long term NATO context and can provide satisfactory logistic support, the United States should make maximum use of NAMSO capabilities. Terms of such use must be in accordance with U.S. laws and regulations.

5. Host Nation Support. U.S. Forces assigned to NATO should rely to the maximum extent feasible on assured host nation support for the performance of logistic functions. Since assured host nation support is the preferred means for meeting logistic support requirements, continuous action shall be taken to identify and submit such requirements to host nations to ascertain and formalize the willingness and capability to provide the required support.

6. Senior NATO Logisticians Conference (SNLC). The United States will participate in and support the work of both the Military and Civil Sessions of the SNLC. The SNLC is the senior NATO body for logistics.

The Civil Session reports to the Council/Defense Planning Committee and the Military Session reports to the NATO Military Committee. Major U.S. proposals for NATO logistic RSI should be made at the SNLC.

7. U.S. Logistics Master Plan (LOGMAP) for NATO. Planning management and administration of U.S. actions on NATO logistics will be accomplished through development and implementation of a LOGMAP. Programs and tasks will be included in the planning, programing, and budgeting system (PPBS) (DoD Instruction 7045.7, reference (f)) as a regular part of the DoD claim against available funding and other resources.

E. RESPONSIBILITIES

1. The Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) (ASD(MRA&L)), or designee, shall:

- a. Establish overall objectives and initiatives to implement this policy.
- b. Coordinate the preparation and administration of a DoD NATO LOGMAP, DoD 2010.8-P.
- c. Represent the United States in the SNLC Civil Session.
- d. Coordinate all U.S. participation in the NAMS0 and provide the U.S. representative to the NAMS0 Board and its committees.
- e. Coordinate and approve, as appropriate, agreements between the United States and NATO Allies to accomplish NATO (alliance) logistics; and establish procedures to manage the establishment, approval and implementation of agreements.
- f. Coordinate preparation and distribution of agreements that are concluded.
- g. Make provision for approval and receipt of logistic support in absence of formal agreements where such support is required to meet emergencies.
- h. Coordinate all DoD participation in international civil emergency planning, and support U.S. representation and planning requirements of planning boards and committees of the NATO Senior Civil Emergency Planning Committee (SCEPC) that have logistic responsibilities.

2. The Assistant Secretary of Defense (International Security Affairs), or designee, shall:

- a. Provide overall guidance on the inclusion of logistics in NATO long and short term programs;

b. Coordinate logistic inputs to the NATO RSI program as prescribed in DoD Directive 2010.6 (reference (j)).

3. The Assistant Secretary of Defense (Program Analysis and Evaluation), or designee, shall:

a. Assure that guidance on NATO RSI logistic policies and programs is provided under the PPBS (DoD Instruction 7045.7, reference (i)).

b. Assure that the policies set forth in this Directive are followed during the annual program review.

4. The Assistant Secretary of Defense (Comptroller), or designee, shall:

a. Ensure that programs and tasks related to the subject are properly phased into the PPBS cycle.

b. Determine that funding arrangements between the United States and NATO countries are effected in accordance with DoD Instructions 2000.8 and 2140.1 (references (c) and (d)).

c. Establish pricing policy and controlling financial management procedures between the United States and participating NATO allies.

5. The Under Secretary of Defense for Research and Engineering, or designee, shall align DoD research and development and acquisition policy to facilitate attainment of U.S. NATO logistic policies and objectives.

6. The Chairman, Joint Chiefs of Staff, or designee, shall:

a. Direct and coordinate activities of the Unified and Specified Commands on NATO logistics.

b. Work with NATO military authorities on military aspects of NATO logistics.

c. Serve as the U.S. representative to the SNLC Military Session.

d. Coordinate bilateral and multilateral military logistic planning efforts with NATO allies.

e. Assist the ASD(MRA&L) in the development and implementation of the NATO LOGMAP.

7. The Secretaries of the Military Departments and Directors of Defense Agencies shall:

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2010.8

a. Incorporate NATO logistic policy outlined above in all planning and programing for logistic support of U.S. military forces stationed in or scheduled for deployment to NATO Europe in both peacetime and during a war or emergency.

b. Make maximum use of NAMS0 for common weapon system support and logistic services as directed in subsection D.4.

c. Implement the U.S. NATO LOGMAP.

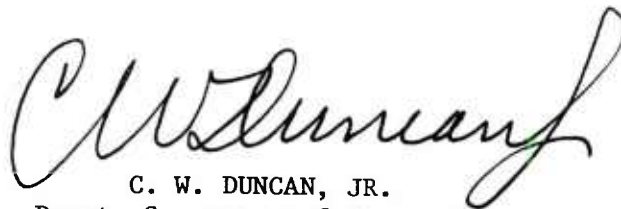
d. Provide representation to bilateral and multilateral NATO logistic groups.

e. Ensure that concluded agreements are published and distributed to appropriate levels, together with implementing instructions.

8. The Defense Advisor, U.S. NATO/Senior Civilian Representative of the Secretary of Defense in Europe (SECDEFREPEUR), shall support and assist DoD offices and agencies in the planning and implementation of all aspects of the DoD policy for NATO logistics. Relationships and responsibilities will be in conformance with DoD Directive 5105.20 (reference (k)).

F. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Forward one copy of implementing documents to the Assistant Secretary of Defense (Mandpower, Reserve Affairs, and Logistics) within 120 days.



C. W. DUNCAN, JR.
Deputy Secretary of Defense

Enclosures - 2

1. Definitions
2. References

DEFINITIONS

A. Collocated Operating Bases. Bases and facilities where detachments, units or organizations of two or more nations are physically located for operations or support.

B. Common Items. Materiel or systems possessing like and interchangeable characteristics enabling each to be utilized or operated and maintained by personnel trained on the others without additional specialized training; and/or having interchangeable repair parts and/or components; and applying to consumable items interchangeably equivalent without adjustment.

C. Host Nation Support. Includes civil and military assistance rendered in peace and in wartime to Allied forces and organizations which are located on the host nation's territory.

1. The basis of such assistance is commitments arising from alliances or from bilateral/multilateral agreements concluded among host nation(s), international organizations, and nation(s) having forces operating in the host nation's territory.

2. The type and extent of assistance to be rendered shall be agreed upon between the nations and/or organization(s) concerned on the basis of the national laws and the actual support capabilities of the host nation. The form of reimbursement shall also be agreed upon.

3. Assured host nation support means that a satisfactory written agreement has been reached and the necessary resources have been provided or specifically earmarked to implement the support when required.

D. Interoperability. The ability of systems, units, or forces to provide services to and accept services from other systems, units, or forces and to use the services so exchanged to enable them to operate effectively together.

E. Rationalization. Any action that increases the effectiveness of alliance forces through more efficient and effective use of defense resources committed to the alliance. Rationalization includes consolidation, reassignment of national priorities to higher alliance needs, standardization, specialization, mutual support, improved interoperability or greater cooperation. Rationalization applies to both weapons/materiel resources and nonweapons military matters.

F. Standardization. The process by which member nations achieve the closest, practicable cooperation among forces; the most efficient use of research, development, and production resources; and agree to adopt on the broadest possible basis the use of (1) common or compatible operational, administrative, and logistics procedures; (2) common or compatible technical procedures and criteria; (3) common, compatible, or interchangeable supplies, components, weapons, or equipment; and (4) common or compatible tactical doctrine with corresponding organizational compatibility.

REFERENCES, Continued

- (d) DoD Instruction 2140.1, "Pricing of Sales of Defense Articles and Defense Services to Foreign Countries and International Organizations," March 9, 1977
- (e) DoD Instruction 2140.3, "Foreign Military Sales Materiel Billing Procedures," April 20, 1976
- (f) DoD Directive 5000.35, "Defense Acquisition Regulatory System," March 8, 1978
- (g) DoD Directive 5530.3, "International Agreements," November 3, 1976
- (h) DoD Instruction 2050.1, "Delegated Approval Authority to Negotiate and Conclude International Agreements," July 6, 1977
- (i) DoD Instruction 7045.7, "The Planning, Programming and Budgeting System," October 29, 1969
- (j) DoD Directive 2010.6, "Standardization and Interoperability of Weapon Systems and Equipment within the North Atlantic Treaty Organization (NATO)," March 11, 1977
- (k) DoD Directive 5105.20, "Defense Representation, United States Mission to the North Atlantic Treaty Organization and Europe," November 16, 1972



November 3, 1976 #
NUMBER 5530.3

GC, DoD

Department of Defense Directive

SUBJECT International Agreements

- Refs: (a) DoD Instruction 5530.2, "Central Repository for Agreements with Foreign Governments or International Organizations," September 11, 1962 (hereby cancelled)
- (b) DoD Instruction 5100.61, "International Agreements Concerning Military Facilities, Operating Rights and Status of Forces Matters," January 22, 1969 (hereby cancelled)
- (c) Public Law 92-403, approved August 22, 1972 (86 Stat. 619); title 1 United States Code, section 112b (the "Case Act")
- (d) DoD Directive 2100.3, "United States Policy Relative to Commitments to Foreign Governments Under Foreign Assistance Programs," July 11, 1963
- (e) DoD Directive 5000.7, "Official Temporary Duty Travel Abroad," January 14, 1972
- (f) SecDef multiaddressee memorandum, "Attendance by DoD Personnel at International Conferences, Organizations, Meetings, and Negotiations," January 8, 1972 (enclosure 4)
- (g) OMB Director multiaddressee memorandum, "Procedures for Processing New Commitments to Foreign Governments," June 17, 1977 (enclosure 5)
- * (h) DoD Directive 5160.41, "Defense Language Program (DLP)," August 2, 1977 *

I. PURPOSE AND SCOPE

A. This Directive:

- (1) establishes procedures in implementation of the Case Act (reference (c)) consistent with its interpretation by the Department of State and with arrangements thereunder between the Department of Defense and the Department of State, as set forth in enclosures (1), (2) and (3) of this Directive;

#Second amendment (Ch 2, 10/17/77)

- (2) revises procedures governing central repositories for international agreements within the Department of Defense;
- (3) assigns responsibility for controlling the negotiation and conclusion of agreements with foreign governments and international organizations by personnel of the Department of Defense, its components, commands, or other organizational elements;
- (4) centralizes the authority to approve such negotiation and conclusion, or to delegate such approval authority with regard to specified categories of such agreements; and
- (5) establishes procedures by which such approval shall be obtained prior to the initiation of negotiations.

B. This Directive applies to all organizational elements of the Department of Defense and the personnel thereof, including the Office of the Secretary of Defense, the Organization of the Joint Chiefs of Staff, the Departments of the Army, Navy, and Air Force, all Defense Agencies and other DoD components, and all United States military commands, missions, task forces, and groups of any nature operating under the control of the Secretary of Defense.

C. This Directive applies not only to those international agreements concerning military facilities, operating rights and status of forces matters within the functional responsibility of the Assistant Secretary of Defense (International Security Affairs), but also to any other international agreement concerning matters within the functional responsibility of other organizational elements of the Department of Defense.

II. CANCELLATIONS

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

III. DEFINITIONS

For the purposes only of this Directive and implementing instructions:

- A. (1) The term "international agreement" means any agreement reduced to writing which is concluded with one or more foreign governments (including their agencies, instrumentalities, or political subdivisions) or with an international organization--
- (a) whether expressly denominated as an international agreement or as a memorandum of understanding, exchange of notes, exchange of letters, technical arrangement, protocol, note verbale, aide-memoire, agreed minute, plan, or by some other name having a similar legal consequence;
 - (b) whether signed by civilian or military officers or by employees of any organizational element of the Department of Defense, or by representatives of the Department of State or other agencies of the United States Government; and
 - (c) which signifies the intention of the parties to be bound in international law.
- (2) The following agreements are not deemed to be international agreements as so defined: Contracts concluded under the Armed Services Procurement Regulation; Foreign Military Sales Credit Agreements; and Foreign Military Sales Letters of Offer and Acceptance and Letters of Intent executed on DD Forms

1513 and 2012; and Leases under
10 U.S.C. 2667.

Any reasonable doubt as to whether any document or set of documents constitutes or would constitute an international agreement as defined in paragraph A. of this Section shall be resolved in the affirmative for purposes of compliance with the procedures of this Directive until and unless a decision of the Office of the General Counsel, DoD, to the contrary is made.

- B. The term "negotiation" means the communication by any means of a position or an offer on behalf of the United States, the Department of Defense, or on behalf of any officer or organizational element thereof, to an agent or representative of a foreign government (including an agency, instrumentality, or political subdivision thereof) or of an international organization in such detail that the acceptance in substance of such position or offer would result in an international agreement. The term "negotiation" also includes any such communication conditional on subsequent approval by higher authority, but excludes mere preliminary and exploratory discussions (or routine meetings) conducted on the understanding that the views communicated do not and will not bind any side.
- C. The term "conclusion" means an act of signing, initialling, responding, or otherwise indicating the acceptance of an international agreement, as then negotiated, by the United States side.

IV. CENTRAL REPOSITORIES

- A. (1) The Office of the General Counsel, DoD, shall continue to maintain the central repository for all international agreements, other than international agreements in the field of intelligence, which are either

coordinated, negotiated, or concluded
by Department of Defense personnel.

- (2) Three reproducible copies of each such international agreement concluded after the date of publication of this Directive shall be transmitted, within fifteen days of its conclusion, to the General Counsel, DoD, by the organizational element primarily responsible for the agreement. Unless one of the three copies is the original, each of the copies shall be accompanied by a memorandum certifying it to be a true and complete copy of the original agreement.

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- B. (1) The Assistant Secretary of Defense (Intelligence) shall establish and maintain the central repository of all international agreements in the intelligence field which are either coordinated, negotiated, or concluded by Department of Defense personnel.

- (2) One reproducible copy of each international agreement in the intelligence field concluded prior to the date of publication of this Directive shall, if it is then currently in force, be transmitted within thirty days after the date of publication of this Directive to the Assistant Secretary of Defense (Intelligence) by the organizational element primarily responsible for the agreement.

- (3) Two reproducible copies of each international agreement in the intelligence field concluded after the date of publication of this Directive shall be transmitted, within fifteen days of its conclusion, to the Assistant Secretary of Defense (Intelligence) by the organizational element primarily responsible for the agreement. Unless one of the two copies is the original, each of the copies shall be accompanied by a memorandum certifying it to be a true and complete copy of the original agreement.

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V. CASE ACT IMPLEMENTATION

- A. The General Counsel, DoD, shall transmit to the Legal Adviser, Department of State, one copy of each international agreement received by him pursuant to this Directive,

promptly after receipt thereof, unless otherwise advised by the Legal Adviser.

- B. The Assistant Secretary of Defense (Intelligence) shall be responsible for entering into arrangements with the Legal Adviser, Department of State, which will enable the Department of State to fulfill its responsibilities under the Case Act with respect to international agreements in the intelligence field within the cognizance of the Department of Defense.
- C. The functions of determining whether an international agreement as defined in this Directive is required by the Case Act to be transmitted to the Congress under the criteria set forth in enclosure (1) and of the transmittal of any such international agreement to the Congress remain the responsibility of the Department of State.

VI. AUTHORITY TO NEGOTIATE AND/OR CONCLUDE AN INTERNATIONAL AGREEMENT

- A. (1) Personnel of any organizational element of the Department of Defense shall neither initiate nor conduct the negotiation of an international agreement nor request another United States Government Department or Agency to negotiate or conclude an international agreement, without either (i) the prior written approval of the Assistant Secretary of Defense (International Security Affairs), or his representative, obtained pursuant to the procedures set forth in Section VII of this Directive, or, (ii) as the case may be, the prior written approval of the head of the organizational element, or his designee, specified in the Department of Defense Instruction issued pursuant to Section VIII of this Directive, to whom such approval authority has been redelegated

by the Assistant Secretary of Defense (International Security Affairs).

- (2) Accreditation of Department of Defense personnel to United States delegations at international conferences will be accomplished in accordance with reference (f) (reprinted as enclosure (4) hereto).
 - (3) If a representative of a foreign government or international organization seeks to initiate the negotiation of an international agreement, for which negotiation authority has not previously been granted pursuant to this Directive, the Department of Defense officer or employee to whom such proposal is made-- if someone other than an official who is authorized pursuant to this Directive to grant approval to negotiate--shall promptly report that fact, through established channels, to the head of his organizational element and await authorization to negotiate before going beyond exploratory discussions.
 - (4) The officer or employee authorized to conduct a negotiation shall be responsible for assuring that during the negotiation (i) no position is communicated to a foreign government or to an international organization as a United States Government position that goes beyond any existing authorization or instructions and (ii) no proposal is agreed to beyond the original authorization without appropriate clearance.
- B. (1) No international agreement, including any under negotiation on the effective date of this Section, shall be concluded by any Department of Defense personnel without either (i) the prior written approval of the Assistant Secretary of Defense (International Security Affairs), or his representative, obtained pursuant to the

procedures set forth in Section VII of this Directive, or (ii) as the case may be, the prior written approval of the head of the organizational element, or his designee, specified in the Department of Defense Instruction issued pursuant to Section VIII of this Directive, to whom such approval authority has been redelegated by the Assistant Secretary of Defense (International Security Affairs).

- (2) Authority to conclude an international agreement may be requested and granted simultaneously with the authority to negotiate that agreement, or authority to conclude may be withheld and a separate request therefor required; the approval of either authority may be made subject to such conditions as are considered necessary or desirable by the official exercising approval authority.

- C. Responsibility for effecting such coordination with the Department of State or the National Security Council as may be required by applicable law or regulation prior to the grant of approval authority to negotiate and/or conclude an international agreement is vested (i) in the Assistant Secretary of Defense (International Security Affairs) for all agreements for which approval authority has not been redelegated pursuant to Section VIII of this Directive and (ii) in the head of each organizational element, or his designee, to whom approval authority has been redelegated pursuant to Section VIII of this Directive for all agreements covered by the applicable redelegation.
- D. The requirements of this Section do not apply to Department of Defense officers and employees assigned or detailed to United States Diplomatic Missions, whether as individuals or as members of a

military mission, group, or other organization, in those situations where the Chief of the United States Diplomatic Mission directly requests authorization to negotiate from the Secretary of State under State Department Circular 175 Procedure (Foreign Affairs Manual, Volume II, Chapter 700). In such situations, Department of Defense personnel will comply fully with the applicable directives of the Ambassador.

E. Except for the situations envisaged in Subsection D of this Section, nothing in this Directive shall be construed as modifying reference (d) or reference (g).

F. No international agreement shall be concluded by any Department of Defense personnel in a foreign language text unless

- (1) The agreement expressly provides that the English language text shall be considered by the parties as the governing text in the event of conflict between the different language texts; or
- (2) The agreement expressly provides that the English language text and the foreign language text[s] are equally authentic, and each foreign language text of the agreement is accompanied, prior to the conclusion of the agreement, by a translation in the English language, and by a memorandum attached to that translation certifying that the foreign language text and the English language text are in conformity with each other and that both texts have the same meaning in all substantive respects. The memorandum shall be dated and signed either by a person listed in the current inventory of qualified foreign language trained U.S. personnel maintained pursuant to Department of Defense Directive 5160.41, "Defense Language Program (DLP)," August 2, 1977, (ref(h)) Section D.6., as qualified in the language translated, or by a person designated for purposes of performing such translation services by the Commandant of the Defense Language Institute Foreign Language Center (DLI/FLC). The translation and certifying memorandum shall be transmitted with the agreement to the central repositories identified in Section IV. of this Directive.

VII. STANDARD PROCEDURES FOR REQUEST TO THE ASSISTANT SECRETARY OF DEFENSE (INTERNATIONAL SECURITY AFFAIRS) FOR AUTHORITY TO NEGOTIATE AND/OR CONCLUDE AN INTERNATIONAL AGREEMENT

A. A request to the Assistant Secretary of Defense (International Security Affairs) for authority to negotiate and/or conclude an international agreement shall be made by the head of the principal organizational element of the Department of Defense which has the primary interest in the negotiation and conclusion of the international agreement, namely, the Secretary of a Military Department for such Department (or his designee); the Director, Defense Research and Engineering; an Assistant Secretary of Defense; the Director, Telecommunications and Command and Control Systems; or the Assistant to the Secretary of Defense (Atomic Energy), for their respective offices; the Director or head of a Defense Agency for such Agency; and the Chairman of the Joint Chiefs of Staff for the Organization of the Joint Chiefs of Staff or for any unified or specified combatant command. The request may include a request for the designation of a chief negotiator (who may also be empowered to conclude the agreement), a request for assistance in the negotiation

from other elements of the Department of Defense, or a request that the agreement be negotiated and concluded by the Office of the Secretary of Defense or by a United States Government department or agency other than the Department of Defense.

- B. (1) Attached to the request shall be:
- (a) A draft text or outline of the proposed international agreement or an explanation for its unavailability;
 - (b) A legal memorandum setting forth the Constitutional, statutory, or other legal authority available to carry out each obligation proposed to be assumed by the United States in the agreement, as well as an explanation of other legal considerations relevant thereto; and
 - (c) A fiscal memorandum setting forth the estimated cost, if any, of each obligation proposed to be assumed by the Department of Defense in the agreement and either the source of funds to be obligated therefor or a statement that additional funds for the purpose will be requested for a specified fiscal year(s).
- (2) The request shall be supplemented by such other data as the Assistant Secretary of Defense (International Security Affairs) may deem to be required in order to reach a decision on the request.
- C. The Assistant Secretary of Defense (International Security Affairs), or his representative, shall secure the concurrence of the General Counsel, DoD, and (except with respect to Security Assistance) the

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Assistant Secretary of Defense (Comptroller), or their representatives, prior to the granting of any request (with or without modifications or other guidance). In addition, the Assistant Secretary of Defense (International Security Affairs), or his representative, shall coordinate the response to the request with other principal staff assistants to the Secretary of Defense, other organizational elements of the Department of Defense, and United States Government departments or agencies other than the Department of Defense, as appropriate.

VIII. DELEGATION OF AUTHORITY BY ASSISTANT SECRETARY OF DEFENSE (INTERNATIONAL SECURITY AFFAIRS)

- A. (1) The Assistant Secretary of Defense (International Security Affairs) is authorized to issue a Department of Defense Instruction, and amendments thereto, redelegating to designated officials of organizational elements of the Department of Defense authority to approve negotiation and/or conclusion of specified categories of international agreements in accordance with the definitions, procedures and policies set forth in this Directive, which shall, in all other respects, be fully applicable except as provided for in paragraph (3) of this Section VIII.A.
- (2) Authority so redelegated may be further redelegated only to the extent so provided in the Instruction.
- (3) The Instruction may provide for the use of summary procedures for specified categories of international agreements which dispense with the procedural requirements of Section VII.B. in obtaining determinations from those officials to whom authority to approve negotiation and/or conclusion of international agreements has been redelegated

by the Assistant Secretary of Defense
(International Security Affairs).

- B. Categories of international agreements proposed for inclusion in the Department of Defense Instruction re delegating approval authority, together with the specified officials to whom the respective initial re delegations and further re delegations of authority are proposed and appropriate summary procedures, if any, shall be transmitted by the heads of the organizational elements named in Section VII.A. of this Directive to the Assistant Secretary of Defense (International Security Affairs) within sixty (60) days after the date of publication of this Directive. After issuance of the aforesaid Department of Defense Instruction, the head of any such organizational element may at any time propose amendments thereto, respecting the functions of his organizational element, to the Assistant Secretary of Defense (International Security Affairs).

IX. CENTRAL OFFICES OF RECORD

- A. The Assistant Secretary of Defense (International Security Affairs) shall designate within his Office a single office of record for--
- (1) receiving requests submitted to him pursuant to Section VII of this Directive;
 - (2) recording actions taken by him, or his representative, on each such request, including where applicable, coordination with the Department of State or the National Security Council;
 - (3) receiving and recording proposals submitted to him for delegations of authority under Section VIII of this Directive;

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- (4) preparation and processing of the Department of Defense Instruction referred to in Section VIII of this Directive, and of amendments thereto; and
- (5) assuring the compilation, retention and retrievability within the Office of the Assistant Secretary of Defense (International Security Affairs) of a complete negotiating history file for each international agreement for which the Office of the Assistant Secretary of Defense (International Security Affairs) bears primary negotiating responsibility within the Department of Defense, irrespective of whether the chief United States negotiator, or the signer, of the agreement is an official of another Department or Agency.

B. Each organizational element not part of the Office of the Secretary of Defense which negotiates international agreements shall promulgate regulations to implement this Directive, and shall, in its regulations, designate a single office of record for--

- (1) receiving requests originating within that organizational element for authorization under Sections VII or VIII of this Directive to negotiate and/or conclude an international agreement;
- (2) recording coordination action taken upon a request originating from another element;
- (3) recording authorizations to negotiate and/or conclude an international agreement granted to that organizational element by the Assistant Secretary of Defense (International Security Affairs) or by an official to whom approval authority is redelegated pursuant to Section VIII of this Directive (and denials of such authorizations);
- (4) assuring the compilation, retention, and retrievability within that

organizational element of a complete negotiating history file for each international agreement for which that organizational element bears primary negotiating responsibility within the Department of Defense, irrespective of whether the chief United States negotiator, or the signer, of the agreement is an official of another Department or Agency; and

- (5) monitoring compliance, within that organizational element, with the provisions of this Directive and reference (d).

- C. The Director, Defense Research and Engineering; the Assistant Secretaries of Defense; the Director of Telecommunications and Command and Control Systems; and the Assistant to the Secretary of Defense (Atomic Energy) shall each notify the Assistant Secretary of Defense (International Security Affairs) of the office of record within their respective organizational elements designated to discharge the functions specified in paragraphs (1) through (5) of Subsection B. of this Section.

X. EFFECTIVE DATE AND IMPLEMENTATION

- A. Sections I, III, IV, V, VIII.B., and X of this Directive are effective upon publication.
- B. The Department of Defense Instruction referred to in Section VIII.A. of this Directive shall be issued within 90 days of the date of publication of this Directive.
- C. Sections II, VI, VII, and IX of this Directive are effective 120 days after publication of this Directive.

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- D. Two copies of regulations implementing this Directive shall be forwarded to the General Counsel within 120 days after the date of publication of this Directive.


Secretary of Defense

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Enclosures - 5

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1. Memorandum for the General Counsel, DoD, from the Legal Adviser, Department of State, dtd 16 March 1976, subject: "Case Act Procedures", together with two attachments
2. Letter to Secretary of State Kissinger from Deputy Secretary of Defense Clements, dtd 1 October 1973
3. Letter to Deputy Secretary of Defense Clements from Deputy Secretary of State Rush, dtd 5 December 1973
4. Multiaddressee Memorandum of Secretary Laird, subject: "Attendance by DOD Personnel at International Conferences, Organizations, Meetings, and Negotiations", dtd January 8, 1972
5. Multiaddressee Memorandum of OMB Director Lance, subject: "Procedures for processing new commitments to foreign governments" dated June 17, 1977

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#First amendment (Ch 1, 9/13/77)



DEPARTMENT OF STATE
THE LEGAL ADVISER
WASHINGTON

Nov 3, 76
5530.3 (Encl 1)

March 16, 1976

TO : GC - Mr. Richard A. Wiley
Department of Defense

FROM : L - Monroe Leigh *ML*

SUBJECT: Case Act Procedures and Department of State
Criteria for Deciding What Constitutes an
International Agreement

Attached is a copy of a memorandum prepared in my office setting forth the criteria applied by the Legal Adviser when making determinations whether any arrangement or document, or series of arrangements or documents, constitutes one or more international agreements under the Case Act (P.L. 92-403; approved August 22, 1972). As you know, that Act requires the Secretary of State to transmit to the Congress all international agreements other than treaties no later than sixty days after their entry into force.

The memorandum also emphasizes the paramount necessity of transmitting concluded agreements to the Assistant Legal Adviser for Treaty Affairs in the Department of State no later than twenty days after their entry into force in order to enable the Department to meet the sixty-day requirement of the Case Act.

This material has been sent to all U.S. diplomatic posts abroad, to all key Department of State personnel in Washington, and to the general counsel of the several departments and agencies of the Government.

I should be most appreciative if you would be good enough to have copies of the attached memorandum distributed to all personnel in your agency whose responsibilities may result in the negotiation and conclusion of international agreements, whether agency-level arrangements, implementing or operating agreements, or government level agreements.

Attachments:

1. Memorandum
2. Rush letter

DEPARTMENT OF STATE
THE LEGAL ADVISER

5530.3, Nov 3, 76
(Att 1 to Encl 1)

March 12, 1976

TO : KEY DEPARTMENT PERSONNEL

FROM : L - Monroe Leigh *M.L.*

SUBJECT: Case Act Procedures and Department of State Criteria
for Deciding What Constitutes an International
Agreement

On February 20, 1976, the Comptroller General issued a Report on U.S. Agreements with the Republic of Korea which stated that certain agencies of the Government have not been submitting to the State Department or the Congress all agency-level agreements which they have concluded. The Report states that some agencies have apparently interpreted agreements concluded by agency personnel or agreements of a subordinate or implementing character to be outside the reporting requirements of the Case Act (P.L. 92-403, 1 U.S.C. 112b). The Case Act requires that all international agreements other than treaties be submitted by the Department of State to the Congress no later than 60 days after their entry into force.

The GAO Report called for "clarification of the reporting requirements and improved controls over the reporting of agreements." The Report listed 34 Korean agreements concluded after passage of the Case Act but never submitted by the agencies involved to the Department of State for transmittal to the Congress.

This Report by the GAO, in addition to legislative proposals now before the Congress calling for Congressional authority to disapprove executive agreements, has raised the question of how the Department of State Legal Adviser decides what constitutes an international agreement within the meaning of the Case Act and of

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the law requiring publication of international agreements (1 U.S.C. 112a).

The following discussion should be brought immediately to the attention of all personnel with responsibilities for the negotiation and conclusion of international agreements, whether agency-level arrangements, implementing or operating agreements, or government level agreements.

A. It is essential that all international agreements concluded by any officer or representative of the U.S. Government be transmitted to the Assistant Legal Adviser for Treaty Affairs no later than 20 days after entry into force. Most agreements enter into force upon signature. The 20-day limit must be met if the Department is to meet its obligations to process and transmit the agreements to Congress no later than 60 days after entry into force in accordance with the Case Act.

B. Whenever a question arises whether any document or set of documents, including an exchange of diplomatic notes or of correspondence, constitutes an international agreement within the meaning of the Case Act, the documents must be sent for decision to the Assistant Legal Adviser for Treaty Affairs. See also 11 FAM 723.6 and 723.7.

C. The following statement is designed to provide basic guidance with respect to the criteria applied by the Legal Adviser in deciding what constitutes an international agreement. While difficult judgments will have to be made in many cases, it is hoped that the principles set forth below will permit officers in the field to focus on the right questions, and to know when there is an issue for which further guidance from the Department should be sought.

For purposes of implementing legal requirements with respect to publication of international agreements and transmittal of international agreements to Congress, the Legal Adviser applies the following criteria in deciding what constitutes an international agreement:

1. Intention of the parties to be bound in international law;
2. Significance of the arrangement;
3. Requisite specificity, including objective criteria for determining enforceability;
4. The necessity for two or more parties to the arrangement;
5. Form.

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1. Intention of the parties to be bound in international law.

The central requirement is that the parties intend their undertaking to be of legal, and not merely political or personal, effect. Documents intended to have political or moral weight, but not intended to be legally binding, are not international agreements. An example is the Final Act of the Helsinki Conference on Cooperation and Security in Europe.

In addition, the agreement must be governed by international law. Most instruments are silent as to governing law, but the intent is normally to seek guidance from rules of international law when questions arise with respect to interpretation or application. However, if the agreement specifies another legal system as entirely governing interpretation or application, we do not consider the arrangement to be a true international agreement. An example of the latter is a foreign military sales contract governed in its entirety by the law of the District of Columbia.

2. Significance of the arrangement.

It is our interpretation of sections 112a and 112b that minor or trivial undertakings, even if couched in legal language and form, do not constitute international agreements. Significance of the obligations undertaken is cited in the House Report on the Case Act (House Rept. 92-1301) as a relevant variable in deciding whether a particular document is an international agreement under the Act. Senator Case himself excluded "trivia" from the coverage of the Act (Hearings on S. 596, October 21, 1971, p. 65).

We have not developed detailed guidelines to assist in deciding what level of significance must be reached before a particular arrangement becomes an international agreement. This must remain a matter of judgment, taking into account the entire context of the particular transaction. It is frequently a matter of degree. For example, a promise to sell one map to a foreign nation is not an international agreement; a promise to sell one million maps probably is an international agreement. At what point between one and one million the transaction turned into an agreement is difficult to say.

The attached letter from Acting Secretary of State Kenneth Rush in September, 1973, to all Government departments and agencies addresses itself to this problem. It requires agencies to transmit to the Department for possible transmittal to the Congress "any agreements of political significance, any that involve a substantial grant of funds, any involving loans by

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the United States or credits payable to the United States, any that constitute a commitment of funds that extends beyond a fiscal year or would be a basis for requesting new appropriations, and any that involve continuing or substantial cooperation in the conduct of a particular program or activity, such as scientific, technical, or other cooperation, including the exchange or receipt of information and its treatment."

3. Requisite specificity, including objective criteria for determining enforceability.

International agreements require a certain precision and specificity setting forth the legally binding undertakings of the parties. Many international diplomatic undertakings are couched in legal terms, but are unenforceable promises because there are no objective criteria for determining enforceability of such undertakings. For example, a promise "to help develop a more viable world economic system" lacks the specificity essential to constitute a legally binding international agreement. At the same time, undertakings as general as those of Articles 55 and 56 of the U.N. Charter have been held to create internationally binding obligations (though not self-executing ones).

4. The necessity for two or more parties to the arrangement.

While unilateral commitments on occasion may be legally binding and may be significant in international relations, they do not constitute international agreements. For example, a promise by the President to send money to Country Y to help earthquake victims, but without any obligation whatever on the part of Country Y, would be a gift and not an international agreement. It might be an important undertaking, but not all undertakings in international relations are in the form of treaties or executive agreements. There may be a difficult question whether a particular undertaking is truly unilateral in nature, or is part of a larger bilateral or multilateral set of undertakings. Parallel "unilateral" undertakings by two or more states may constitute an international agreement.

5. Form.

While form as such is not normally an important factor in the law of treaties and international agreements, it does deserve some weight. Documents which do not follow the customary form for international agreements, as to matters such as style, final clauses, signatures, entry into force dates, etc., may or may not be international agreements under the law. Failure to use the customary form may on occasion constitute evidence of

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a lack of intent to be legally bound by the arrangement. On the other hand, if the general content and context reveals an intention to enter into a legally binding relationship, the lack of proper form will not be decisive.

Two types of international arrangements which frequently cause difficulty in this context are agency-to-agency agreements and implementing agreements.

a. Agency-to-Agency Agreements.

Despite variations in prior practice, it is currently our position that agency level agreements are international agreements for purposes of publication and transmittal to the Congress if they meet the above criteria. The fact that an agreement is signed by a particular department or agency of the United States Government, is not determinative. Agencies can and do bind the U.S. Government in international law, and it is questionable whether any Government agency has a separate legal personality. What is important is the substance of the agreement. This is of particular current significance since many departments and agencies are now signing international agreements in their own name. The Rush letter was designed to ensure that the Department is made aware of these agreements in a timely fashion and is placed in a position to transmit them to the Congress, if in its view it is required to do so by the Case Act.

b. Implementing Agreements.

Implementing agreements present still more complicated problems. Assuming that an implementing agreement meets the criteria specified above, the question then becomes how precisely it is anticipated and identified in the underlying agreement it is designed to implement. For example, suppose the underlying agreement calls for the sale by the United States of 1000 tractors, and a subsequent implementing agreement requires a first installment on this obligation by the sale of 100 tractors of the Brand X variety. In that case, the implementing agreement, is sufficiently identified in the underlying agreement, and would not be subject to the requirements of sections 112a and 112b. However, if the underlying agreement is general in nature, and the implementing agreement meets the specified criteria, it might well be subject to sections 112a and 112b. For example, if the "umbrella" agreement calls for the conclusion of "agreements for agricultural assistance," but without further specificity, then a particular agricultural assistance agreement subsequently concluded in "implementation" of that obligation, provided it meets the specified criteria, would constitute an international agreement independent of the "umbrella" agreement. It would be an "implementing agreement," but nevertheless subject to publication and Case Act requirements.

UNCLASSIFIED

5530.3, Nov 3, 76
(Att 1 to Encl 1)

D. All officers who have not done so should familiarize themselves with the provisions of the Circular 175 Procedure, which sets forth detailed guidelines and information on Department procedures in the negotiation, signature, publication, and registration of treaties and other international agreements of the United States. The Circular 175 Procedure is found at Volume 11 of the Foreign Affairs Manual, Section 700.

Appendix - 1
The Case Act

11

UNCLASSIFIED



Public Law 92-403
92nd Congress, S. 596
August 22, 1972

An Act

86 STAT. 619

To require that international agreements other than treaties, hereafter entered into by the United States, be transmitted to the Congress within sixty days after the execution thereof.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That title 1, United States Code, is amended by inserting after section 112a the following new section:

“§ 112b. United States international agreements; transmission to Congress

“The Secretary of State shall transmit to the Congress the text of any international agreement, other than a treaty, to which the United States is a party as soon as practicable after such agreement has entered into force with respect to the United States but in no event later than sixty days thereafter. However, any such agreement the immediate public disclosure of which would, in the opinion of the President, be prejudicial to the national security of the United States shall not be so transmitted to the Congress but shall be transmitted to the Committee on Foreign Relations of the Senate and the Committee on Foreign Affairs of the House of Representatives under an appropriate injunction of secrecy to be removed only upon due notice from the President.”

SEC. 2. The analysis of chapter 2 of title 1, United States Code, is amended by inserting immediately between items 112a and 113 the following:

“112b. United States international agreement; transmission to Congress.”

Approved August 22, 1972.

U. S. international agreements other than treaties. Transmittal to Congress.
64 Stat. 980.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 92-1301 (Comm. on Foreign Affairs).
SENATE REPORT No. 92-591 (Comm. on Foreign Relations).
CONGRESSIONAL RECORD, Vol. 118 (1972):

Feb. 16, considered and passed Senate.
Aug. 14, considered and passed House.

5530.3, Nov 3, 76
(Att 2 to Encl 1)
DEPARTMENT OF STATE
WASHINGTON

September 6, 1973

Dear

I want to invite your personal attention to the problem of ensuring that all international agreements to which the United States becomes a party are cleared, prior to conclusion, with the Department of State and are submitted, after conclusion, by the Department of State to the Congress, as required by the Case Act (Public Law 92-403; 1 USC 112b). Although cooperation by the various executive departments and agencies has, in general, been most gratifying, there remain difficulties, particularly in achieving mutual understanding of the types of agreements covered by the applicable law and in assuring sufficient awareness by officers and employees of the implications for the operations of their department or agency. It may well be that a combination of new regulations and broad educational efforts within each affected department and agency will suffice to eliminate these difficulties, and I hope you will ensure that the necessary action is taken within your jurisdiction.

A recent Report by the Comptroller General, "U. S. Agreements with and Assistance to Free World Forces in Southeast Asia Show Need for Improved Reporting," B-159451, April 24, 1973, has recommended that the Congress consider legislation requiring that the Secretary of State submit annually to the Congress a list of all such subordinate and implementing agreements made involving substantial amounts of U. S. funds

or other tangible assistance, together with estimates of the amounts of such funds or other assistance. I believe that such legislation should be unnecessary. Certainly it is preferable to bring about full cooperation through our own efforts.

On August 15, 1973 the Department of State published in the Federal Register a Public Notice inviting comment on a proposed revision of its Circular 175 Procedure, and related procedures, regarding the authorization, negotiation and conclusion of treaties and other international agreements (38 Fed. Reg. 22084). We would appreciate the opportunity to discuss with you any particular questions or problems that you may have regarding the application of that procedure, which we hope will provide a satisfactory basis for instructions within each of the departments and agencies concerned.

In this connection, I would also note that neither the form in which an agreement is expressed nor the fact that an agreement is of a subordinate or implementing character in itself removes the agreement from the requirements of the Case Act or of the law regarding the publication of international agreements (1 U.S.C. 112a). The determination whether an instrument or a series of instruments constitutes an international agreement that is required to be transmitted to the Congress and to be published is based upon the substance of that agreement, not upon its form or its character as a principal agreement or as a subordinate or implementing agreement.

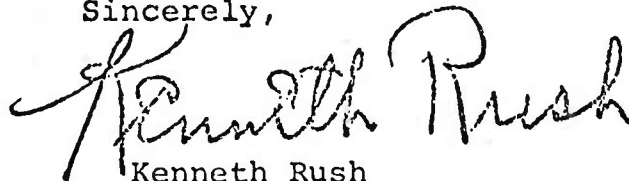
As the subject matter of our international agreements is, in general, as broad as the scope of our foreign relations, it is not practicable to enumerate every type of agreement which the Department of State should receive from the other executive departments and agencies. However, it seems clear that texts should be transmitted to the Department of State of the agreements referred to in the recommendations of the Comptroller General and of any agreements of political significance, any that involve a substantial grant of funds, any involving loans by the United States or credits payable to the United

States, any that constitute a commitment of funds that extends beyond a fiscal year or would be a basis for requesting new appropriations, and any that involve continuing or substantial cooperation in the conduct of a particular program or activity, such as scientific, technical, or other cooperation, including the exchange or receipt of information and its treatment. In general, the instruments transmitted to the Congress pursuant to the Case Act, and those published (other than those classified under E. O. 11652), should reflect the full extent of obligations undertaken by the United States and of rights to which it is entitled pursuant to instruments executed on its behalf.

The fact that an agency reports fully on its activities to a given Committee or Committees of Congress, including a discussion of agreements it has entered into, does not exempt the agreements concluded by such agency from transmission to the Congress by the Department of State under the Case Act.

In the event of a question whether any particular document or series of documents constitutes an international agreement, inquiry may be made of the Assistant Legal Adviser for Treaty Affairs in the Department of State, telephone 632-1074. We look forward to your continued cooperation in ensuring compliance with these requirements.

Sincerely,

A handwritten signature in dark ink, reading "Kenneth Rush". The signature is fluid and cursive, with the first name "Kenneth" being more prominent and the last name "Rush" following in a similar style.

Kenneth Rush
Acting Secretary

THE SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

Nov 3, 76
5530.3 (Encl 2)

OCT 1 1973

Honorable Henry A. Kissinger
Secretary of State
Washington, D. C. 20520

Dear Henry:

I refer to the letter, dated September 6, 1973, from the Acting Secretary of State with regard to the responsibilities placed on the Department of State by the Case Act (Public Law 92-403; 1 USC 112b) for the submission of the texts of international agreements to the Congress after they have entered into force for the United States. The letter, which was sent as well to other Departments and Agencies, also brought to my attention a proposed revision of the Department of State's Circular 175 Procedure regarding the authorization, negotiation, and conclusion of treaties and other international agreements (38 Fed. Reg. 22084, August 15, 1973).

Department of Defense Instruction 5530.2, September 11, 1962, established in the Office of the General Counsel, DoD, a central repository of all international agreements with foreign governments, their agencies or instrumentalities, or with international organizations which are concluded, negotiated, or reviewed by personnel of the Department of Defense. Subsequent to the enactment of the Case Act the Assistant Legal Adviser (Treaty Affairs), Department of State, made arrangements to review periodically the agreements in our central repository. Copies of any document therein that he desires in order to carry out the responsibilities of the Department of State under the Case Act are provided to him with the concurrence of the Assistant General Counsel (International Affairs), DoD. It is my understanding that the September 6th letter was not intended to propose any change in these existing arrangements between our Departments.

As regards the revision of the Circular 175 Procedure, it is suggested that Sections 722.3(b), 723.1 b, 723.1 c, and 730.2-2 b each be revised, consistent with Section 722.3(a), to provide for the concurrence of other Executive Branch Departments or Agencies with a primary responsibility for, or a substantial interest in, the subject agreements.

Sincerely,

Bill Clements

Nov 3, 76
5530.3 (Encl 3)

THE DEPUTY SECRETARY OF STATE
WASHINGTON

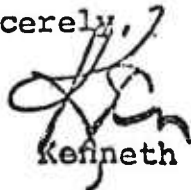
December 5, 1973

Dear Bill:

I thank you for your letter of October 1, 1973 to the Secretary of State in reply to my letter of September 6 regarding the responsibilities of the Department of State under the Case Act (Public Law 92-403) for the transmission of international agreements to the Congress, and calling attention to the proposed revision of Department of State Circular 175 Procedure.

With regard to the implementation of the Case Act, we are gratified with the cooperation being given by your Department under the arrangements permitting the Assistant Legal Adviser for Treaty Affairs to review periodically the agreements in your central repository and supplying copies of relevant texts. My letter was not intended to propose any change in those arrangements.

With regard to procedures on the negotiation of international agreements, your suggestions for changes in certain sections of the revision of the Circular 175 Procedure are appreciated and are being included in the new version that is being prepared.

Sincerely,

Kenneth Rush

The Honorable
William Clements,
Deputy Secretary of Defense.

Nov 3, 76
5530.3 (Encl 4)

THE SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

JAN 8 1972

MEMORANDUM FOR THE SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN, JOINT CHIEFS OF STAFF
DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTOR OF OCEAN AFFAIRS

SUBJECT: Attendance by DOD Personnel at International Conferences,
Organizations, Meetings, and Negotiations

It has recently been brought to my attention that unaccredited DOD officials have, from time to time, appeared at international conferences to join the official US delegation.

In order to preclude a recurrence of such incidents, the Assistant Secretary of Defense (International Security Affairs) will be responsible for informing the Department of State, in all cases, of the names of those who will represent the Department of Defense in international organizations and at international conferences or negotiations.

Addressees of this memorandum are requested to provide appropriate information concerning attendees at meetings within areas in which they have an interest to the Assistant Secretary of Defense (International Security Affairs) in order that the Department of State may be informed. Except where circumstances make it impractical, the information should be submitted two weeks in advance of the prospective attendance.





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

5530.3 (Encl 5)
Sept 13, 77

JUN 17 1977

MEMORANDUM FOR: THE SECRETARY OF STATE
THE SECRETARY OF THE TREASURY
THE SECRETARY OF DEFENSE

FROM: Bert Lance *BLE*
Director

SUBJECT: Procedures for processing new commitments to
foreign governments

1. Purpose. This memorandum implements the President's April 15, 1977, directive to develop procedures for the timely and expeditious processing of new commitment proposals not already provided for in the budget.

2. Presidential policy. In his April 15 memorandum, the President directed that all proposals to provide funds beyond or in addition to approved budgets to foreign governments or international organizations should be submitted to him for approval jointly through the Director of the Office of Management and Budget and the Assistant to the President for National Security Affairs before any commitments, formal or informal, are made.

3. Definitions. A commitment means any communication between a United States official acting within the scope of his responsibility and an official of a foreign government or international organization which could reasonably be interpreted as obligating the United States Government to provide funds, goods, or services requiring additional authorizations or appropriations from the Congress.

Such commitments relate both to proposals which would require increases over current budget requests and to proposals which entail future year funding not already approved. The new commitments procedures do not apply to reprogramming of current year funds which can be accomplished within approved budget totals. The procedures apply to all U.S. funding sources, not just foreign aid.

4. Preliminary discussions. The requirement for Presidential approval of new commitment proposals does not preclude preliminary planning and discussions with other governments regarding possible programs prior to review by the President. Agency officials should, however, make it clear that no commitment can be made until approved by the President.

5. Basic principles.

a) Wherever possible, new commitment proposals should be submitted to the President during the course of the annual budget review in line with the procedures set forth in OMB Circular A-11, "Preparation and submission of budget estimates." This principle is intended to permit orderly and comprehensive review by the President and the Congress.

b) When circumstances do not permit the submission of a new commitment proposal during the annual budget cycle, the proposal will still be reviewed in the same manner as in the annual budget process. Accordingly, the review process for such proposals should parallel as closely as possible the steps in the annual budget review.

c) Any new commitments should be funded to the extent possible by reducing lower priority programs within existing budget levels.

6. Identification of existing commitments. Agencies responsible for programs involving future commitments to foreign governments should review and update the existing list of commitments that have already been made or approved by the President. The specific programs, amounts, years covered, date, form, and authority for the commitment, and the status of the commitment where dependent upon congressional action or action by the recipient should be provided in each case. The revised list should be submitted to OMB prior to September 1, 1977.

7. Identification of possible new commitments. During each annual budget review, agencies will include in their budget requests estimates of any likely new commitments for which specific proposals are not yet available. Whenever possible, funds required to support such commitments should be included in the President's budget. In cases where negotiations are not yet concluded or it would otherwise be inappropriate to include specific amounts in the budget, agencies will provide estimates and justifications in sufficient detail for the President to consider the contemplated commitments during the annual budget review and to approve budget targets as guidance for negotiations.

8. The review process for proposals not included in regular budget submissions.

a) Agencies will submit to OMB in a timely manner all future commitment proposals in order to permit staffing for Presidential decision. Normally, commitment proposals should reach OMB at least 30 days in advance of the desired decision date. Agencies should review their internal procedures governing the preparation of instructions for negotiations, official visits, and conferences where new commitment situations arise in order to provide adequate time for OMB and NSC staff review and Presidential decision. The procedures should also provide for keeping OMB and NSC staff informed of evolving future commitment situations.

b) The proposal should begin with a letter from an appropriate agency official to the President through the Director of OMB and include the following supportive material: (1) projected program level, budget authority, and outlays for each year of the proposed commitment; (2) justification of the proposal; (3) other forms of assistance or other U.S. actions that should be considered in evaluating the need for a particular commitment; (4) discussion of alternatives, including reprogramming options to absorb all or part of the costs within budget or planning ceiling totals; and (5) where negotiating latitude is required, the range of negotiating authorities being sought and discussion of factors that would warrant going to higher levels.

c) Upon receipt of the proposal, OMB will prepare or see that the appropriate Executive Office agency prepares a memorandum for the President which presents options for his consideration and a summary of all relevant agency views.

d) The OMB Director will obtain the President's decision, inform the agencies, and provide an opportunity to appeal if it should be appropriate.

9. Conclusion. There will undoubtedly be circumstances where ongoing negotiations or other events may force quick decisions by the President and require some abbreviation of the review process. OMB will process these requests as rapidly as possible. However, the basic elements of the process must be adhered to.

cc: THE SECRETARY OF AGRICULTURE
THE SECRETARY OF COMMERCE
ASSISTANT TO THE PRESIDENT
FOR NATIONAL SECURITY AFFAIRS



Department of Defense Instruction ASD(ISA)

SUBJECT Delegated Approval Authority to Negotiate and
Conclude International Agreements

- References:**
- (a) DoD Directive 5530.3, "International Agreements," November 3, 1976
 - (b) Public Law 92-403, approved August 22, 1972 (86 Stat. 619); Title 1, United States Code, Section 112b (the "Case Act")
 - (c) DoD Directive 2100.3, "United States Policy Relative to Commitments to Foreign Governments Under Foreign Assistance Programs," July 11, 1963
 - (d) DoD Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations," December 31, 1976
 - (e) DoD Directive 2010.6, "Standardization and Interoperability of Weapon Systems and Equipment within the North Atlantic Treaty Organization (NATO)," March 11, 1977
 - (f) DoD Directive 5105.38, "Defense Security Assistance Agency (DSAA)," August 11, 1971

A. PURPOSE

This Instruction implements section VIII. of reference (a) by delegating authority to approve the negotiation and conclusion of certain international agreements. It does not create any substantive authority for this purpose.

B. APPLICABILITY AND SCOPE

1. The provisions of this Instruction apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, and the Defense Agencies (hereafter referred to as "DoD Components").

2. The definitions, policies and procedures set forth in reference (a) apply to the international agreements dealt with in this Instruction, except as may be modified herein. Compliance with the provisions of references (b) and (c) is mandatory with regard to the international agreements governed by this Instruction.

3. The provisions of this Instruction encompass the exercise of authority by the Assistant Secretary of Defense (International Security Affairs) to grant or deny (with or without modifications or guidance) DoD Component requests for authority to negotiate and conclude those international agreements that pertain to their respective responsibilities

under applicable DoD Directives, Executive Orders, or statutory authority.

4. Excluded are requests for authority to negotiate and conclude agreements of significant politico-military importance and those requiring (in accordance with past practice) approval, negotiation, or signature by the United States at the diplomatic level. Such requests shall be forwarded to the Assistant Secretary of Defense (International Security Affairs), pursuant to section VI. of DoD Directive 5530.3 (reference (a)). In case of doubt, the decision as to whether or not a proposed agreement falls under this exclusion will be made by the ASD(ISA).

C. DELEGATIONS OF AUTHORITY

Authority is hereby delegated, within the categories shown, to the following designated organizational elements of the Department of Defense:

1. Technical, operational, working, or similar agreements or arrangements, concluded pursuant to a treaty or executive agreement that entails implementing arrangements:

- a. The Secretaries of the Army, Navy and Air Force
- b. The Chairman, Joint Chiefs of Staff (for agreements concerning operational command of joint forces)
- c. The Director, National Security Agency (for agreements pertaining to communications security equipment development)
- d. The Director, Defense Security Assistance Agency

2. Agreements with allied and friendly countries and organizations for cooperative or reciprocal operational, logistical, or other military support, including arrangements for shared use or licensing of military equipment, facilities, services and nonphysical resources:

- a. The Secretaries of the Army, Navy and Air Force
- b. The Chairman, Joint Chiefs of Staff (for agreements concerning operational command of joint forces)
- c. The Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics) (for agreements concerning cooperative or reciprocal logistical support, including shared use of equipment, facilities and services, less uni-Service matters)
- d. The Director, Defense Security Assistance Agency

3. Agreements relating to combined military planning, command relationships, military exercises and operations, minor and emergency force

deployment, and exchange programs:

a. The Secretaries of the Army, Navy and Air Force (for pre-dominately uni-Service matters)

b. The Chairman, Joint Chiefs of Staff (less uni-Service matters)

4. Agreements for the collection and exchange of military intelligence, including cryptologic support and counterintelligence information, under approved cooperative intelligence programs: Delegation of authority in this category will be the subject of a separate Instruction following the establishment of new responsibilities for intelligence matters within the Office of the Secretary of Defense. Pending such establishment, existing procedures regarding the negotiation and conclusion of intelligence and cryptologic support agreements will remain in effect. The Assistant Secretaries of Defense (International Security Affairs) and (Communications, Command, Control, and Intelligence) will be advised of all proposed agreements relating to intelligence and cryptologic support matters.

5. Agreements for the collection or exchange of military information and data:

a. The Secretaries of the Army, Navy and Air Force

b. The Chairman, Joint Chiefs of Staff (for agreements concerning operational command of joint forces)

c. The Director, Defense Mapping Agency (for agreements relating to mapping, charting, geodesy, aerial photography and related matters)

6. Cooperative research, development, data exchange, and related licensed production and standardization agreements:

a. The Secretaries of the Army, Navy and Air Force (for health and medical agreements)

b. The Director, Defense Research and Engineering

c. The Assistant Secretary of Defense (Communications, Command, Control, and Intelligence) (for agreements concerning communications, command and control)

7. Military and industrial security agreements under the provisions of V.A.4.b., DoD Directive 5230.11 (reference (d)) and agreements relating to military banking facilities and credit unions: The Assistant Secretary of Defense (Comptroller).

D. REDELEGATION

The approval authority delegated in section C. may be redelegated. However, the organization to which approval authority is initially delegated is responsible for compliance with the provisions of DoD Directive

5530.3 (reference (a)) and this Instruction.

E. PROCEDURES

1. Delegated approval authority, including the institution of summary procedures referred to in section VIII.A.(3) of DoD Directive 5530.3 (reference (a)), will be accomplished through the DoD Component regulations that implement reference (a). The standard procedures in section VII. of reference (a) will be used by officials of the Office of the Secretary of Defense in exercising their authority to grant or deny requests for authority to negotiate and conclude international agreements.

2. Delegated approval authority will be exercised in full consultation with other DoD organizations having an interest in the subject matter:

a. Military commands and all DoD organizational elements, or other components, assigned to or located within the geographic areas of Unified Commands shall advise them of any international negotiations with significant impact on their plans and programs and furnish them a copy of each agreement concluded.

b. Other organizations which negotiate an agreement that would have a significant impact on the Unified and Specified Commands shall so advise the Joint Chiefs of Staff or the military command concerned, as appropriate, and furnish them a copy of the concluded agreement.

c. Those agreements in categories 1. and 2. of section C. of this Instruction that involve significant changes in logistic support for U.S. forces (including base adjustments) impacting on joint plans and programs will be coordinated with the Joint Chiefs of Staff or their designee.

d. Agreements relating to the sharing or exchange of DoD communications equipment, facilities, services, or other communications resources with a foreign country or alliance organization such as NATO; to the provision of communications security technology, services or support; to the use of U.S. military frequencies or frequency bands; to the use of U.S. communications facilities and/or systems by foreign organizations, whether overseas or in the continental United States, will be coordinated with the Assistant Secretary of Defense (Communications, Command, Control, and Intelligence), unless such agreements affect only a uni-Service interest.

e. Prior to negotiation, agreements which have potential impact on the development or procurement of standardized weapon systems or equipment within NATO will be coordinated with the Assistant Secretary of Defense (International Security Affairs) as early in the development or procurement stage as possible. DoD Directive 2010.6 (reference (e)) provides policy guidance on NATO standardization.

f. Nothing in this Instruction is to be construed as rescinding or limiting the authorities and responsibilities assigned to the Director, Defense Security Assistance Agency, under DoD Directive 5105.38 (reference (f)).

3. One copy of each agreement concluded under this delegation of authority will be provided to the Assistant Secretary of Defense (International Security Affairs) whenever copies are furnished to the General Counsel, DoD, in accordance with IV.A.(2) of DoD Directive 5530.3 (reference (a)). The Defense Intelligence Agency is the custodian of intelligence agreements for the Department of Defense.

4. Necessary coordination with elements of the Department of State or the National Security Council under this Instruction will be conducted through the Office of the Assistant Secretary of Defense (International Security Affairs).

5. Within the Office of the Assistant Secretary of Defense (International Security Affairs):

a. Records and Control is designated as the single office of record for the purposes of section IX.A.(1) of DoD Directive 5530.3 (reference (a)).

b. The functions set forth in section IX.A.(2), (3) and (5) of DoD Directive 5530.3, and approval authority under section VII. of reference (a) that has not been delegated in section C., above, will normally be exercised by the cognizant Deputy Assistant Secretary, or by a Director not reporting to a Deputy Assistant Secretary, for matters falling within his responsibility.

c. Staff responsibility for the implementation of this Instruction is assigned to the Director, Foreign Military Rights Affairs.

6. For the purposes of section IX.C. of reference (a), the following have been designated as single offices of record:

a. Within the Office of the Director, Defense Research and Engineering, the Assistant Director (International Programs).

b. Within the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics), the Director for International Logistics.

c. Within the Office of the Assistant Secretary of Defense (Communications, Command, Control, and Intelligence), the Director for Policy and Operations, ODASD (Telecommunications).

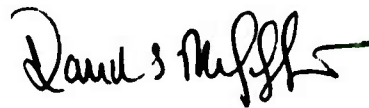
7. If the proposed agreement is to be negotiated and signed at the diplomatic level, requests forwarded to the Assistant Secretary of Defense (International Security Affairs) pursuant to section VII. of reference (a))

will be accompanied by draft negotiating instructions from the Department of State to the U.S. diplomatic mission concerned. Such instructions, together with the other materials listed in section VII.B.(1) of reference (a), will be forwarded in five copies.

F. EFFECTIVE DATE AND IMPLEMENTATION

1. This Instruction is effective immediately. Delegations of authority set forth in this Instruction are effective on and after July 15, 1977.

2. Forward two copies of implementing documents to the Assistant Secretary of Defense (International Security Affairs) within 60 days.



David E. McGiffert
Assistant Secretary of Defense
International Security Affairs



February 10, 1979

NUMBER 4120.3

USDR&E

Department of Defense Directive

SUBJECT Defense Standardization and Specification Program

References: (a) DoD Directive 4120.3, "Department of Defense Standardization Program," June 6, 1973 (hereby canceled)
(b) Title 10, United States Code, Chapter 145, "Cataloging and Standardization," 2451 et seq.
(c) DoD Directive 5000.2, "Major System Acquisition Process," January 18, 1977
(d) through (j), see enclosure 1

A. REISSUANCE AND PURPOSE

1. This Directive (a) reissues reference (a) to update established policies governing the Defense Standardization and Specification Program (DSSP) pursuant to reference (b); and (b) authorizes the publication of DoD Manual 4120.3-M which prescribes procedures governing execution of the DSSP.

2. Reference (a) and Report Control Symbols DD-I&L(SA)758 and DD-I&L(AR)759 are hereby superseded and canceled.

B. APPLICABILITY AND SCOPE

1. The provisions of this Directive apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, and the Defense Agencies (hereafter referred to as "DoD Components").

2. Its provisions encompass functions concerned with achieving an optimum degree of uniformity among the variety of items, materials, and engineering practices in all phases of the life cycle of systems and equipment developed for or used by the Department of Defense.

C. OBJECTIVES OF THE DSSP

The objectives of the DSSP are to improve the operational readiness of the DoD Components and assure the cost-effective mission performance of systems and equipment by fostering the efficient use of resources and optimum reuse of the products of engineering efforts.

D. POLICY

It is Department of Defense policy that there shall be a single integrated Defense Standardization and Specification Program (DSSP) and a uniform series of specifications, standards, and related documents.

E. PROCEDURES

The DSSP shall be (a) a planned program under which specifications, standards, handbooks, engineering drawings and other standardization documents are prepared and maintained to meet essential requirements with optimum efficiency; and (b) a decentralized program with management authority and responsibilities for portions of the program delegated to the DoD Components.

1. Military operational requirements for materiel shall be satisfied to the maximum practical extent through the use of existing acceptable commercial and military designs, products and practices.

2. Standardization shall be an essential consideration during systems and equipment acquisitions, including "inter" and "intra" system standardization of items and engineering practices. In accordance with the provisions of DoD Directive 5000.2 (reference (c)), the degree and effectiveness of standardization efforts will be an issue to be addressed during DSARC and (S)SARC milestone reviews. In the system acquisition process (DoD Directive 5000.1, reference (d)), existing items and engineering practices and documents prepared under the DSSP shall be used:

a. In the program initiation and the demonstration and validation phases only to the extent that they satisfy the program needs and their use will not compromise the program objectives.

b. In the full scale engineering development and the production and deployment phases wherever cost effective. A parts control program shall be employed in accordance with DoD Instruction 4120.19 (reference (e)) to reduce the costs and logistic burden associated with item proliferation.

3. The number of items in supply shall be minimized by establishing efforts to control the entry of items into supply, and to eliminate nonessential items from the supply system.

4. Specifications, standards and other documents generated under the DSSP shall state only the actual needs of the Government and describe the supplies and services in a manner which will encourage maximum competition (DAR, reference (f)). Such documents shall be prepared to document item and material requirements and engineering practices which are or will be subject to recurring application and shall:

a. Reflect engineering practices and products of the private sector except where unique military requirements are essential.

b. Permit maximum flexibility in their application. (See DoD Directive 4120.21, reference (g).)

c. Undergo coordination with interested Government activities and a representative segment of non-Government interests prior to issuance.

5. Documents issued by nongovernmental standards producing organizations shall be adopted and used instead of military documents in accordance with the policies set forth in DoD Instruction 4120.20 (reference (h)).

6. Metric documents shall be produced under the DSSP as required to meet the objectives of DoD Directive 4120.18 (reference (i)).

7. There shall be a single stock and distribution point for documents prepared or adopted under the DSSP.

8. Documents prepared or adopted under the DSSP shall conform to international standardization treaty agreements. Documents having potential NATO application shall be designed to support NATO Rationalization/Standardization and Interoperability (DoD Directive 2010.6, reference (j)). Whenever feasible, DSSP documents shall be consistent with nontreaty international standards.

9. Effective mechanisms shall be maintained for providing recommendations based on experience of users to activities preparing documents under the DSSP. Activities preparing documents under the DSSP shall ensure that the recommendations of the users of such documents are properly and promptly considered.

F. RESPONSIBILITIES

1. The Under Secretary of Defense for Research and Engineering (USDR&E) is responsible for DSSP policy, administration and guidance.

2. The Defense Materiel Specifications and Standards Board (DMSSB) will serve in an advisory capacity to the Secretary of Defense on policy and administration matters.

3. The Defense Materiel Specifications and Standards Office (DMSSO), under direction of the USDR&E, shall be responsible for:

a. Administering and managing the DSSP, including establishing policies, procedures, program guidance and controls.

b. Assigning to the DoD Components the responsibility for the implementation of specified portions or segments of the DSSP.

c. Establishing reporting and surveillance techniques which measure the degree to which the program objectives are achieved.

d. Issuing DoD 4120.3-M, Defense Standardization Manual.

4. The Secretaries of the Military Departments and the Directors of Defense Agencies shall:

a. Provide resources to assure effective implementation of policies contained herein.

b. Designate an office responsible for the DSSP within their Components.

c. Act for the Secretary of Defense for portions of the DSSP delegated in accordance with section E. The authority to act for the Secretary of Defense within the scope of standardization assignments may be further delegated to heads of activities within their Components. Decisions by the Secretaries of the Military Departments and Directors of Defense Agencies or heads of designated activities may be appealed to the Secretary of Defense.

d. For delegated portions of the DSSP, assure that standardization planning documents are timely and properly developed and that the actions identified in the planning documents progress satisfactorily.

5. The Secretary of the Navy, in addition to responsibilities enumerated in F.4., shall maintain the single stock point required by subsection E.7.

G. RECURRING REPORT REQUIREMENTS

1. Standardization Accomplishment Report. An annual Standardization Accomplishment Report, as required by 10 U.S.C. 145 (reference (b)), shall be prepared and submitted in accordance with the procedural instructions contained in DoD Manual 4120.3-M. This reporting requirement has been assigned Report Control Symbol DD-DR&E(A)758 (formerly DD-I&L(SA)758).

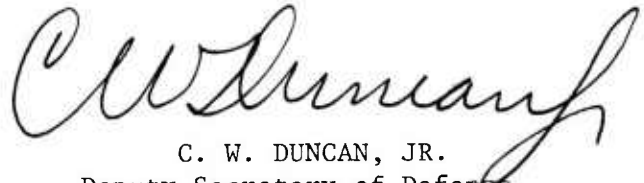
2. Standardization Project Transmittal Sheet (DD Form 1585). In accordance with the instructions contained in DoD Manual 4120.3-M, standardization project preparing activities will submit to the Air Force Logistics Command (AFLC) the DD Form 1585, as required, to

Feb 10, 79
4120.3

schedule, initiate or report the status of standardization projects. The DD Forms 1585 will be compiled by the AFLC into the SD-4, Status of Standardization Projects, and issued quarterly. The Navy Department will be responsible for publishing and distributing the SD-4. This reporting requirement has been assigned Report Control Symbol DD-DR&E(AR)759 (formerly DD-I&L(AR)759).

H. 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.



C. W. DUNCAN, JR.
Deputy Secretary of Defense

Enclosure - 1
References, continued

REFERENCES, continued

- (d) DoD Directive 5000.1, "Major System Acquisition," January 18, 1977
- (e) DoD Instruction 4120.19, "Department of Defense Parts Control System," December 16, 1976
- (f) Defense Acquisition Regulation (DAR), Section 1, Part 12
- (g) DoD Directive 4120.21, "Specifications and Standards Application," April 9, 1977
- (h) DoD Instruction 4120.20, "Development and Use of Non-Government Specifications and Standards," December 28, 1976
- (i) DoD Directive 4120.18, "Use of Metric System of Measurement," December 10, 1976
- (j) DoD Directive 2010.6, "Standardization and Interoperability of Weapon Systems and Equipment Within the North Atlantic Treaty Organization (NATO)," March 11, 1977



December 10, 1976

NUMBER 4120.18

ASD(I&L)

Department of Defense Directive

SUBJECT Use of the Metric System of Measurement

- Refs:
- (a) Deputy Secretary of Defense Memorandum, "Use of the Metric System of Measurement," June 10, 1975 (hereby cancelled)
 - (b) Metric Conversion Act of 1975, 15 U.S.C. 205a-k (PL 94-168)
 - (c) DoD Instruction 5000.2, "The Decision Coordinating Paper (DCP) and the Defense Systems Acquisition Review Council (DSARC)," January 21, 1975
 - (d) American Society for Testing and Materials E380 (also numbered ANSI Z210.1 and IEEE Std 268) Standard for Metric Practice, of the issue listed in the DoD Index of Specifications and Standards
 - (e) DoD Directive 4120.3, "Department of Defense Standardization Program," June 6, 1973

I. PURPOSE

This Directive establishes policies for the use of the metric system of measurement within the Department of Defense.

II. CANCELLATION

Reference (a) is hereby superseded and cancelled.

III. APPLICABILITY

The provisions of this Directive apply to the Office of the Secretary of Defense, the Joint Chiefs of Staff, the Military Departments, and Defense Agencies (hereinafter referred to collectively as "DoD Components").

IV. BACKGROUND AND OBJECTIVES

- A. Reference (b) establishes a national policy of coordinating the increasing use of the metric system in the United States. Many Defense-related industries have converted or are planning conversion from

U. S. customary inch-pound measurement system to metric measurements. The Department of Defense must be able to accept such conversion with minimum cost and disruption of operations.

- B. Use of the metric system will help foster standardization with our allies and thus promote interchangeability and interoperability, facilitate joint military production programs, and simplify supply operations.
- C. Consideration of metric usage is especially appropriate in the design of new Department of Defense Materiel where metric products are expected to be in common use at the time of production release.
- D. Generally, it is recognized that industry will take the lead in the changeover and the DoD Components will keep pace by adopting commercially available metric items wherever economically and technically practicable.

V. POLICIES

- A. The Department of Defense will consider the use of the metric system in all of its activities consistent with operational, economical, technical, and safety requirements.
- B. The metric system will be considered for use in all new designs. When it is deemed not to be in the best interest of the DoD to provide metric design, justification shall be provided. Further, it will be considered in the procurement of all supplies and services. In general, the metric system will be adopted for the following:
 - 1. Where there is a specific military need such as for materiel to be used jointly with NATO and other allied nations.
 - 2. Military materiel which has potential for significant foreign sales or joint production programs.
 - 3. Areas where industry has made significant progress in metric conversion and production facilities are available.
 - 4. Areas where defense-industry preparedness or defense production readiness may be enhanced.
 - 5. Other areas which offer an economic, operational, or other advantage or when no disadvantage is incurred.

- C. Physical and operational interfaces between metric items and U. S. customary items will be designed to assure that interchangeability and interoperability will not be adversely affected.
9. D. Existing designs dimensioned in U. S. customary units will be converted to metric units only if determined to be necessary or advantageous. (Unnecessary retrofit of existing systems with new metric components will be avoided where both the new metric and existing units are interchangeable and interoperable. Normally, the system of measurement in which an item is originally designed will be retained for the life of the item.
- E. During the metric transition phase hybrid metric and U. S. customary designs will be necessary and acceptable. Materiel components, parts, subassemblies, and semifabricated materials which are of commercial design will be specified in metric units only when economically available and technically adequate or when it is otherwise specifically determined to be in the best interest of the Department of Defense. Bulk materials will be specified and accepted in metric units when it is expedient or economic to do so.
- F. Defense Systems Acquisition Review Council (DSARC) reviews and associated Decision Coordinating Papers will address the use of metric units of measurement or reasons for their nonuse (DoD Instruction 5000.2, reference (c)).
- G. Technical reports, studies, and position papers (except those pertaining to items dimensioned in U. S. customary units) will include metric units of measurement in addition to or in lieu of U. S. customary units. With respect to existing contracts, this requirement applies only if such documentation can be obtained without an increase in contract costs.
- H. Programming and budgeting actions will include resources required to support the DoD effort in converting to the use of metric units. Use of the metric system will be identified and planned so that costs can be included in the budget cycle on an orderly basis.
- I. The International System of Units (SI) described in reference (d) will be the metric system used by the DoD.
- J. Representatives of the Department of Defense will participate in the development of national and international standards using the metric system, to the extent indicated by DoD interest. NATO and other international metric standards will be used to the maximum practical extent. However, if a U. S. Standard is established with greater definition and restriction than a prevailing international standard, the U. S. Standard will apply.

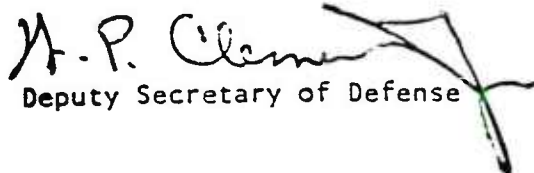
- K. Emphasis will be placed on keeping pace with the conversion or development of specifications, standards, and other general purpose technical data. When the item in question is a military item without a commercial counterpart, the Preparing Activity will assume a leadership role in development of the applicable metric document as the need arises.
- L. When purchasing new equipment, DoD Components are encouraged to specify features which will allow direct measurement in terms of SI units or both SI and U. S. customary units. Use of conversion kits is also encouraged.
- M. Training in metric practices and usage will be provided to those personnel whose duties require such knowledge.
- N. Use of dual dimensions (i.e., both metric and U. S. customary dimensions) on drawings will be avoided unless it is determined in specific instances that such usage will be beneficial. However, the use of tables on the document to translate dimensions from one system of measurement to the other is acceptable.

VI. RESPONSIBILITIES

- A. The Assistant Secretary of Defense (Installations and Logistics), in coordination with the Director of Defense Research and Engineering, and with the advice of the Defense Materiel Specifications and Standards Board (DoD Directive 4120.3, reference (e)), will provide policy and any necessary procedural guidance related to this Directive.
- B. The Military Departments and Defense Agencies will appoint a person or establish an office to coordinate metric activities and provide advice on metric conversion within the DoD Component concerned.

VII. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Two copies of implementing documents shall be forwarded to the Assistant Secretary of Defense (Installations and Logistics) within 90 days.


Deputy Secretary of Defense



NUMBER 2015.4
DATE November 5, 1963

Department of Defense Instruction ^{DDR&E}

SUBJECT Mutual Weapons Development Data Exchange Program (MWDDEP)
and Defense Development Exchange Program (DDEP)

- References:**
- (a) DOD Directive 5129.1, "Director of Defense Research and Engineering, " February 10, 1959
 - (b) DOD Instruction S-5230.11, "Procedures for Making Classified Military Information Available to Foreign Nationals and Foreign Governments, " November 16, 1955
 - (c) ODDR&E memorandum to the Military Departments, "Administrative Procedures for Handling Annexes to Data Exchange Agreements with Far East Countries, " April 4, 1963 (hereby cancelled)
 - (d) DOD Directive C-5100.33, "Allied Data Plan, " November 29, 1962

I. PURPOSE

This Instruction is issued pursuant to the authority of reference (a), and (1) establishes procedures for exchanging certain technical and scientific military information of mutual interest to the United States and other countries through exchange of correspondence, reports, equipment or other material or technical documents, and by visits of technical personnel; and (2) delineates Director of Defense Research and Engineering (DDRE) and Military Department assigned responsibilities for carrying out the subject programs.

II. APPLICABILITY AND SCOPE

The provisions of this Instruction apply to the Military Departments; to the MAAGS as may be determined on a case-by-case basis; and cover the exchange of information concerning a military technical or scientific area, weapon, weapon system, or operational concept. Exchange of information under this Instruction does not duplicate that under reference (d).

III. THE PROGRAMS AND THEIR OBJECTIVES

- A. The Mutual Weapons Development Data Exchange Program (MWDDEP) (originally developed under the "Mutual Weapons Development Program"):

1. Has been broadened to support the following objectives:
 - a. Create closer alliances.
 - b. Enhance the security of the free world.
 - c. Better marshal the technological capabilities of the U. S. and friendly foreign nations.
 - d. Reduce costs and duplication of development efforts.
 - e. Advance the objectives of standardization.
 2. Will be administered under a revised simplified format, as follows: A Master Agreement, known as the Mutual Weapons Development Master Data Exchange Agreement has been, or will be, concluded with each of the countries in the Program. Under the authority of the Master Agreement, individual projects will be described in short-form Annexes.
- B. The Defense Development Exchange Program (DDEP) has been established for application in the Far East, and will support similar objectives. Master Agreements, known as Data Exchange Agreements, or Arrangements on Data Exchange, have been concluded with several countries concerned, and the individual projects will be described in Annexes.
- C. Short Titles
- For purposes of clarity, these basic Agreements will be referred to hereafter as "Master MWDDEA's" and "Master DEA's" to distinguish them from the Annexes. Where appropriate, multi-lateral Master MWDDEA's and Master DEA's may be concluded between the U. S. and two or more countries.
- D. Additional Agreements
1. To support the objectives set forth above, additional Master MWDDEA's and Master DEA's (initiated by either the U. S., or by the countries involved) will be established with

countries that have research and development capabilities which can contribute to the U.S. effort on a mutual aid basis.

2. Annexes to these agreements covering specific technical areas will be initiated, on a mutual aid basis, following the procedures in Inclosure 1 to this Instruction. The scope of each Annex will be limited to the narrowest subject area practicable, consistent with beneficial engineering consultation.
3. In the administration of these programs, the Military Departments will employ uniform procedures and format to the greatest practicable degree in their transactions with foreign representatives.

IV. RESPONSIBILITIES

Under existing authority, the Director of Defense Research and Engineering is responsible for determining policies for the MWDDEP and the DDEP, and the Secretaries of the Military Departments (or their designees, as outlined below) are responsible for administering these programs:

- A. Annexes to Master MWDDEA's and Master DEA's, and amendments and terminations thereto, may be negotiated and signed at the level of the Assistant Secretary (Research and Development); if desired, this authority may be further delegated to the level of Deputy Chief of Staff for Research and Development (Army - Chief of Research and Development; Navy - Deputy Chief of Naval Operations (Development); Air Force - Deputy Chief of Staff, Research and Development or Commander, Air Force Systems Command), and their immediate Assistants or Deputies.
- B. When recommended by the above authorities in a particular Military Department, DDRE will arrange with the Director of Military Assistance, Office of the Assistant Secretary of Defense (International Security Affairs), to extend the signature authority to the Chief of a MAAG in countries subscribing to the Defense Development Exchange Program (DDEP); or in the absence of MAAG representation, the Military Attache will be requested to sign for the Military Department concerned.

V. PROGRAM OUTLINE AND SIGNATURE AUTHORITIES

- A. Master MWDDEA's and Master DEA's will provide, on a continuing basis, for the exchange of technical and scientific military information through military channels in areas of mutual technical interest. Each Master Agreement will have one or more Annexes (see Inclosure 2 for format) for each project area of exchange, describing the technical scope, authorities, and establishments involved in the exchange, and the security level to which the exchange must be confined.
- B. The authorities listed in each Annex include the Project Officers for the United States and the countries involved, and the MAAG or U.S. Embassy in the countries involved, or the countries' Embassies in Washington, D. C. The channel for all exchanges of material is from Project Officer to Project Officer through the MAAG or the Embassy, as appropriate.
- C. The Establishments listed in each Annex will be nominated by their respective governments.
- D. Signature authority on behalf of the United States for Master MWDDEA's and Master DEA's is vested in the DDRE. After establishment of a Master MWDDEA or Master DEA, the Military Departments have been authorized to initiate, sign, amend, and terminate Annexes thereto, as outlined in IV., above. (Existing Master MWDDEA's and Annexes and amendments thereto signed by DEFREPNAME before the effective date of this Instruction remain valid).
- E. To assist in evaluating the desirability of establishing an Annex, and in meeting the objectives set forth in III. A.1., above, negotiators for the Military Departments shall obtain program information, of the type and in the format shown in Inclosure 3, from each proposed country.

VI. CLASSIFICATION

- A. The security classification of a Master MWDDEA, Master DEA, or Annex thereto, will be as mutually determined by

the participating countries, regardless of the classification of information to be exchanged (including unclassified information). No signatory country of one of these documents should downgrade this security classification without the agreement of all other signatory countries thereto.

- B. The highest level of security classification of material to be exchanged under a Master MWDDEA or Master DEA shall be stated in the Annex thereto covering the specific area of exchange. Such classification level will be no higher than is allowed to be disclosed under reference (b), and the references listed therein, but at the highest level thereunder desired by any of the Military Departments represented in the Establishments and Authorities.

VII. FUNDING

- A. As may be approved by the Assistant Secretary of Defense (International Security Affairs), (ASD/ISA), military assistance funds may be used to cover expenses directly associated with U. S. participation in the MWDDEP and the DDEP, including costs of TDY travel by U. S. personnel, and technical assistance as approved by the responsible Military Departments.
- B. Where travel of foreign personnel from grant aid countries is deemed in the best interests of the United States, military assistance funds may be used, when approved by the Assistant Secretary of Defense (International Security Affairs). Travel will be by U. S. carriers, unless exception in the best interests of the U. S. is made by ASD/ISA.
- C. Costs resulting from the exchange of equipment will, in general, be borne by the country requesting or receiving the equipment.

VIII. IMPLEMENTATION

Two copies of implementing instructions issued by the Military Departments shall be forwarded to the Director of Defense Research and Engineering within ninety (90) days from the effective date of this Instruction.

IX. EFFECTIVE DATE AND CANCELLATION

This Instruction is effective immediately. Reference (c) is hereby superseded.

Harold Brown

Director of Defense Research and Engineering

Inclosures - 4

1. Procedures for Establishing, Amending
and Terminating Annexes to Master
MWDDEA's and Master DEA's
2. Format for Annex
3. Outline of Information Desired For New
Annex
4. Format for Termination of Annex

PROCEDURES FOR
ESTABLISHING, AMENDING AND TERMINATING
ANNEXES TO MASTER MWDDEA'S AND MASTER DEA'S

A. The following procedures will be followed in establishing an Annex:

1. A proposed Annex originated in another country will be transmitted by the MAAG or Attache, with available supporting information in the format of Inclosure 3, directly to the appropriate Military Department for approval, with one (1) copy to the Director of Defense Research and Engineering, attention ADDRE(IP) and one (1) copy to the Chairman of the State-Defense Military Information Control Committee (S-DMICC). After approval by the cognizant Military Department and coordination with the other Military Departments as appropriate, the proposed Annex will be returned to MAAG or Attache for signature by the authorities in the country concerned (duplicate originals). After completion, one (1) original and five (5) copies of the Annex, signed by both parties, will be furnished DDRE, attention ADDRE(IP). In cases of uncertainty as to which Military Department should be the prime agent, the proposed Annex and supporting information should be forwarded to DDRE.

2. A proposed Annex originated by a Military Department will be coordinated with the other Military Departments as appropriate, with a copy furnished DDRE and Chairman, S-DMICC, and transmitted by the Military Department to the MAAG or Attache (duplicate originals) for signature by the authorities of the country concerned. After completion, one original and five (5) copies of the Annex, signed by both parties, will be furnished DDRE.

3. The DDRE will serve as the repository for Master MWDDEA's, Master DEA's, and Annexes thereto.

4. Numbers for Annexes will be assigned by the Military Departments utilizing the following system:

<u>Service</u>	<u>Fiscal Year</u>	<u>Country</u>	<u>Project No.</u>
DEA A-Army	64	A-Australia	1000-3999:Army
N-Navy	65	B-Belgium	4000-6999:Navy
AF-Air Force	etc.	C-China	7000-9999:Air Force
D-OSD-for Joint		D-Denmark	1- 999:OSD
projects not		F-France	
assigned to		G-Germany	
one service		I-Italy	
as Executive		J-Japan	
Agent		K-Korea	
		TN-Netherlands	
		N-Norway	
		P-Philippines	
		T-Turkey	
		S-Sweden	

Example: DEA-N-64-J-4000

5. Amendments to Annexes will be processed as above, except changes in the list of Establishments and Authorities, which may be accomplished by Project Officers in direct correspondence.

B. Termination agreements for Annexes will be processed as above except copies are not required by S-DMICC.

C. Other Requirements:

1. DDRE will be kept informed, either by information copies of correspondence or by periodic reports, of the titles and classification of documents or materials exchanged under an Annex.

2. Annexes involving more than one U.S. Military Department will be coordinated directly between Departments, with assistance as required from DDRE.

3. A multi-Service Annex should be used whenever practicable in preference to separate Annexes when two or more Departments establish data exchange with a country in the same technical area.

4. Termination agreements must contain adequate protective clauses for the subsequent security protection of material that has been exchanged. A sample Termination Agreement is at Inclosure 4.

5. Project Officers may change the Establishments or Authorities by mutual agreement, but no other terms of the Annex. Notification of such changes must be provided to all holders of copies of the Annex.

6. The existence of a Master MWDDEA, a Master DEA, or an Annex thereto with a country is unclassified information as long as the subject of the Annex is not identified. Care must be exercised to classify documents which associate country names with project areas.

7. CINCPAC will be furnished copies of all Annexes signed under the DDEP.

FORMAT FOR ANNEX

(Project Number and Other Heading Information)

(Title)

Pursuant to the terms and conditions of the / pertinent Master agreement/ signed _____, attached hereto, the two Governments / defense establishments/ hereby establish the following data exchange project:

1. Project Description and Classification.

a. Scope: Exchange of Information on the _____

b. Highest classification of data to be exchanged:

(Classification)

2. Establishments and Authorities Concerned.

a. For the United States.

(1) Establishments.

(a) _____

(b) _____

(c) _____

(2) Authorities. (List by title and office)

(a) Project Officer _____

(b) _____

(c) _____

b. For the Government of (_____)

(1) Establishments.

(a) _____

(b) _____

(c) _____

(2) Authorities. (List by title and office)

(a) Project Officer - _____

(b) _____

(c) _____

IN WITNESS WHEREOF, the parties hereto have executed
this Annex No. _____ to the /pertinent Master
agreement/ on this _____ day of _____.

Note: Only those Authorities listed herein are authorized to initiate
correspondence. Such correspondence will be transmitted
through the Project Officer channel as prescribed in the
pertinent Master Agreement.

OUTLINE
OF
INFORMATION DESIRED FOR NEW ANNEX

- I. General Description of the Program Which the Annex will Support.
 - A. Mission Statement.
 - B. Improvement Over Present Capability.
 - C. The Major Development Problems Associated with the Program.
- II. Technical Description and Program Summary.
 - A. Statement of Technical Approach.
 - B. Present Fund Programming (may or may not be given in terms of specific funding level).
- III. Security Classification of Program (within country).
- IV. Specific Definition of the Area of Exchange Required to Support the Program.

TERMINATION AGREEMENT

Termination of Annex No. _____ to

/Pertinent Master Agreement/

Concerning

1. Annex No. _____ to /Pertinent Master Agreement/
dated _____, sets forth detailed arrangements between the Government
of the United States of America and the Government of _____
for the exchange of information of mutual interest concerning _____
_____.

2. As a result of discussions between representatives of
the two Governments, it has been determined that there is no further
need for exchange of information regarding the project covered by
this Annex.

3. Now, therefore, in consideration of the foregoing, the
parties do hereby agree that the exchange of information under the
Annex is terminated pursuant to the terms of /Pertinent Master Agree-
ment/. The parties do hereby further agree that:

a. The continued use by either Government /party/
of information already exchanged under the project will remain
subject to the provisions of /pertinent patent interchange agreement
or similar safeguard concerning proprietary rights.

b. The terms of /pertinent Master Agreement/ relative
to safeguarding and disposing of classified information remain in
effect, and permission to reclassify the security level of such infor-
mation must be sought from the originating Government /party/.

IN WITNESS WHEREOF, the parties hereto have executed this
Termination Agreement on the _____.

FOR THE GOVERNMENT OF _____:

FOR THE GOVERNMENT OF THE
UNITED STATES OF AMERICA:



March 2, 1979
NUMBER 5230.11

USD(P)

Department of Defense Directive

SUBJECT: Disclosure of Classified Military Information to Foreign Governments and International Organizations

- References:
- (a) DoD Directive 5230.11, subject as above, June 19, 1973 (hereby canceled)
 - (b) National Policy and Procedures for the Disclosure of Classified Military Information to Foreign Governments and International Organizations (short title: National Disclosure Policy (NDP-1)), August 26, 1978¹
 - (c) DoD Directive 5030.28, "Munitions Control Procedures for U.S. Munitions List Export License Applications Referred to DoD by Department of State," March 10, 1970
 - (d) through (g), see enclosure 1

A. REISSUANCE AND PURPOSE

This Directive reissues reference (a) to incorporate administrative changes. It implements the provisions of reference (b), establishing policy, delegating authority, and assigning responsibility for the disclosure and denial of classified military information to foreign governments and international organizations.

B. APPLICABILITY AND SCOPE

1. The provisions of this Directive apply to the Office of the Secretary of Defense, the Military Departments, the Organization of the Joint Chiefs of Staff, the Unified and Specified Commands, the Defense Agencies, and activities administratively supported by OSD (referred to as "DoD Components").

2. Its provisions cover all classified military information defined in reference (b), including munitions cases processed in accordance with reference (c). They do not

¹ Available on a "need-to-know" basis from the Office of the Deputy Under Secretary of Defense (Policy Review)

apply to the disclosure of atomic information (RESTRICTED DATA or FORMERLY RESTRICTED DATA), which is governed by DoD Directive 5030.14 (reference (d)).

C. POLICY

1. All U.S. classified military information will be treated as a national security asset, which must be conserved and protected and which may be shared with foreign entities only when there is a clearly defined advantage to the United States.

2. Disclosures and denials of such information to foreign governments and international organizations will be made only when authorized by those officials specifically granted disclosure or denial authority by this Directive (section D.), after determining that all of the requirements of NDP-1 (reference (b)) have been met.

3. Decisions to disclose or deny classified military information will be based on a common standard (DoD Instruction 5230.17, reference (e)) within the Department of Defense. Such decisions will be expedited.

4. To ensure consistency of disclosure decisions, the DoD Component having responsibility for taking the action outlined in 3., above, shall notify other DoD Components of significant negotiations and disclosure decisions concerning subject matter in which they have a direct or related interest.

D. DISCLOSURE AUTHORITIES

Under the terms of NDP-1 (reference (b)), the National Military Information Disclosure Policy Committee (NDPC) has been designated as the central authority for the formulation, promulgation, administration, and monitoring of the National Disclosure Policy. The Secretary of Defense or the Deputy Secretary of Defense, personally, and the NDPC are authorized to grant exceptions to established national disclosure policies.

1. General

a. The Secretary of Defense and the Deputy Secretary of Defense are the only officials within the Department of Defense having "original" authority to disclose or deny, or delegate authority to disclose or deny, U.S. classified military information to foreign governments or international organizations.

b. Under conditions of actual or imminent hostilities, classified military information through TOP SECRET may be disclosed by any U.S. commander to any actively participating allied force when

such military information is urgently required for support of combined combat operations. Under such circumstances, the Joint Chiefs of Staff will determine, as soon as practicable, the limitations that should be imposed on continuing disclosure of military information to such participating allied force and inform the appropriate U.S. commander.

c. Disclosure of any information identified by the Joint Chiefs of Staff as pertaining to or involving strategic war plans may be authorized only by the Secretary of Defense, the Deputy, or the Joint Chiefs of Staff.

2. DoD Authorities (see E.2.a.).

a. The following officials within the Department of Defense are delegated authority to disclose or deny U.S. classified military information originating in their organizations within the limitations of NDP-1 (reference (b)), and may redelegate such disclosure authority, in writing, as required for efficient operation and administration of commands and agencies under their direction, authority or control. Delegations of authority shall be limited absolutely to those officials whose duties and responsibilities specifically require such authority, e.g., participation in, or oversight responsibility for international programs.

- (1) The Secretary of the Army
- (2) The Secretary of the Navy
- (3) The Secretary of the Air Force
- (4) The Joint Chiefs of Staff
- (5) The Under Secretary of Defense for Policy
- (6) The Under Secretary of Defense for Research and
Engineering
- (7) The Director, Defense Intelligence Agency

b. The Joint Chiefs of Staff may redelegate authority, in writing, to the following commanders or chairperson who report through the Joint Chiefs of Staff, or for whom they exercise primary staff supervision, to disclose or deny U.S. classified military information originating in their organizations within the limitations of NDP-1 (reference (b)), this Directive, and applicable Joint Chiefs of Staff Instructions:

(1) Commanders, Unified and Specified Commands

(2) Chairperson, Military Communications-Electronics

Board

c. Heads of organizational elements within the Office of the Secretary of Defense and heads of any DoD Components not listed in a. and b., above, may seek authority from the Deputy Under Secretary of Defense (Policy Review) to disclose or deny classified military information originating within their components to foreign governments and international organizations. Such disclosure authority shall be within the limits of NDP-1 (reference (b)), and may be granted on a continuing or one-time basis, as appropriate. Where continuing disclosure authority is requested, it shall be issued in the form of numbered "Delegations of Disclosure Authority" which clearly specify (a) the limits of such continuing authority; (b) whether or not such authority may be redelegated; and (c) reports which the recipient is required to submit.

d. Disclosure authority redelegated, in writing, pursuant to D.2.a. and b., above, shall be reported to the Chairperson, NDPC, together with the areas of functional interest over which authorized officials may exercise such authority.

E. RESPONSIBILITIES

1. The Deputy Under Secretary of Defense (Policy Review), or a designee, shall:

a. Assume DoD responsibility for the oversight and effective implementation of the National Disclosure Policy and operation of the National Military Information Disclosure Policy Committee (NDPC) under the provisions of NDP-1 (reference (b)).

b. Designate the Chairperson, NDPC, who will represent the Secretary of Defense on the Committee.

c. Advise DoD Components and the NDPC regarding security matters related to disclosures.

d. Draft and negotiate, in coordination with other appropriate activities, security agreements between the United States and foreign governments and international organizations governing disclosures. Each such agreement will include stipulation that:

(1) The information or knowledge disclosed will not be revealed to a third party, except with the prior consent of the United States.

(2) The information will be afforded substantially the same degree of security protection given to it by United States authorities.

(3) The information will be used for military or other specific purposes only, including production for military use when so stipulated.

(4) The recipients will report promptly and fully to U.S. authorities any known or suspected compromise of U.S. classified military information released to them, and corrective action taken to preclude recurrence.

(5) The specified original recipients of the information have received appropriate security clearance for access to information of the security classification involved.

(6) Reciprocal on-site surveys will be conducted for purposes of determining the capability of the foreign government or international organization to provide to U.S. classified military information the requisite degree of security protection.

e. Issue supplemental guidelines for use by staff agencies comprising the Office of the Secretary of Defense and activities administratively supported by OSD.

f. Be responsible for the overall direction, management and control of the FOREIGN DISCLOSURE AUTOMATED DATA (FORDAD) system in accordance with DoD Instruction 5230.18 (reference (f)).

2. DoD Internal Authorities. Officials delegated disclosure authority in D.2.a. shall:

a. Designate a principal subordinate official within their respective components to be the Principal for Disclosure Matters. Such designations will be in writing, and a copy will be provided the Deputy Under Secretary of Defense (Policy Review), ATTN; Chairperson, NDPC. Officials so designated will ensure that all disclosure decisions of the component are in compliance with NDP-1 (reference (b)), DoD Instruction 5230.17 (reference (e)) and this Directive.

b. Nominate a member and one alternate to represent their component on the NDPC. Individuals so nominated will (1) be thoroughly familiar with the daily administration of disclosure activities within their respective organizations; (2) be qualified to provide broad professional guidance on matters brought before the NDPC; and (3) have direct easy access on disclosure matters to their respective officials designated in 2.a., above, as well as to other members of the NDPC.

March 2, 1979
5230.11

c. Ensure that disclosure decisions by their component are reported to FORDAD in accordance with DoD Instruction 5230.18 (reference (f)).

d. Provide such assistance as required by the Chairperson, NDPC, to ensure efficient DoD implementation of the National Disclosure Policy.

3. The General Counsel of the Department of Defense shall ensure the legal adequacy of security and other agreements between the United States and foreign governments or international organizations for the disclosure of classified military information. Such associated legal matters as the Office of the General Counsel may specify will be coordinated with that office.

4. The Assistant to the Secretary of Defense (Atomic Energy) who is a special member of the NDPC shall keep other DoD members currently informed on the implementation of international agreements made under the provisions of the Atomic Energy Act, including statutory determinations and requirements placed on recipient governments and international organizations with respect to safeguarding atomic information released to them.

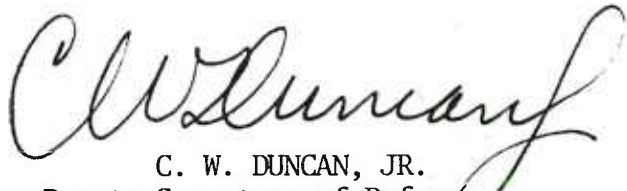
F. FOREIGN DISCLOSURE AUTOMATED DATA (FORDAD) SYSTEM. The FORDAD system is designed to achieve improved management of the DoD disclosure program by providing a centralized information storage and retrieval system for data concerning disclosure of classified military information (CMI) to foreign governments and international organizations.

1. DoD Components will implement the FORDAD system under the overall direction, management and control of the Deputy Under Secretary of Defense (Policy Review), or a designee, in accordance with DoD Instruction 5230.18 (reference (f)).

2. The Secretary of the Army will establish a FORDAD Processing Center to provide automatic data processing resources in connection with the operation, maintenance, and administration of the FORDAD system. Requests for funds to carry out this responsibility shall be submitted in accordance with the DoD Manual 7110.1-M (reference (g)).

G. EFFECTIVE DATE AND IMPLEMENTATION

This Directive is effective immediately. Forward one copy of each implementing document to the Deputy Under Secretary of Defense (Policy Review) within 120 days.



C. W. DUNCAN, JR.
Deputy Secretary of Defense

Enclosure - 1
References

REFERENCES, continued

- (d) DoD Directive 5030.14, "Disclosure of Atomic Information to Foreign Governments and Regional Defense Organizations," March 24, 1971
- (e) DoD Instruction 5230.17, "Procedures and Standards for Disclosure of Military Information to Foreign Activities," September 23, 1977 (under revision)
- (f) DoD Instruction 5230.18, "The DoD Foreign Disclosure Automated Data System (FORDAD)," July 10, 1973 (under revision)
- (g) DoD Manual 7110.1-M, "DoD Budget Guidance Manual," July 7, 1978



RESEARCH AND
ENGINEERING

THE UNDER SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

4 SEP 1979

MEMORANDUM FOR UNDER SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS
AGENCY
DIRECTOR, DEFENSE COMMUNICATIONS AGENCY
DIRECTOR, DEFENSE INTELLIGENCE AGENCY
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Access by Foreign Contractors to Technical Information

References: (a) USDR&E Memorandum, 2 February 1979, "Access
by Foreign Contractors to Technical Infor-
mation"
(b) USDR&E Memorandum, 10 November 1978, "Access
by Foreign Contractors to Technical Infor-
mation"

There have been a number of recent brochures advertising symposia and conferences for which security arrangements are provided by the Department of Defense. Many of these conferences are of vital interest to our foreign allies, but the allies are either excluded on the basis of security classification or not specifically encouraged to attend.

I have stated our policy on this matter in references (a) and (b). Reference (a) requires a military organization co-sponsoring a symposium, conference, briefing, or other presentation to consider and plan for the participation of foreign industry representatives who hold appropriate security clearances and are not otherwise excluded by the provisions of U.S. National Disclosure Policy. Reference (b) requires that decisions to deny such foreign participation be made no lower than your offices. Such denials should be rare exceptions rather than the rule when information is to be discussed that directly concerns threat, requirements, operations, and plans pertaining to MOUs or offsets we have with our allies.

Please review each denial request in depth to determine if the information is excluded from release by the provisions

of the U.S. National Disclosure Policy and, if so, whether or not it can be deleted from the presentation. Request also that you withhold support of your service/agency--including speakers and facilities--in all co-sponsored symposia, conferences, briefings, or other presentations when foreign nationals are to be excluded without a waiver processed through your office. Purely industrial-sponsored events not using DoD speakers or facilities are, of course, not within our purview.

William J. King



RESEARCH AND
ENGINEERING

THE UNDER SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

2 FEB 1979

MEMORANDUM FOR UNDER SECRETARIES OF THE MILITARY
DEPARTMENTS
DIRECTOR, DEFENSE COMMUNICATIONS AGENCY
DIRECTOR, DEFENSE LOGISTICS AGENCY
DIRECTOR, DEFENSE INTELLIGENCE AGENCY
DIRECTOR, DEFENSE ADVANCED RESEARCH
PROJECTS AGENCY

SUBJECT: Access by Foreign Contractors to Technical Information

References: (a) USDRE Memorandum, 10 November 1978, "Access
by Foreign Contractors to Technical Information"
(b) DepSecDef Memorandum, 8 October 1977, "Disclosure
of Classified Military Information to NATO Nations"

This memorandum augments references (a) and (b) and provides additional guidance concerning foreign contractor access to U.S. classified military information (CMI). It is essential that all levels of the Department of Defense responsible for the acquisition of defense equipment understand the intent of these references and of the reciprocal procurement MOUs we have with our NATO allies.

In order to ensure that countries with whom we have reciprocal procurement MOUs and offset arrangements are afforded the opportunity to participate in negotiations leading to the award of contracts, measures must be formulated to assure that they have access to technical information required for such participation. These MOUs and offset arrangements are related to contractual opportunities for equipment, weapons systems, or programs which enhance NATO rationalization, standardization, or interoperability (RSI).

Procedures for disclosure of CMI to foreign governments, which must sponsor their respective contractors, are established as a matter of national policy and are enunciated in the National Disclosure Policy (NDP-1). All releases of CMI will be made in accordance with the NDP-1 procedures and criteria. While there may be instances where

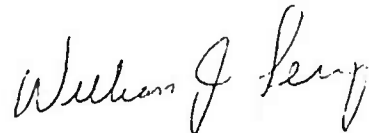
full access to CMI may not be possible under the National Disclosure Policy, the excise of non-releasable information from documents and from conceptual, pre-solicitation, and pre-award presentations is to be effected, whenever possible, to permit foreign participation. In those cases when it is in the best interests of the USG and alliance cooperation, exceptions to the NDP are to be requested.

While it is principally the responsibility of the contractors of each country to seek a market for their products, as well as procurement opportunities in the United States, it is incumbent upon the Military Departments in conjunction with OUSDR&E to develop positive procedures whereby foreign countries with whom we have MOUs and offset arrangements are informed of these opportunities by the Departmental procurement authorities and weapon program sponsors. Procedures must be developed whereby qualified foreign firms can be identified early in the development cycle, in order to address foreign disclosure considerations.

When a military organization in conjunction with an Industrial Association is sponsoring a classified symposium, conference, briefing, or other presentation related to the acquisition process, it is incumbent upon that Military organization to consider and plan for the participation of representatives of foreign industry who hold appropriate security clearances and are not otherwise excluded by the provisions of U.S. National Disclosure Policy.

There is nothing in the references or contained herein that is intended to change the present organizations within your Departments or Agencies which process requests for classified military information and visits. However, denials of CMI which would adversely affect international cooperative research, development and logistic undertakings will be processed in accordance with procedures stated in references (a) and (b).

I would like to be provided copies of the policy and procedures developed by your Department or Agency which implement the guidance contained in the references and herein by a revised date of 15 March 1979.

A handwritten signature in dark ink, appearing to read "William J. Perry". The signature is written in a cursive, flowing style with a large initial "W".



RESEARCH AND
ENGINEERING

THE UNDER SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

10 NOV 1978

MEMORANDUM FOR UNDER SECRETARY OF THE ARMY ←
UNDER SECRETARY OF THE NAVY
UNDER SECRETARY OF THE AIR FORCE
DIRECTOR, DEFENSE COMMUNICATIONS AGENCY
DIRECTOR, DEFENSE LOGISTICS AGENCY
DIRECTOR, DEFENSE INTELLIGENCE AGENCY
DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY

SUBJECT: Access by Foreign Contractors to Technical Information

Memoranda of Understanding (MOU) signed with the United Kingdom, Canada, Germany, France, Italy, the Netherlands, and Norway encourage reciprocal purchases with those countries by facilitating open competition among our domestic industry sources and theirs. Similar MOUs are expected to be signed with other NATO countries in the near future. Offset arrangements with Australia and Switzerland also offer sources in those countries opportunities to compete for DoD business.

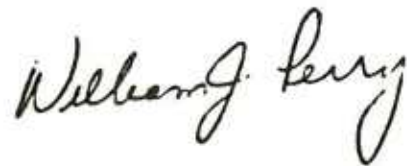
One of the obstacles to full effectiveness of these MOUs and offset agreements is the inability of countries to gain access to installations, briefings, conferences, and technical data relating to acquisition programs. Under our National Disclosure Policy, classified military information can be made available to foreign governments and their contractors, provided a need-to-know is established and the necessary clearance is obtained on a case-by-case basis. The authority for granting such access has been delegated to the Military Departments.

Generally, DoD policy is that sources in countries with whom the DoD has MOUs and offsets will be provided access to installations; will be permitted to participate in symposia, conferences, and briefings; may participate in individual contractual actions, including pre-solicitation and pre-award conferences; and will be provided data relating to the above, to the same extent as U.S. sources. Opportunities for foreign contractors to participate in these activities depends upon expedient processing of applications for the necessary clearance, including provision for appeal from adverse rulings. In this connection, the past practice of classifying these types of meetings "NOFORN" is not in conformance with DoD Regulation 5200.1-R and must not be utilized in the future.

Decisions to deny these foreign sources access to installations; participation in symposia, conferences, and briefings; participation in individual contractual actions, including pre-solicitation and pre-award conferences; and data relating to the above, must be made at a level no lower than the office of the Service Under Secretary or Director of a Defense Agency. Deputy Secretary of Defense memorandum of 8 October 1977 subject, "Disclosure of Classified Military Information to NATO Nations," requires advance notification of proposed denials of classified military information related to equipment standardization or interoperability in NATO, that could have a political impact or would preclude major international cooperative research, development, and logistic undertakings. That guidance is applicable to the activities discussed herein.

In any case when it can be established that the expertise residing in firms in these countries is not sufficiently advanced to allow a reasonable expectation of winning a competition or, for any other reason, it does not appear feasible for these foreign sources to compete effectively for a specific acquisition, informal discussions should be initiated with representatives of these countries in the U.S. Often, such discussions will result in agreements that such acquisitions are not suitable prime contract competitive opportunities for such foreign contractors. In such cases, any subcontract opportunities should be identified. Where agreement on such exclusion is reached with the country, no referral to this office is required.

I would like to be provided, within 60 days, a copy of the pertinent policy and procedures of each of your Departments promulgated at headquarters level and at major command level which implement the authority delegated the Departments under the National Disclosure Policy, as well as the additional instructions contained in this memorandum. I am particularly interested that these policies and procedures provide for appropriate notification of acquisition programs to countries with which we have reciprocal purchase MOUs.

A handwritten signature in black ink, reading "William J. Perry". The signature is written in a cursive style with a large, stylized "P" and "Y".

THE SECRETARY OF DEFENSE
WASHINGTON D. C. 20301

8 OCT 1977

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARY OF DEFENSE (COMMUNICATIONS,
COMMAND, CONTROL AND INTELLIGENCE)

SUBJECT: Disclosure of Classified Military Information to NATO Nations

A cooperative and mutually beneficial policy on exchange of classified military information is essential for implementation of DOD Directive 2010.6, which calls for increased standardization and interoperability of equipment within NATO.

Criteria for disclosure of classified military information as set forth in National Disclosure Policy (NDP-1/7) must of course be carefully applied. At the same time, if we are to make progress toward equipment standardization, the holders of delegated authority to disclose or deny classified military information must ensure that their subordinate holders of delegated denial authority give appropriate weight to our arms cooperation policy and objectives within NATO.

Accordingly, I request that beginning 15 October 1977 each addressee.

1. Implement procedures whereby the Deputy Secretary of Defense is notified in advance of proposed denials of classified military information, related to equipment standardization or interoperability in NATO and its member nations, that could have significant political impact or would preclude major international cooperative research, development, and logistics undertakings.

2. Report all disclosure actions related to equipment standardization or interoperability in NATO to the Foreign Disclosure Automated Data System (FORDAD) in accordance with the enclosed procedure.

CHARLES D. WALKER

Enclosure

PROCEDURE FOR REPORTING NATO EQUIPMENT STANDARDIZATION AND
INTEROPERABILITY DISCLOSURE ACTIONS TO THE FORDAD SYSTEM

- The following procedures supplement those contained in DoD Directive 5230.11, "Disclosure of Classified Military Information to Foreign Governments and International Organizations," 19 June 1973 with changes; DoD Instruction 5230.18, "The DoD Foreign Disclosure Automated Data System (FORDAD)," 10 July 1973; DoD Instruction C-5230.17, "Procedure for the Administration, Standardization, and Control of Foreign Disclosure Authority," 17 December 1971; and the FORDAD Users Manual (5230.18-M).

- All disclosure actions related to equipment standardization and interoperability in NATO and member nations will be reported within 15 days of the action to the FORDAD on DD Form 1322, "Report of Disclosure or Denial of U.S. Classified Military Information," by:

-- Placing NATO S/I in Block 216 (Program) when the action is related to NATO equipment standardization or interoperability.

-- Stating a brief justification in Block 235 (Remarks) of the action taken if Block 206 (Action Taken) states D for denial and Block 216 states NATO S/I.

THE SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

AUG 26 1977

MEMORANDUM FOR THE SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN, JOINT CHIEFS OF STAFF
DIRECTOR, DEFENSE RESEARCH & ENGINEERING
ASSISTANT SECRETARY OF DEFENSE (COMPTROLLER)
ASSISTANT SECRETARY OF DEFENSE (INTERNATIONAL
SECURITY AFFAIRS)
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
ASSISTANT TO THE SECRETARY FOR ATOMIC ENERGY
DIRECTOR, DEFENSE ADVANCED RESEARCH PROJECTS AGENCY
DIRECTOR, DEFENSE INTELLIGENCE AGENCY
DIRECTOR, POLICY REVIEW

SUBJECT: Interim DoD Policy Statement on Export Control of United
States Technology

1. Purpose.

This memorandum of policy sets forth the definitions and provides interim internal guidance to the Department of Defense with regard to the DoD role in support of US Government efforts to control exports of critical US technology and related products.

2. Background

US policy on international trade consists of two elements that are not always reconcilable: 1) to promote trade and commerce with other nations, and 2) to control exports of goods and technology which could make a significant contribution to the military potential of any other nation or nations when this would prove detrimental to the national security of the United States. While the Defense Department's chief concern is with the second of these goals, it must discharge its concern without restricting US trade and exports any more than necessary.

Defense's primary objective in the control of exports of US technology is to protect the United States' lead time relative to its principal adversaries in the application of technology to military capabilities. This lead time is to be protected and maintained as long as is practical, in order to provide time for the replenishment of technology through new research and development. In addition, it is in the national interest not to make it easy for any country to advance its technology in ways that could be detrimental to US interests. These controls, however, are to be applied so as to result in the minimum interference in the normal conduct of commercial trade. This policy statement, drawing upon the recommendations

of the Report of the Defense Science Board Task Force on Export Control of US Technology (the "Bucy Report"), provides interim internal guidance to the Defense Department to maximize the above objectives to the maximum practical extent.

3. Definitions.

The term "critical technology" as used herein refers to the classified and unclassified nuclear and non-nuclear unpublished technical data, whose acquisition by a potential adversary could make a significant contribution, which would prove detrimental to the national security of the United States, to the military potential of such country -- irrespective of whether such technology is acquired directly from the United States or indirectly through another recipient, or whether the declared intended end-use by the recipient is a military or non-military use.

"Technical data" means information of any kind that can be used, or adapted for use, in the design, production, manufacture, utilization, testing, maintenance or reconstruction of articles or materials. The data may take a tangible form, such as a model, prototype, blueprint, or an operating manual, or they may take an intangible form such as technical service.

Control of such critical technology also requires the control of certain associated critical end products defined as "keystone" that can contribute significantly in and of themselves to the transfer of critical technology because they 1) embody extractable critical technology and/or 2) are equipment that completes a process line and allows it to be fully utilized.

4. Defense Department Policy in Export Control of US Technology

In assessing and making recommendations upon those export applications referred to it by the State and Commerce Departments, Defense will place primary emphasis on controlling exports to any country of arrays of design and manufacturing know-how; of keystone manufacturing, inspection and test equipment; and of sophisticated operation, application or maintenance know-how.

In order to protect key strategic US lead times, export control of defense-related critical technology to all foreign countries is required. To this end, Defense will:

- 1) request the Department of Commerce to alter existing regulations so as to require a validated license for proposed exports of critical technology to all destinations;
- 2) recommend to, and support the negotiation by, the Department of State with COCOM countries, and such other nations as may

be appropriate, of new measures to control or restrict the flow of critical technology to Communist countries, as well as recommendations as to the revision of the list of embargoed products.

- 3) recommend to the Secretary of Commerce that procedures be streamlined in such a way as to minimize delays in forwarding and processing export applications by a) speeding referral by Commerce of export applications for review and b) making use of new and/or improved technical guidelines to be supplied by DoD, which will allow maximum emphasis to be placed upon applications for the export of critical technologies and associated end products, thereby also allowing more rapid processing of applications for other, non-critical end products.

Defense will support the transfer of critical technology to countries with which the US has a major security interest where such transfers can 1) strengthen collective security, 2) contribute to the goals of weapons standardization and interoperability, and 3) maximize the effective return on the collective NATO Alliance or other Allied investment in R&D.

In assessing the advisability of the transfer of critical technology to either COCOM or other non-Communist countries, Defense will carefully assess the proposed recipient's intent and ability to prevent either the compromise or the unauthorized re-export of that technology. Where classified information is involved, security classification guidance will be provided to the recipient, and where feasible, security surveys will be accomplished in addition to the completion of appropriate military and industrial security arrangements.

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The Department of Defense will look to the State and Commerce Departments and the intelligence and security communities to identify those instances in which the initial recipient makes unauthorized further transfers, or allows compromise, of critical technology. The Department will incorporate the results of such observations in its assessments of subsequent applications for commercial export, Foreign Military Sales (FMS), Data Exchange Agreements (DEA), Information Exchange Programs (IEP), and other transfers to such recipients. Violations of US third-country transfer prohibitions or instances of compromise will normally be considered grounds for employment of sanctions involving critical technologies. Coordination within DoD will be strengthened to meet the requirements of military and industrial security.

Defense will normally recommend approval of sales of end products to potential adversaries in those instances where 1) the product's technology content is either difficult, impractical, or economically infeasible to extract, 2) the end product in question will not of itself significantly enhance the recipient's military or warmaking capability, either by virtue of its technology content or because of the quantity to be sold, and 3) the product cannot be so analyzed as to reveal US system characteristics and thereby contribute to the development of countermeasures to equivalent US equipment.

There shall be a presumption for recommending disapproval of any transaction involving a revolutionary advance in defense-related technology to the proposed recipient country (if the resultant military capability threatens US interests). Defense will assess a proposed export of technology not on the basis of whether the item is obsolete by US standards, but on whether the proposed export would significantly advance the receiving country's potential and prove detrimental to the national security of the United States.

End-use statements and safeguards are not to be considered a factor in approving exports to potential adversaries of critical technologies and products except as may be otherwise provided in Presidential directives. Departure from this procedure will occur only with specific approval of the Secretary of Defense, or his designee.

Defense recommendations to approve the export of end products to potential adversaries are to be made primarily on the basis of an assessment that the products' inherent performance capabilities, or the quantity sold, do not constitute a significant addition to the recipients' military capability which would prove detrimental to the national security of the United States.

This policy shall be applied without regard to whether the exporter is a government department or agency, a commercial enterprise, an academic or non-profit institution, an individual entrepreneur, or in the case of re-export requests, a foreign government or an international organization; and without regard to the transfer mechanism involved, e.g., turnkey factories, licenses, joint ventures, training, consulting, engineering documents and technical data.

Explicit account shall be taken of the relative efficiency of the various mechanisms of technology transfer (e.g., foreign liaison activities, scientific and technical exchanges, commercial visits, trade fairs, training programs, sales proposals and consulting agreements, as well as in specific technology export cases). When the potential for inadvertent transfer of critical technology is considered to be high, Defense shall formulate and recommend to the responsible agencies restrictions on the amount, extent or kind of interpersonal exchange in a given transaction. Visitor control mechanisms within the Department of Defense will be improved.

The Department of Defense, in coordination with other Departments and Agencies, shall identify and maintain a continuously updated list of specific critical technologies and/or end products whose export should be restricted for reasons of national security. This list and its updates will be communicated to Departments responsible for administering US export controls. It is recognized that these list items will be time-dependent. Appropriate items will be added and/or deleted from the list as time goes by.

In coordination with and assisted by the intelligence community, Defense will undertake to improve the information and data base pertaining

to technology transfer by studying in greater depth and on a continuous basis selected aspects of US technology transfers over time in order to ascertain their impact on the military capabilities of potential adversaries and on critical US lead-times.

In the interagency arena, Defense will propose and support means by which national security considerations can be taken fully into account from the beginning stages of any international projects having the potential of promoting the transfer of critical technologies.

The Department of Defense will propose and support means of improving interagency communication and coordination on matters of export controls and technology transfers in order to help achieve adequate and appropriate interagency coordination in these areas.

Harold Brown

THE SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

May 4, 1978

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL
DIRECTOR, DEFENSE SECURITY ASSISTANCE AGENCY

SUBJECT: General Policy on Compensatory Coproduction and Offset
Agreements with Other Nations

The purpose of this memorandum is to outline DoD policy with respect to compensatory coproduction and offset agreements with other nations, and to designate management responsibilities for evaluating and monitoring these agreements. More detailed guidance is provided in Deputy Secretary of Defense Memorandum "General Policy on Purchases by DoD from Foreign Sources in Furtherance of Government-to-Government Offset Agreements," dated 15 November 1976.

The demand for compensatory coproduction and offset agreements is becoming an increasingly common aspect of international defense procurement negotiations. Such agreements often have the effect, or create the impression, of obligating the DoD and other USG agencies to place orders for systems or components in foreign countries, or to require US private contractors to place orders and subcontracts in foreign countries, as a condition for the sale of US defense articles to those countries. This has led to friction between allies when specified goals are not met or even approached.

Because of the inherent difficulties in negotiating and implementing compensatory coproduction and offset agreements, and the economic inefficiencies they often entail, DoD shall not normally enter into such agreements. An exception may be made only when there is no feasible alternative to ensure the successful completion of transactions considered to be of significant importance to United States national security interests (e.g., rationalization of mutual defense arrangements).

When compensatory agreements are deemed necessary, the following general guidelines will apply:

- (1) Agreements should be structured as broadly as possible, to obtain maximum credit for US purchases of both defense and nondefense goods and services, regardless of technology content.

- (2) Specific offset targets should be avoided, whether stated in percentage or money terms.
- (3) Agreements should be used as vehicles for reducing or waiving administrative barriers to Defense trade erected by all parties, e.g., Buy National regulations, practices and procedures.
- (4) Foreign firms bidding on contracts in accordance with the terms of an offset agreement must actively seek bidding opportunities and compete on an equal basis with US firms.
- (5) Agreements involving system specific arrangements should specify that the burden for fulfilling any commitment rests with the US firms directly benefiting from the sale.

The Assistant Secretary of Defense (ISA), in coordination with the Under Secretary of Defense for Research and Engineering, the Assistant Secretary of Defense (MRA&L), Office of General Counsel, and Defense Security Assistance Agency, will be responsible for reviewing all proposed compensatory agreements to which the DoD will be a party to determine if the agreements comply with the above principles. The findings of this review will be forwarded to the Deputy Secretary of Defense, who has authority to approve compensatory agreements with other nations for the DoD.

The Under Secretary of Defense for Research and Engineering, in coordination with ISA, MRA&L, OGC, DSAA, and the Military Departments, will be responsible for publishing a semiannual report setting forth the status of all existing and proposed compensatory coproduction and offset agreements. Such reports will highlight the US financial obligation and provide other detail as required.

/s/ C. W. DUNCAN
DEPUTY

THE SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

NOV 15 1976

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
DIRECTOR OF DEFENSE RESEARCH & ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL
DIRECTOR, PLANNING AND EVALUATION
DIRECTOR, DEFENSE SECURITY ASSISTANCE AGENCY
DIRECTOR, DEFENSE SUPPLY AGENCY

SUBJECT: General Policy on Purchases by DoD from Foreign Sources in
Furtherance of Government-to-Government Offset Agreements

The Military Assistance & Sales Manual (MASM) Part III, Chapter C, paragraph 12 (attached hereto), provides basic guidelines concerning Offset/Reciprocal purchase arrangements with foreign countries in connection with Foreign Military Sales (FMS) and indicates that the DoD "prefers that sales be negotiated without 'offset' procurement by the U.S. as a condition of sale."

As indicated in the MASM and by experience to date, there are many statutory restrictions, logistic problems and other constraints that make it difficult for U.S. defense contractors and the DoD to fulfill commitments made under offset arrangements. This makes it mandatory that action to carry out such offset commitments be given high priority and intense management attention at all levels. Policy decisions, guidelines and procedures concerning offset arrangements should be communicated throughout the DoD system to all organizational elements that have functional responsibility for any aspect of offset/reciprocal procurement.

In addition to the overall rules and guidelines set forth in attachment, the following rules will apply:

—Offset agreements include any agreement by DoD to purchase items from a foreign country in order to offset some specific amount or percentage of the foreign country's expenditures in the U.S. for U.S. defense items. This includes any arrangement whereby the U.S. Government, to include the DoD, agrees to assist a U.S. defense contractor in some offset associated with a direct commercial sale. Such offset agreements are entered into only after approval by the Secretary or a Deputy Secretary of Defense and after approval of the Department of State in accordance with its defined procedures.

--Offset agreements, which may or may not contain specific co-production arrangements, should be negotiated and the basic understanding reached prior to the final acceptance of the DoD Letter of Offer in order to include in this Letter of Offer the impact, if any, that such agreements may have on DoD Price and Availability. This procedure will also allow DoD and its contractors an opportunity to assess, in advance, our ability to fulfill such offset arrangements.

—Offset agreements will include guidelines concerning any restrictions of acceptability of competition under the offset from foreign government owned or subsidized companies.

—On the sale of a particular item or items where an offset agreement has been reached prior to the signing of the contract(s) the offset will not officially begin until after the contract(s) have been signed.

—Implementation of offset agreements will adhere to the following principles:

In the case of offset agreements related to specific weapon system purchases, the U.S. contractors and associated subcontractors which benefit from the sale will assume the primary responsibility for fulfilling the offset.

The foreign firms have the basic responsibility for marketing their products to DoD and to U.S. industry.

DoD will consider the likely impact of required transfers of advanced design/manufacturing technology at the outset. In implementing the offset agreements where such transfers of advanced technology must result, the cognizant Military Department will develop Delegation of Disclosure Letters in coordination with the DDR&E, the ASD/I&L and the ASD/ISA. Phased release of this technology will be considered to the maximum extent practicable. This policy applies equally to Foreign Military Sales and direct commercial sales.

In the event that an offset agreement provides for or involves the export from the U.S. of technology or technical data, the licensing provisions of the International Traffic in Arms Regulations (ITAR) will apply.

DoD will allow these foreign firms the same access to and knowledge of DoD's requirements as afforded any U.S. firm within the provisions of the National Disclosure Policy (NDP) and DoD Industrial Security Guidance. This does not mean that special treatment beyond that stipulated in applicable offset agreements is to be accorded foreign firms, but that the buying commands will allow foreign sources under such offset agreements to participate in DoD

procurements. At the same time, the review of the prime contractor's make or buy plan will be in sufficient detail to assure that adequate and fair consideration was given to qualified foreign firms with regard to subcontract opportunities.

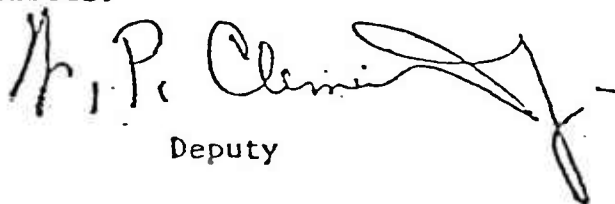
Procurement of all items purchased by DoD shall be open to participation by foreign firms under such offset agreements to the extent provided in the agreement. If a U.S. legal or administrative restriction currently in effect with respect to procurement sources is not specifically waived pursuant to an offset agreement or in conjunction therewith, it will be applied.

A list of items excluded from competition under offset agreements by virtue of the need to maintain U.S. sources for industrial mobilization purposes under the authority of 10 U.S.C. 2304(a)(16) (ASPR 3-216) and ASPR 1-2207.2, 3 and 4, will be published for the information of countries involved in the offset agreements. A list of such items will be promulgated by each Service and DSA, and a consolidated list maintained by OSD. Items will be added to or deleted from such lists only with the specific approval of OSD. However, to the extent possible where items excluded under this authority are required in quantities greater than that necessary to maintain the mobilization base, firms in countries with whom the U.S. has offset agreements will be afforded the opportunity to compete for any quantities not required to maintain the U.S. mobilization base. In addition, information concerning limitations relevant to construction projects within the U.S. (ASPR 18-500) will be provided where applicable.

In the initial evaluation of the bids of foreign firms which participate by virtue of offset agreements, Buy America price differential evaluation factors applied to foreign bids, in accordance with ASPR Part 6, and duty where it can be waived shall not be applied. If, when evaluated in accordance with the above, the foreign source is determined to be the lowest responsive, responsible bidder or offeror, a request shall be forwarded to the Secretary of the Department or Director, Defense Supply Agency, for a public interest determination that duty and price differentials may be waived on the basis of a specific offset agreement, unless otherwise provided in implementation instructions issued for the specific country involved.

In the negotiation of offset agreements, ISA/DSAA will be the focal point to coordinate the negotiations with the foreign country. ODDR&E, Office of General Counsel and OASD(I&L) must participate in these negotiations and concur with the final agreement. After negotiation and execution of the offset agreement, OASD(I&L) shall take the lead and responsibility for the implementation of the agreement and fulfillment of the commitment with coordination of OASD(ISA) and DSAA as required.

Detailed instructions regarding a record keeping system for DoD purchases in fulfillment of offsets will be provided by OASD(I&L). Approval of the record keeping system and a reporting system covering Defense contractor purchases is being requested from OMB. Data under the proposed system would be submitted to the OASD(Comptroller) by the contractors, and OASD(I&L) will maintain the overall controls necessary to account for progress in fulfilling offsets.


Deputy

Enclosure



THE UNDER SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

RESEARCH AND
ENGINEERING

21 NOV 1978

MEMORANDUM FOR SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
CHIEFS OF STAFF OF THE MILITARY DEPARTMENTS
UNDER SECRETARY OF DEFENSE FOR POLICY
ASSISTANT SECRETARY OF DEFENSE (MRA&L)
ADVISOR ON NATO AFFAIRS

SUBJECT: Cooperative Development and Procurement of NATO Armaments

After more than a year of planning, discussing, and negotiating, we have evolved a plan for cooperative development and production of armaments that will implement the armament portion of the NATO initiatives introduced by President Carter at the London Summit in 1977, and reaffirmed at the Washington Summit in 1978. This plan, inspired by Ambassador Komer and prepared in consultation with ISA, has been reviewed and approved by the Secretary of Defense and the President, and has just been endorsed by the Conference of National Armament Directors. Its objective is to improve significantly the combat effectiveness of NATO's forces through armament modernization in all countries. Given all the constraints on Allied armament budgets, greater Alliance cooperation is militarily imperative to this end. We can provide more weapons and more effective weapons for the entire Alliance if we can cooperate in their development and production. Such cooperation will also promote essential interoperability.

Our plan may be described as a TRIAD of cooperative initiatives establishing: (1) General Procurement MOUs with all NATO countries in order to make all of NATO's defense market available to all of NATO's defense industry; (2) Dual Production runs on developments already completed (or soon to be) so that the best developments of one NATO country are available to other NATO forces at low unit cost (this can be done without depriving the recipient country of the jobs involved in producing the system and without requiring the US Government to get involved in complex offset agreements); (3) Family of Weapons agreements for sharing of developmental projects about to begin, so that the best technology available in NATO countries can be incorporated in new systems without duplicating and triplicating the R&D costs as we now do.

The framework for this plan and criteria for future cooperative programs are described in Appendix A, a written statement recently provided to the Special Subcommittee on NATO Standardization, Interoperability and Readiness. Further details on General MOUs are provided in Appendix B.

On the General MOUs, we have already completed agreements with seven nations, and five others (Belgium, Denmark, Turkey, Greece, and Portugal) have expressed interest. ISA will take the lead in these discussions and in negotiating an MOU for the Secretary's signature. USDRE, working through the Services, will take the lead in assuring their successful implementation.

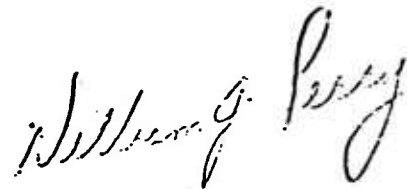
On the Dual Production programs, I expect the Assistant Secretary/RDA of each Service to take the lead in proposing, negotiating, and implementing programs for dual production, coordinating their actions with USDRE. I will sign the dual production MOUs to insure a consistent application of principles from country to country and Service to Service and will carry out the necessary coordination with ISA and DSAA. In that regard I will send each of the Assistant Secretaries guidelines on Dual Production MOUs along with a description of an improved and expedited review process.

On the Family of Weapons USDRE will take the lead for the next year or so until we have established the principles under which these programs will be conducted and can prepare suitable guidelines for the Services. I will call on the Services for substantial support in this effort; in particular I expect the DCS/RDA of each Service to play a key role (as the Senior National Representatives of the Four-Power CNADs) in developing the procedures which will guide us in future programs. I have also asked Dr. Fubini to extend the DSB study on NATO RSI to prepare a suggested set of procurement guidelines for these programs. (I have already made substantial use of the recommendations of the DSB summer study.) In general, USDRE will take the lead in communicating with industry on these cooperative programs, working through the DSB as appropriate. ISA will take the lead in evolving with State a suitable third country sales policy which will apply to Family of Weapons and Dual Production Programs.

In order to effect the coordination involved in launching this complex set of programs, I am establishing a temporary Steering Committee on Armaments Cooperation, consisting of Ambassador Komer, Jim Siena (ISA), General Graves (DSAA), V. Garber, Dale Church, and the Assistant Secretary/RDA of each Service. I will chair the Committee and General Bowman will serve as Executive Secretary.

I strongly believe that a vigorous execution of these plans is necessary for the US to compete effectively with the impressive modernization programs being carried out by the Soviet Union. We have reflected on these plans for over a year, and debated them with the OSD staff, the DSB, the Services, the State Department, and our Allies. We have a strong endorsement by the Secretary, the President, and finally by our Allies. I have also discussed these issues at length with members of Congress and key staffers. I believe that Congress will support these initiatives. I also believe we will have the support of the State Department. But we must have the strong and active cooperation of the Services, and I call on you to provide that.

I will be available to discuss any aspect of implementation and will work with you to refine the plans, but I believe that the time for debate is over and the time for action is upon us.

A handwritten signature in dark ink, appearing to read "William G. Perry". The signature is fluid and cursive, with the first name "William" and last name "Perry" clearly distinguishable.

Attachments 2

All. Sec. Sec. 1
Attch 1

APPENDIX B - General Memoranda of Understanding (MOU)

I. Scope

These MOUs provide:

(a) For the mutual flow of defense procurements, taking into consideration relative technological levels of such procurements and the national policies of the parties. This is to be brought about by each country providing opportunities to sources in the other country to compete for procurements of defense equipment and services as well as through coproduction of defense equipment and defense research and development (R&D) cooperation.

(b) That in the interest of NATO RSI the parties shall to the extent possible adopt qualified defense items that have been developed or produced in the other country.'

(c) For the evaluation of bids and proposals without applying price differentials under Buy National laws and regulations and without applying the cost of import duties. This applies to items at both the prime and subcontract levels.

(d) For calling to the attention of the relevant industries within its country the existence of the MOU together with appropriate implementing guidance.

(e) For the designation of points of contact at the Ministry of Defense level and each purchasing/agency under the Ministry of Defense.

(f) For the establishment of a joint committee which will meet periodically to discuss problems and review progress to date.

II. Restrictions

(a) With the exception of Canada, the MOU does not apply to items set aside for mobilization base purposes.

(b) The MOU does not apply to items that are restricted to US sources by statute, i.e., ships, jewel bearings, non-perishable subsistence, clothing and textiles, small business set asides, etc.

III. Annexes

More detailed guidance is set forth in the annexes to the MOU. These cover such things as logistics support, reporting of prime contracts and subcontract awards, pricing, and auditing support.

IV. Access to Technical Information, Briefings, Symposia, Etc.

Classified data is to be made available to foreign sources under National Disclosure Policy guidance and pertinent security regulations and agreements. Denial of such sources of access to installations; participation in symposia, conferences, and briefings; participation in individual contractual actions, including pre-solicitation and pre-award conferences; and data relating to the above, will require action at an organizational level no lower than Office of the Service Under Secretary or Director of a Defense Agency (see attached memorandum from USDRE, subject: Access by Foreign Contractors to Technical Information, dated 10 November 1978).

V. Schedule

(a) Completion of negotiations of all MOUs by 31 March 1979.

(b) Completion of negotiations of annexes to all MOUs by 30 June 1979.

(c) Completion of implementation of all MOUs and annexes by 30 September 1979.



OFFICE OF THE UNDER SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

RESEARCH AND
ENGINEERING

21 November 1978

American Defense Preparedness
Association
740 15th Street, N. W.
Washington, D. C. 20005

Dear General Miley:

Over the last several months Memoranda of Understanding (MOU) have been signed with the United Kingdom, Canada, Federal Republic of Germany, France, Italy, the Netherlands, and Norway to facilitate cooperative research, development and acquisition. Similar MOUs are expected to be signed with other NATO countries in the near future. One of the obstacles to full effectiveness of these MOUs is the inability of countries to gain access to briefings, conferences, and symposia relating to acquisition programs.

Your organization and others have been very helpful to the Department of Defense by sponsoring, in conjunction with various military organizations, meetings which address new research, development and acquisition programs which are of interest to the U.S. Defense Industry. These meetings, under the umbrella of the recently negotiated MOUs, are also of interest to foreign contractors. Under our National Disclosure Policy, classified military information can be made available to foreign governments and their contractors, provided a need-to-know is established and the necessary clearance is obtained on a case-to-case basis.

Generally, DoD policy is that sources in countries with whom the DoD has MOUs will be permitted to participate in symposia, conferences, and briefings; may participate in individual contractual actions, including pre-solicitation and pre-award conferences, and will be provided data relating to the above, to the same extent as U.S. sources. We, of course, expect these foreign countries to open their acquisition process on the same basis to our defense contractors. We have directed our

Military Departments to permit selective foreign participation to ensure that our Allies have access to the type of meetings I have described here if not otherwise prohibited by National Disclosure Policy. The immediate effect is that the expedient of classifying these meetings "NOFORN" will no longer be used.

The implementation of this policy is the responsibility of the Department of Defense and the individual Military Service. However, I request your cooperation and support in this matter when your organizations plan and sponsor future symposia, conferences, and briefings on defense programs. We look forward to continuing the mutually beneficial association we have enjoyed in the past and believe selective foreign participation will enhance our competitive process, lay the groundwork for ensuring a reciprocal environment in Europe and therefore, in the long term will help to develop a better coalition fighting force in Europe.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Vitalij Garber', with a stylized, flowing script.

Vitalij Garber
Director
International Programs

AMERICAN DEFENSE PREPAREDNESS ASSOCIATION

NATO RSI REFERENCE BOOK

SECTION 12

DOD STATEMENTS

STATEMENTS MADE BY THE SECRETARY OF DEFENSE AND OTHER DEFENSE OFFICIALS TO CONGRESSIONAL COMMITTEES, EXPLAINING THE CONCEPTS OF NATO RSI AND ACTIONS TAKEN BY U.S. TO IMPLEMENT THE PROGRAM. INCLUDED ARE STATEMENTS MADE TO THE HOUSE SPECIAL SUBCOMMITTEE ON STANDARDIZATION, INTEROPERABILITY AND READINESS (SEE SUBCOMMITTEE REPORT BEGINNING ON PAGE 4-33)



HOLD FOR RELEASE
UNTIL 10:00 A.M. (EST)
WEDNESDAY, FEBRUARY 21, 1979

THE FY 1980
DEPARTMENT OF DEFENSE
PROGRAM FOR
RESEARCH, DEVELOPMENT,
AND ACQUISITION

STATEMENT
BY
THE HONORABLE WILLIAM J. PERRY
UNDER SECRETARY OF
DEFENSE, RESEARCH AND ENGINEERING
TO THE CONGRESS OF THE UNITED STATES

96th CONGRESS, FIRST SESSION

1 FEBRUARY 1979

I. OVERVIEW

A. OUR INVESTMENT STRATEGY

The basic objective of our defense Research, Development and Acquisition (RD&A) program is to provide our armed forces with weapons which give them the unambiguous strength necessary to deter war. Our research program should be managed creatively to insure that we retain our technology lead and preclude technological surprise; our acquisition program should be managed efficiently so that we procure adequate quantities of needed weapons at the lowest life cycle cost.

We are being confronted with a significant challenge by the Soviet Union, making these objectives difficult to achieve. Last year I reported that the continuation of current trends in the U.S./USSR military technology and acquisition balance could result in significant Soviet military advantages in the next few years. My present assessment of the balance and of the near-term trend has not changed appreciably. By all accepted measures of growth, the Soviet military investment effort continues to increase steadily, resulting in both improved R&D capabilities and the deployment of improved weapon systems. During the past year, for example, estimated Soviet investments were about 75 percent greater in dollar value than the corresponding RD&A program in the United States--that is the nature of the challenge.

We are not without strengths of our own, however, in meeting this challenge. We have the greatest technological capability and the strongest industrial base in the world. And we have Allies who, in aggregate, have an equivalent technological and industrial capability.

In my Posture Statement for FY 1979, I described an investment strategy for our Research, Development and Acquisition program that was designed to meet the challenges I have described by exploiting our principal strengths. This investment strategy has three components:

- o Selective concentration on those technologies which have the greatest potential of multiplying the effectiveness of our forces,
- o More effective exploitation of our industrial base, and
- o Increased cooperation with our Allies in the development and procurement of weapons.

After more than a year of applying this investment strategy, I still believe that it is the proper basis for planning our RD&A programs. But it is not without problems. I will devote the major part of this year's overview to the management issues in implementing this strategy, including:

- o The barriers to success; that is, the problems we have in implementing this strategy;
- o The management techniques we are employing to overcome these barriers; and
- o The real progress that has been made to date and what progress we may realistically expect in FY 1980.

Finally, I will conclude my overview by highlighting the major programs which comprise the \$49 billion RD&A program we are requesting for FY 1980. This highlight will be organized into the broad mission areas of our Defense program, listing the program deficiencies we see in each of these mission areas and outlining the major programs we are proposing to correct these deficiencies.

B. OUR CHALLENGE

In Section II of my Posture Statement I give a detailed description of the net balance between the Soviet Union and the United States in presently deployed equipment, equipment in production, systems under development, and the technology base.

Here I will highlight three major points of concern:

- o The Soviet Union is out-producing us by more than 2 to 1 in most categories of military equipment.
- o The Soviet Union is now deploying equipment which in most cases matches our deployed equipment in quality.
- o The Soviet Union is investing twice as much as we are in their military technology base program, leading to a real risk of technological surprise.

1. Production Balance

The Central Intelligence Agency (CIA) estimates that the Soviet Union's overall defense expenditures exceed those of the U.S. by 25 to 45 percent, while that portion of defense concerned with the research, development and acquisition of weapon systems is about 75 percent greater, since the Soviets devote a much smaller portion of their defense budget to salaries and pensions for military personnel. I recognize that there is a real uncertainty in our estimates of Soviet defense expenditures, yet the firm evidence we have on the actual hardware being built and deployed strongly supports these estimates. In the last five years, for example, they have produced 10,000 tanks to our 3,600, over 1,000 ICBM's to our 280*, about 50 submarines to our 12, and 3,000 tactical aircraft to our 1,400. These are not isolated examples; their

*We had, of course, just finished a major production program in ICBMs. The point here, however, is the impressive momentum in their production base during this period.

modernization program includes virtually every category of weapon system, including those in which our lead was undisputed a few years ago.

2. Quality Balance

The Soviets traditionally have had more equipment deployed than the U.S., but we have offset this with qualitative superiority. The new generation of Soviet equipment now being deployed incorporates major improvements in quality, particularly in the introduction of precision guidance. Three examples are of particular concern:

a. The Soviets began MIRVing their ICBM's a few years ago and will have 5,000 warheads in their ICBM forces by the early to mid-1980's. This past year they have conducted tests of a new guidance system which we believe will give them improved guidance accuracies in their deployed forces. The combination of accurate guidance with a large number of warheads gives their ICBM force a counterforce capability that will be capable of destroying most of our ICBM silos with a relatively small fraction of their ICBM's.

b. The Soviets have had a large tactical air arm for many years, but one which, because of its limited range and payload capabilities, had little more than a defensive capability. In the past few years they have been modernizing this force with FLOGGERS and FENCERS, increasing the striking range and air intercept capability, so that by the early 1980's they will have deployed in Europe a tactical air force fully capable of offensive air operations against NATO.

c. While the strategic forces of the Soviet Union have had more delivery vehicles and nuclear yield than the U.S., we have had

substantially more warheads because of the MIRV's in our SLBM force. This past year the Soviets began deploying the SS-N-18, a missile capable of carrying three MIRVs, in their SLBM force. If they deploy the MIRVed version of the SS-N-18 on all of their DELTA submarines, they will match us in the number of strategic warheads by the mid-80's, while maintaining their lead in delivery vehicles and nuclear yield.

3. Technological Balance

At the core of our technological strength is the Science and Technology program, in which we develop and demonstrate new technology before we commit it to a specific weapon system development. We have maintained a substantial technological lead over the Soviets through our defense Science and Technology program and through the Independent Research and Development (IR&D) programs conducted by our industry. While it is difficult to get precise information about the Soviet Union's Science and Technology program, we know that their leadership gives it a very high priority, and I estimate that it is about twice the size of our own program. However, the Soviets have no equivalent to our IR&D or commercially sponsored R&D, so it has been difficult to draw firm conclusions about the effect of this spending disparity. Recently, though, their concentration in defense technology is beginning to produce tangible results--a highly accurate ICBM guidance system, a look-down/shoot-down interceptor, an improved anti-satellite system (ASAT), an advanced submarine and a new family of high-speed computers.

In addition, the Soviets are concentrating on several unconventional technologies--high energy lasers, charged particle beams

and surface effect vehicles, for example. In particular, in the high energy laser field, they may be beginning the development of specific weapon systems. We, on the other hand, have decided to keep our high-energy laser program in the technology base for the next few years. We believe that we understand the technical issues basic to translating high energy laser technology into weapon systems, that our decision is correct, and that the Soviets may be moving prematurely to weapon systems. However, we will be conducting a very careful review of our program this year, as well as watching Soviet progress with great interest in a continuing re-evaluation of this decision.

A key objective of our Science and Technology program is to prevent technological surprise; that is, to insure that the Soviets do not achieve a militarily significant break-through in a new weapon system before we do, and we have felt comfortable with our ability to do so in the past. However, because of the intensive Soviet commitment to defense technology and the secrecy with which they cloak their activities, it will be much more difficult to achieve that objective in the future than it has been in the past. The significant increase requested for our Science and Technology program is aimed at overcoming this emerging problem.

C. OUR BARRIERS

I have observed that, as a nation, we have great strengths on which to draw in building our defense and that our investment strategy should exploit these strengths, particularly our technology, our industrial base and our Allies. However, in applying this strategy, we should

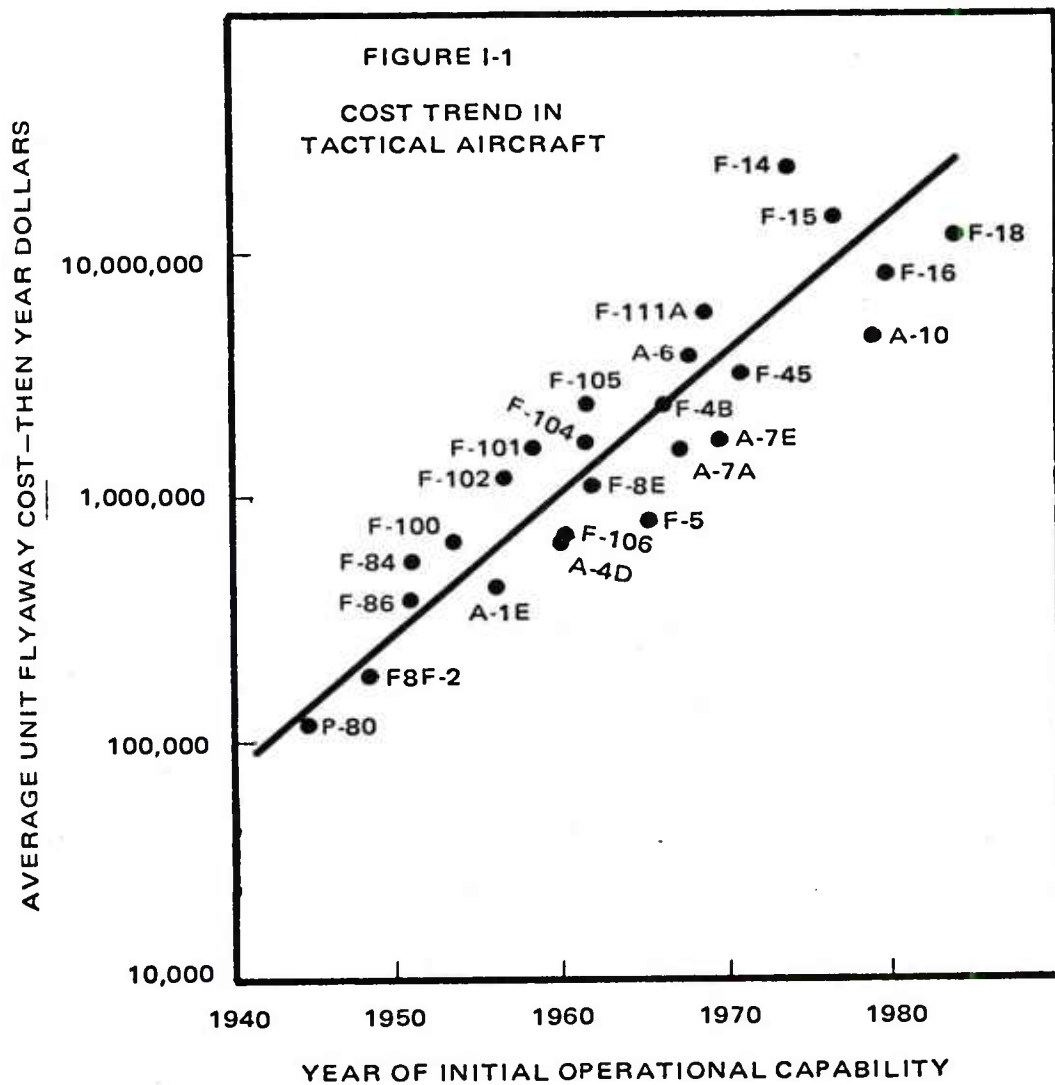
recognize the formidable obstacles we must overcome. I will first describe these obstacles, then describe our management initiatives to overcome these barriers or at least to mitigate their effects.

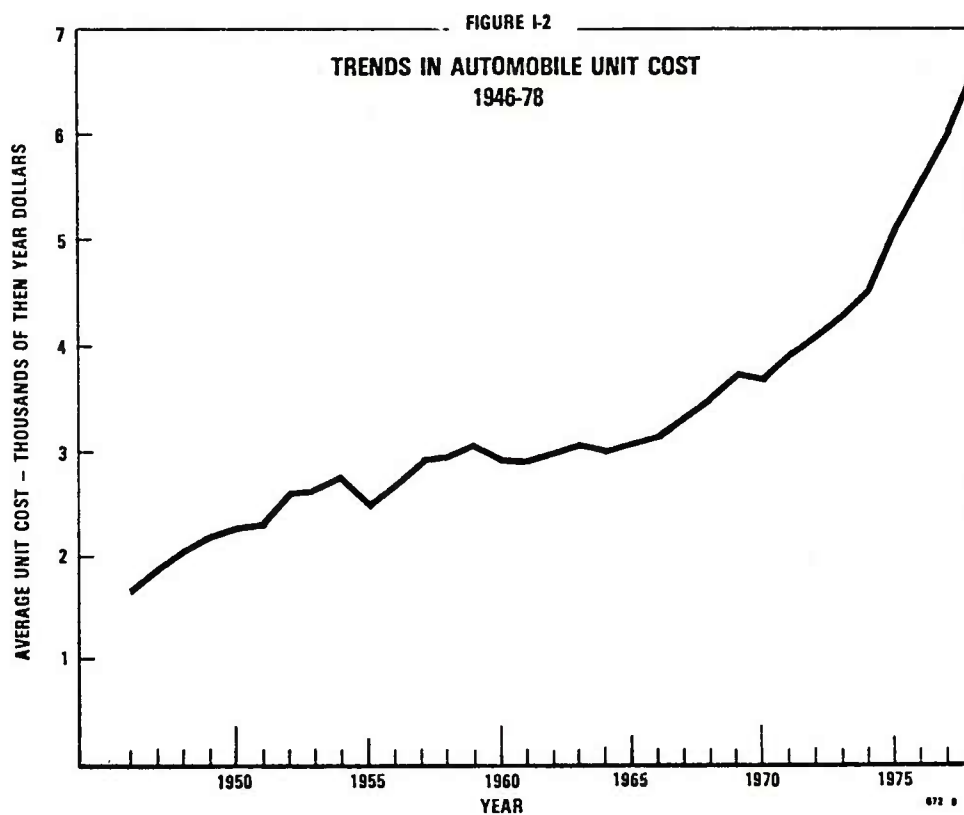
1. Barriers to Applying Technology

a. Technology as a Cost Problem

As our systems have become more technically sophisticated these past two decades, so also have they become more expensive. Figure 1-1 presents the procurement cost of fighter airplanes since WW II. Much of the growth, of course, is the result of inflation. However, normalizing the same data to constant 1978 dollars to correct for inflation, there still is an average increase of about nine percent per year over this thirty year period. This real cost increase reflects the increase in complexity--and capability--of these aircraft. These cost increases force us to buy fewer units, which increases unit costs even more. And we already face quantitative disadvantages that are so great that we cannot expect performance advantages to totally compensate.

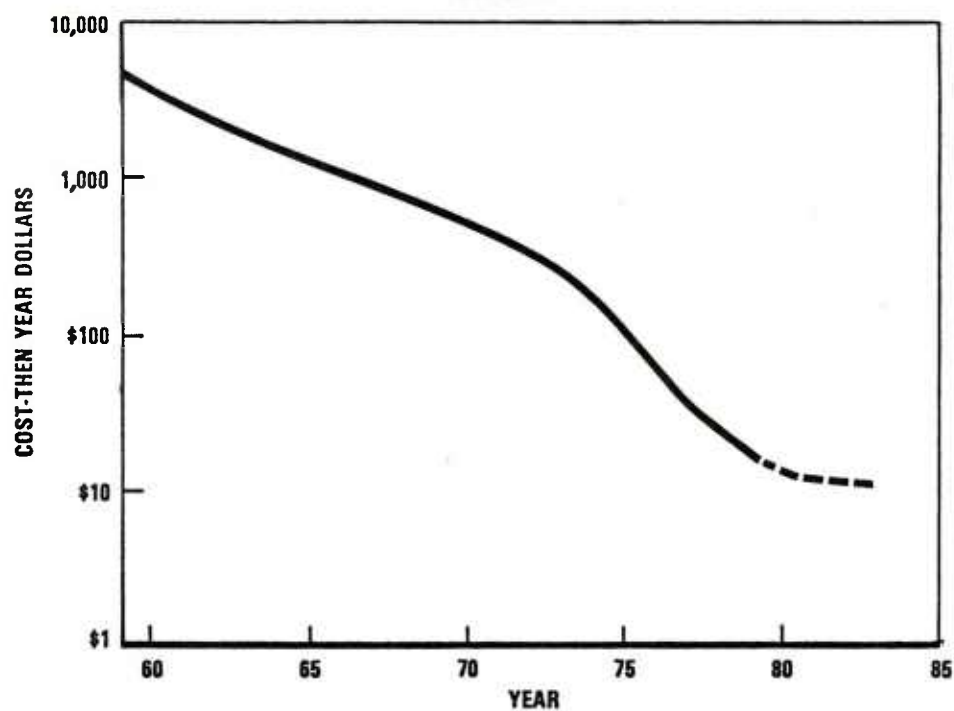
It is interesting to compare these results with the cost of passenger cars, illustrated in Figure 1-2. The increased costs here also are attributable to both inflation and to increases in capability and complexity, so the phenomenon is not unique to defense. Neither is it inevitable. Figure 1-3 illustrates the cost trend of scientific calculators for the last two decades. Here the same technology that led to an increase in performance also facilitated a significant decrease in price, even in inflated dollars. This, of course, is an example which we seek to emulate in Defense, and the next section





COST TREND OF SCIENTIFIC CALCULATORS IN THEN YEAR DOLLARS

FIGURE I-3



(investment strategy) will describe how we plan to reverse the trend of increasing acquisition cost to defense equipment by: (1) improved procurement techniques which emphasize greater use of competition and of commercial components; (2) application of technology explicitly for cost reduction; and (3) extending the life and capability of existing systems.

b. Technology as a Schedule Problem

Concomitant with the increasing sophistication and cost of military equipment in the past few decades, there has been an increase in acquisition time. Figure 1-4 illustrates the time from beginning of full-scale development to Initial Operational Capability (IOC) for several different kinds of weapon systems. It indicates that the time increased from about $4\frac{1}{2}$ years in the 1960's to over 7 years in the 1970's. Typical on-going programs are scheduled to achieve IOC in 6-7 years after the start of full-scale development, but programs in the early 1970's were also scheduled to achieve IOC in 6-7 years. The consequences are two-fold: first, there is an increase in total acquisition cost; second, the delay in IOC means that by the time the equipment gets in the field it embodies technology that often is more than ten years old--so we can lose in our fielded equipment the technology lead we enjoy in our laboratories.

These long acquisition times are not inevitable and, in fact, are not experienced in the commercial airline industry which is comprised of many of the same companies that supply our military systems. Figure 1-5 illuminates the problem. It gives the time from

Figure 1-4

LENGTHENING TIME FROM FULL SCALE DEVELOPMENT TO DEPLOYMENT

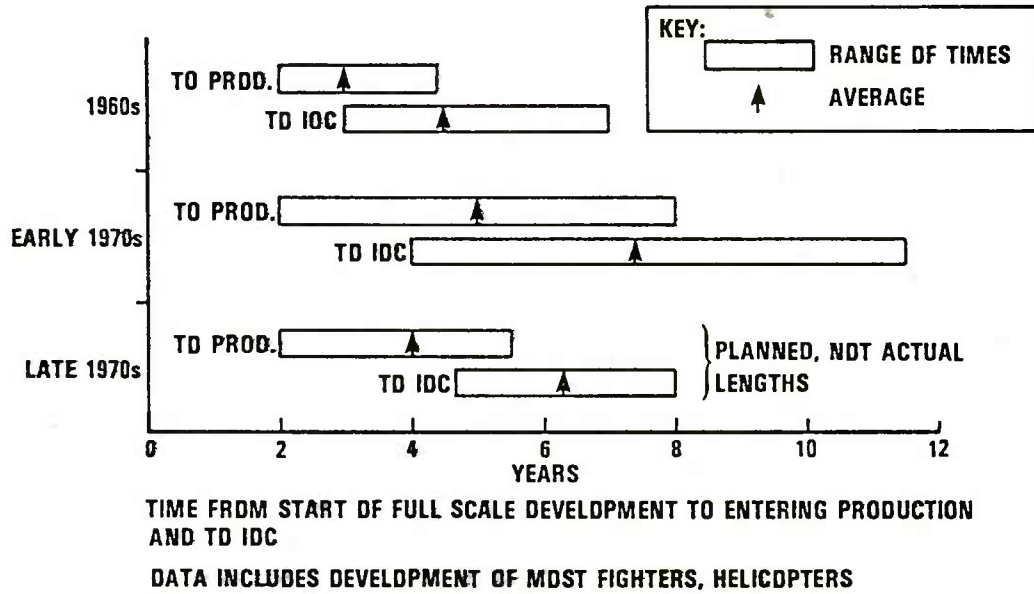
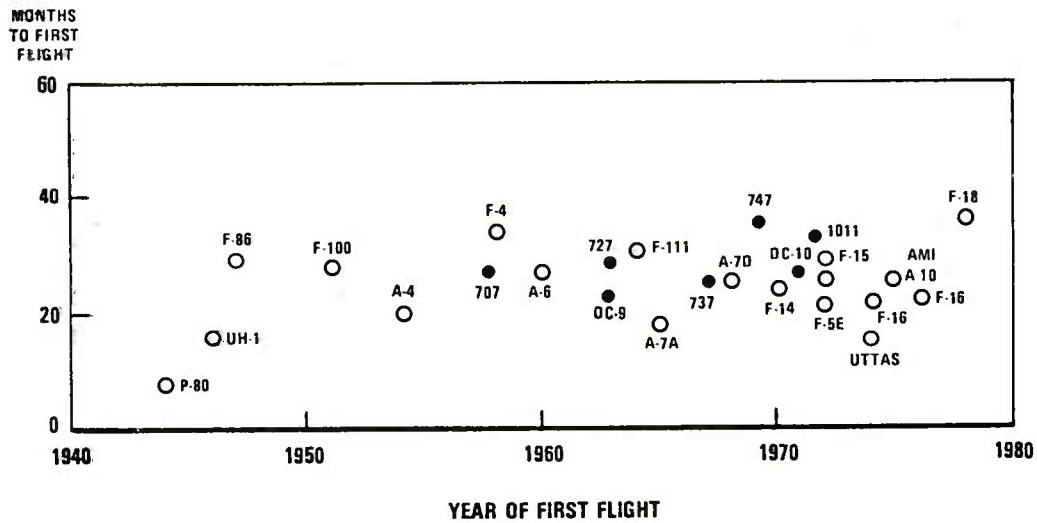


FIGURE 1-5

TIME FROM FULL SCALE DEVELOPMENT CONTRACT AWARD TO FIRST FLIGHT



full-scale development contract award to first flight for major military and commercial aircraft since the beginning of WW II. Surprisingly, the time has not increased at all during that period--we are developing military airplanes today as fast as we did in the 40's and 50's, even though the aircraft are much more complex. Also surprising is that the development time for military aircraft is no longer than for commercial aircraft.

The delays we are experiencing in the fielding of new equipment occur primarily during the test phase and the production phase. Our testing has delayed the acquisition process because we generally do our development, testing and production in sequence, whereas commercial practice is to overlap testing with both development and production. Our production gets delayed because we often "stretch out" a production program to reduce the budget drain that year. That not only delays the date by which operational capability is achieved, but it also increases unit cost as a result of inefficient production rates. This latter problem is pervasive in defense acquisition and requires determined action both by the DoD and the Congress to correct. The former problem must be approached carefully, because misapplication of concurrency (to programs with high technical risk, for example) can result in higher life cycle costs from fielding equipment difficult to operate and maintain. I will, in Section D, describe management actions we are taking to reduce delays in the acquisition process.

c. Technology as a Two-Edged Sword

The development of precision-guided weapons by the United States in the late 1960's was the most significant application of

technology to modern warfare since the development of radar (excluding nuclear weapons). Precision-guided weapons result from the application of microminiature electronics to devices which detect and track targets and guide weapons to a direct hit (or a hit within the lethal radius of the warhead). This allows for much more effective weapons (with smaller warheads) and greatly reduces the logistics problems attendant to supplying vast quantities of ammunition of barrage-type firings. These weapons make high value targets such as ICBM's, bombers, carriers, and tanks much more vulnerable to destruction and will force a revolutionary change in force mix and tactics as they become more prevalent.

We have a substantial lead in the technology critical to precision-guided weapons, and since we give this technology highest priority in our R&D program, we expect that lead to continue. Nevertheless, the Soviet Union is working hard on this technology. We are beginning to see significant progress in weapons now under test, and we expect to see precision-guided weapons entering Soviet forces in quantity in the early 1980's. Even these first generation weapons will present us with a significant problem. Our response to this emerging problem will be three-fold: we will strive to keep one generation ahead of the Soviets in these weapons; we will pursue a vigorous counter-measure program; and we will evolve different force mixes and tactics with a strong emphasis on mobility and stealth features. These responses will be described in some detail in Section D.

d. Technology as a Problem for the User

In an age of technological explosion, where new weapons can become obsolete before they are fielded, we see a dangerous communication

gap developing between the developer of equipment and the user. This leads to systems being fielded that are largely "technology driven" and are poorly suited to the operational need, because the user did not know how to state his need in terms of the available technology. Even when a technology program anticipates a need and supplies the user with equipment well suited to his mission, our technology may be rendered inefficient because the user does not understand its potential well enough to develop appropriate tactics and doctrine. At the beginning of WW II, the French Army had perhaps the most effective tank in the world; the German Army, however, had developed the Blitzkrieg tactics which effectively exploited the tank, and they won that tank war. We must insure that our tactics are capable of exploiting the full potential of our weapons.

We are also concerned with balancing the need for high performance on the one hand with the capability to maintain required readiness levels. Too often our R&D programs have applied technology to enhance performance without adequate consideration of its impact on the user, in terms of support costs and the number of skill levels of our military personnel. The results have been visible in a number of operating weapons with low readiness and needs for expensive retrofits and modifications. Consequently, there is a need to make readiness objectives and skilled manpower constraints major design objectives along with technical performance.

I will describe in Section D our management initiatives for improving communication between the technologist and the user in the application of technology to warfare, and for reducing life cycle costs of equipment.

2. Barriers to Using Industry More Efficiently

The United States has the most powerful industrial base in the world. This is the foundation on which we build our weapons development and acquisition program. But we have not realized the full potential of our industry for two reasons:

- o We have overmanaged industry, thereby reducing its efficiency to less than it achieves on commercial programs; and
- o Industry has not been sufficiently responsive to the unique needs of the Defense Department.

a. Overmanagement of Industry

I believe that industry generally does not produce as efficiently for the defense market as it does for the commercial market. Some of this cost difference results from our imposition of military specifications; some results from the increased overhead required to deal with government regulations and procedures; and some results from the stifling of management incentives to decrease cost.

The tendency to impose government regulation and procedures and, more generally, to oversee company management functions, is a defensive measure which developed as a response to poor performance by some contractors on programs critical to national security. I believe this response generally has been counterproductive and, in fact, perpetuates the very problem it was intended to solve--poor company management. We must turn the management of industry back to company management and then hold them responsible for contract performance. In most cases this will result in more effective management and certainly in reduced overhead for both the company and the government. The key

to achieving this result, while still protecting our vital national interests, is to extend the use of the competitive process. By conducting competitive development programs we insure that the most creative engineering teams and management are assigned to defense programs without our intervention, and we have two (or more) technical concepts to select from. By extending competition into production we can let the competitive process, rather than government inspectors, drive production efficiencies. I will describe in Section D the management initiatives we are taking to apply these principles to defense procurement.

b. Lack of Industry Responsiveness to Unique Defense Needs

A primary tool for maintaining effective competition in the defense industry is the Independent Research and Development (IR&D) program. This program amounts to about one billion dollars annually, a portion of which is accepted by the government as allowable expenses on defense contracts. The IR&D program is structured by the companies themselves to advance technology in ways they believe will strengthen their ability to compete. Competition is the key to efficiency in the development and production of high technology systems; the IR&D program, therefore, is a crucial investment in maintaining effective competition, thereby increasing acquisition efficiency, and in sharpening the responsiveness of industry to Defense needs. Where the IR&D program is not applicable, we find industry generally not responsive to Defense needs. The semiconductor industry, for example, is geared primarily to commercial sales--only seven percent of integrated circuit sales are Defense-related, and most of the semiconductor companies, while having

substantial company-sponsored R&D, generally have relatively small IR&D programs. Therefore, although semiconductor technology is crucial to maintaining our military technological advantage, we have little influence on the direction of this technology. In fact, we find it of critical importance to change that direction as the industry moves to the next generation of miniaturization--from large-scale integration (LSI) to very large-scale integration (VLSI). Thus, in the absence of IR&D programs within these companies, we are initiating a major program of funded R&D to expedite the development of high speed VLSI technology. This program is described in some detail in Section D.

3. Barriers to a More Effective Alliance

In 1978 the United States spent \$12 billion for defense R&D and our NATO allies spent another \$4 to \$5 billion, a total of \$16 billion to \$17 billion. But the net effect of this combined R&D spending was much less, because of significant overlap and redundancy among the national programs. The Alliance is developing three different main battle tanks, four different fighter aircraft and three different air defense guns. This not only entails duplicative funding of R&D, but leads to high unit costs because of the inefficiency of three or four production lines.

A key objective of our investment strategy is to achieve significant increases in cooperation in the development and production of NATO armaments so we can increase the efficiency of our procurement and the effectiveness of the equipment deployed with NATO forces. The barriers to achieving this improved efficiency are formidable.

NATO is an alliance of fifteen independent nations, and it is inherently difficult for any one of them to subordinate its sovereign rights for the benefit of all. Each of the nations has its own laws and regulations for the procurement of defense equipment, and these laws generally are designed to protect perceived national interests. In this regard, there are two principal barriers to improved cooperation:

- o The European NATO countries have built up their defense industries this past decade and some are fearful that cooperation with the U.S. may threaten these industries.
- o Legislation in the U.S., designed to protect U.S. industry from foreign competition, inhibits the formulation of cooperative programs.
- a. European Barriers to Cooperation

During the fifties and sixties, most of the major defense equipment in NATO was developed and built in the U.S. However, with the growth of European industrial strength during the past decade, a strong European defense industry has emerged. It now has the capability to develop and produce nearly every type of weapon system; it has developed a significant sales base outside of NATO, and it provides jobs that have become important to the European economy (for example, in 1977 the defense industry employed 200,000 workers in the Federal Republic of Germany, 275,000 in France and 300,000 in the United Kingdom). Because of the growing economic importance of the defense industry to their economy, the Europeans have formed an organization, known as the Independent European Program Group (IEPG). Its objective is to strengthen their defense industry by forming European coalitions to develop and produce armaments, and by presenting a united front in

dealing with the United States and Canada on armament development and production. The IEPG could become a barrier to cooperation if its emphasis were put on increasing arms sales through cartelization. However, I believe it can become instead an instrument through which we and our allies can develop programs of cooperation which benefit the entire alliance. To that end, a Trans-Atlantic Dialogue has been established between the Armament Directors of the IEPG and the Armament Directors of the U.S. and Canada. Our contribution to the Trans-Atlantic Dialogue has been a proposal for a Triad of programs for armament cooperation, as described in some detail in Section D. The initial response of the Europeans to this proposal has been quite positive, and I am encouraged to believe that we will be able to work together for the common benefit.

b. American Barriers to Cooperation

In addition to European barriers to cooperative programs, we have some of our own. U.S. industry is apprehensive that cooperative programs may somehow reduce their sales and therefore seeks to preserve the status quo, even though the actions they fear have already been taken by the Europeans and have led to dramatically decreased European dependence on the U.S. defense industry. I believe that the vitality of our defense industry is fundamental to a strong defense posture, and that our proposed cooperative programs are consistent with the continuing strength of our defense industry. Hence, I have discussed our proposals in some detail with industry groups and have modified these proposals based on their recommendations. We have established a Defense Science

Board Task Force to facilitate an exchange of views between the Department and industry. As industry has become more familiar with-- and has had an opportunity to influence--our plans, they have also become more supportive and are preparing for the multinational teaming that will characterize many of our defense programs in the future.

Some of the barriers to cooperative programs are legislative in nature; accordingly, we have submitted two specific requests for legislative relief--HR 12837 and HR 11607. HR 11607 is necessary to facilitate the interchange of essential logistical support between national forces either stationed in NATO countries or deployed in NATO exercises. It will not apply to major end items. HR 12837 will facilitate agreements and contracts with friendly foreign governments and international organizations for the purchase of supplies and services in furtherance of interoperability. It will also assist in programs for cooperation in development and production of defense materials.

D. OUR MANAGEMENT INITIATIVES

I have already noted that our investment strategy has three components:

- o Selective concentration on those technologies which are "force multipliers".
- o More effective exploitation of our industrial base.
- o Significantly increased cooperation with our Allies in the development and acquisition of weapons.

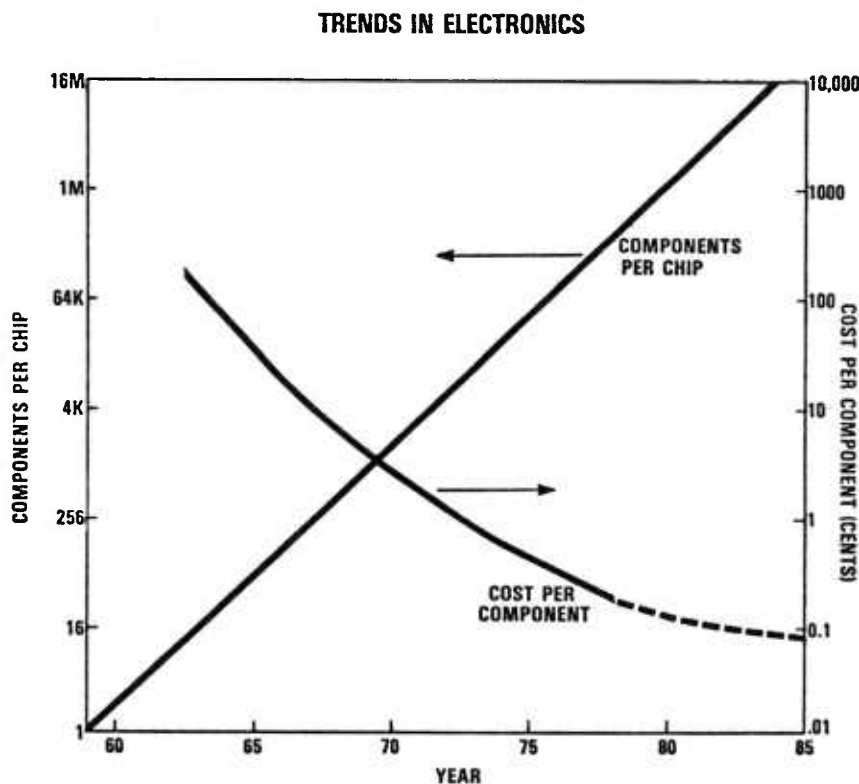
In the previous section I noted the formidable barriers to implementing this Strategy. In this section I will describe the specific management initiatives we have underway to achieve the benefits of our strategy in the face of those barriers.

1. Extend Application of Competition

The U.S. semiconductor industry is perhaps the most efficient industry in the world. This phenomenon of our free enterprise system thrives on two ingredients: large doses of high technology and intense competition. As a result, it is one of the few industries that has succeeded in reversing the upward spiral of costs. Two products of this industry are well known: the hand-held calculator which, at a price of ten dollars, exceeds the performance and reliability of the electro-mechanical calculator which ten years ago sold for nearly a thousand dollars; and the electronic wristwatch which, at a price of ten dollars, exceeds the accuracy, versatility and reliability of mechanical watches which ten years ago sold for more than a hundred dollars. The basic development that underlies these products is known as LSI (large-scale integration). LSI technology involves depositing thousands of electronic components on a single chip less than an inch square. The intense competition in this industry has forced technology in the direction of more and more components on each chip which has resulted in less and less cost per component. The net result is indicated in Figure 1-6, which shows the increase in components and the decrease in cost per component in the last ten years. This has allowed significant increases in performance at the same time that costs were being reduced by a factor of ten or even a hundred.

This dramatic development has two important effects on Defense acquisition. First, we are making use of integrated circuits and thereby benefitting directly from the increased performance and decreased cost.

Figure 1-6



Second, we see a product development example which has features worthy of emulation. In particular, we will seek to emulate this industry's use of competition as a force to drive costs down. We will not, of course, be able to achieve identical results, because we typically are producing quantities in the thousands instead of in the millions. Nevertheless, there are significant cost benefits to be gained by introducing more competition into defense acquisition, and we intend to do just that.

In FY 1978, 17 percent of our acquisition programs were sole source awards that followed after competition. That is, we conducted a competitive development program, selected the winner and thereafter awarded all subsequent contracts sole source to that winner. The advantage of this approach is obvious--we do not have to pay for two continuing development programs, nor do we have to pay for establishing two production facilities. The disadvantage is well recorded in our acquisition history--it promotes contractor "buy-ins" with subsequent cost overruns from which the government has no satisfactory means of extraction short of program cancellation. We have tried to get around this problem by more careful cost reviews and contractor supervision which has added to both contractor and government overhead. I believe that in many acquisitions a preferred alternative will be to pay the extra cost for continuing the competition through the entire development cycle and, in some cases, on into production.

We are beginning to apply this management principle to an increasing number of programs. In the air-launched cruise missile (ALCM) program, we continued competition into engineering development (the competition "fly off" will be in 1979) and plan to continue competition into production (with a dual production procurement), since we expect to build more than 3,000 ALCM's. We have already begun dual source production on cruise missile engines and inertial guidance systems. We are producing the Navy's new frigates (FFG-7 Class) at three shipyards, which will be reduced to the two best in FY 1980 or FY 1981 and eventually to the one best. We plan to procure COPPERHEAD

and STINGER in a dual production mode. If we can get our Allies to join us in dual production, whether of a U.S. or European system, it will further broaden competition.

It is worth noting that while we expect this increase in competition will result in significant cost benefits in the long-term, there will be no near term cost reduction; in fact, there is an investment cost in getting such a program started--but we expect a healthy return on this investment. There also will be an indirect cost benefit to both industry and the government. When we have the protection of cost competition, we can reduce the level of contract supervision, cost auditing, and form-filling, thereby allowing both the contractor and government overhead to be reduced.

2. Use Technology to Reduce Manufacturing Costs

We think of technology as a tool for improving performance, but as the semiconductor industry has shown, it can also be a tool for reducing cost. In our FY 1980 program we place a major emphasis on technologies which can lead to cost reduction. One example is our VHSIC (very high speed integrated circuits) initiative, in which we plan to invest about \$200 million over the next six years to direct the next generation of integrated circuit technology to unique Defense applications. This program, which is one of our top priority Science and Technology programs, will lead to very significant cost reduction by decreasing component cost and by greatly reducing assembly costs of electronic equipment. Examples of a different type are found in our Manufacturing Technology program, which is funded at \$164 million in

FY 1980, a 23 percent real growth over FY 1979. This program is directed specifically at the advancement of manufacturing processes that will allow production of equipment (e.g., jet engines, missile castings, helicopter blades) more efficiently, thereby reducing costs in quantity production. One example is the development of lightweight composite materials for aircraft and missiles. These materials reduce weight (thereby increasing performance) and manufacturing cost. Another example is the development of "near-net shape" fabrication techniques (using a hot isostatic process) which allows the pressing of engine chassis, for example, to a nearly final form, thereby reducing time and wasted material in the manufacturing process. Especially noteworthy is our program to develop new techniques for computer-aided manufacturing (CAM). The CAM program uses the very technology which is leading to more complex weapon systems to reduce the cost of manufacturing these systems.

3. Extend the Life and Capability of Existing Systems

Our technology allows us to build the best missiles and the best aircraft in the world today--and the most expensive. This puts us in the position of having to fight out-numbered in men and materiel. Up to a point, superior performance is an offset to this quantitative disadvantage. Lanchester's theory of warfare derived simplified relations between quantity and quality in warfare. Basically these relations predict that force effectiveness increases as the square of the quantity of units and linearly with the quality of the units. That is, if you are out-numbered 2 to 1, your force must be four times

more effective in order to break even; if you are out-numbered 3 to 1, your force must be nine times as effective.* Our forces in NATO are typically out-numbered 2 or 3 to 1 in tanks, armored vehicles and guns, so it is unreasonable to expect the quality of our forces to totally offset such a large disadvantage.

Therefore, we have focused our attention on additional ways of dealing with the problem of fighting out-numbered. One promising approach is to extend the life and capability of existing systems. The ALCM program is a prime example. The B-52 might have ended its useful life in the mid-80's because of its declining ability to penetrate the growing strength of the Soviet Air Defense complex. However, as a carrier of cruise missiles, it should have a useful life well into the 90's, since it will not have to penetrate this vast air defense complex in order to accomplish its mission. The cruise missile (ALCM or its successors), because of its very low radar signature, will be able to effectively penetrate Soviet Air Defenses for the indefinite future.

Another life extension program is the A3 modification to the M60 tank. This modification gives the M60 a night vision and fire control system equivalent to that developed for the XM-1, thereby extending its useful life into the late 80's, by which time we will have the XM-1 force deployed.

A final example is the AMRAAM (Advanced Medium-Range Air-to-Air Missile) missile which is a lightweight, radar-controlled,

*These numbers are strictly applicable to only a very special form of combat; they are, however, indicative of trends even in more complex forms of warfare.

air-to-air missile and one of our highest priority FY 1980 developments. This missile, when used to weaponize our fighter aircraft, will provide even our lower cost fighters such as the F-16, with the ability to effectively engage any fighter in the world, even when out-numbered 2 or 3 to 1, because of its "fire-and-soon-forget", multiple target engagement capability.

4. Introduce More Flexibility in Program Management

To realize the full benefit of our technological superiority, we must get technology out of our labs and into the field more rapidly. We have evolved, during the past two decades, a highly stereotyped system of acquisition that basically was conceived in reaction to our failures--that is, our well-publicized cost and schedule overruns. As a consequence, our acquisition process is cautious, slow and expensive. It now takes us 12 years or more for development, production and deployment of a typical system, so that our lead in technology is lost by the time the equipment is deployed.

I believe that we have overreacted to our earlier acquisition problems and must find some way of reducing acquisition time, at least in those programs in which technology is crucial to equalizing the quantitative disadvantages we face. We have underway a pilot program in which we select a number of high priority programs* to receive expedited acquisition treatment. These programs include:

*Several of these programs were accelerated at the urging of Congress, which, for a number of years, has expressed concern at the bureaucratic nature of our acquisition process.

- o DIVAD (Division Air Defense Gun) and GSRS (a tactical multiple launch rocket system)--We have compressed the Advanced Development and Engineering Development phases into one 27-month "hands-off" competitive development, thereby cutting acquisition time by two years.
- o ALCM (Air-Launched Cruise Missile)--We have started the production program on the ALCM missile while the development competition is still underway. This allows full-scale production to start as soon as the competition is complete, thereby cutting acquisition time by one year.
- o Assault Breaker (Precision-Guided Munitions for engaging entire companies of tanks)--We are compressing the Technology phase and Advanced Development phase into a single, expedited demonstration program under DARPA management, thereby reducing acquisition time by two years.
- o F-16 aircraft and XM-1 tank--We are conducting development tests and operational tests (DT III and OT III) concurrently with the low rate initial production run. This will take very careful management attention, but will allow us to get these important programs deployed two years sooner than a standard sequential program.

We are particularly concerned that concurrency not be applied in such a way that new equipment has performance and support problems when it reaches the field. We hope to avoid, for example, the problems that have been encountered on the S-3 and F-14 programs, by introducing in the DIVAD program an "equipment maturing" phase upon completing development.

5. Develop Technology and Tactics to Counter Precision-Guided Weapons

As I stated in the section on "Barriers", Precision-Guided Weapons are a two-edged sword. While we maintain a commanding lead over the Soviet Union in this field, they will be introducing large

quantities of precision-guided weapons in their forces in the early 1980's. Even though these weapons will generally be a generation behind weapons entering U.S. forces at that time, they will pose a formidable threat to our forces, particularly our large, high-value targets such as ICBM's, bombers, aircraft carriers and tanks. Our response will be to keep one generation ahead of the Soviets in these weapons, to conduct a vigorous countermeasure program, and to increase the emphasis on mobility, stealth, and low-value weapons in our forces. Our countermeasure program is receiving greatly increased emphasis in the FY 1980 program, and I expect that it will continue to grow in the early 1980's. Here I will describe some of the major changes we are making in our major weapon programs to introduce mobility and stealth to respond to the growing threat of Soviet precision-guided weapons.

a. ICBM's

The Soviet Union has developed greatly improved guidance systems for their SS-18 and SS-19 ICBM's. These systems demonstrate accuracies less than the lethal radius of the SS-18 and SS-19 MIRVed warheads, even against very hard targets like ICBM silos. Therefore, when large numbers of these guidance systems are introduced into their ICBM forces, our silos will no longer protect our ICBM force and no feasible improvement in hardening will restore their ability to survive a mass attack of SS-18's or SS-19's. More generally, it is clear that fixed, hardened bases for any high-value target will not be a viable option in the 1980's. We have studied a variety of options for rebasing our ICBM force to allow it to survive an attack by SS-18's or SS-19's.

One of the primary candidates achieves survivability through a stealthy deployment--we would build a large number of silos and move the missiles from silo to silo in a covert manner. With a constraint on the total number of re-entry vehicles, the Soviet Union could not target all of the silos, and they would not know which silos have the missiles, because of the covert movement. Another primary candidate achieves survivability through mobility--we would put our ICBM's in airplanes and launch the airplanes (but not the missiles) on strategic alert or tactical warning, or on the failure of our warning system. We expect to select a new survivable basing system for our ICBM's in 1979, and the proposed FY 1980 program includes funding for full-scale development of the selected system.

b. Strategic Bombers

Our bomber force, even though stationed at fixed airbases, achieves survivability by escaping these bases on warning of attack (our ICBM's cannot escape unless the attack assessment is certain, because, unlike the bombers, they cannot be recalled if the attack assessment proves to be in error). This bomber base escape will become more difficult in the future as the Soviet Union builds up its SLBM force, because a depressed trajectory SLBM launched from U.S. coastal waters can arrive at some of our SAC airfields before most of the airplanes can take off. We are exploring solutions to this problem which involve making a faster attack assessment and achieving faster aircraft launch.

An additional problem is the introduction of precision-guided weapons in the Soviet Strategic Air Defense complex. We plan to

achieve penetration by flying the bombers close to the earth, which would give the ground defensive systems a very small operating radius and would render the airborne interceptors ineffective, because their airborne radars could not pick out the bombers from the background of ground clutter. During the past two years the Soviets have been testing a "look-down/shoot-down" radar and a missile which is capable of engaging low-altitude bombers and fighters. When this system becomes deployed in quantity our bombers will have a much more difficult task penetrating. Our solution to this problem is to introduce cruise missiles into the force. This allows the bombers to operate in a stand-off mode with cruise missiles penetrating the defenses. The cruise missile presents such a small radar target that the "look-down/shoot-down" radar now being tested will not be able to track it at operationally useful ranges. Also, the Air Defense system will have to engage thousands of cruise missiles instead of hundreds of bombers. This approach typifies two distinct, generic solutions to the problem of precision-guided weapons: move to very small (stealthy) weapon systems which nullify the tracking circuits of the precision-guided systems, and move to lower-value weapons which can saturate the defense complex.

c. SLBM's

Our SLBM force enjoys a high degree of survivability, even against precision-guided weapons, because of its mobility and its stealthy nature. It cannot be targeted at a fixed location, and it is very difficult to detect and track. We believe that this force will be essentially invulnerable to an effective attack for the next decade.

Beyond that, it is very difficult to forecast, but we know that the Soviets are working very hard on ASW (Anti-Submarine Warfare), and we also know that the problem of detecting and tracking submarines, while very difficult and expensive, is by no means infeasible. Therefore, we plan to introduce even more mobility and stealth into our SLBM forces. Our new TRIDENT submarine, the first of which will begin sea trials in 1980, is considerably quieter than previous nuclear submarines, thereby making detection and tracking of it more difficult. Our new TRIDENT missile, which will achieve IOC in 1979, will have more than twice the range of the POSEIDON it will replace. With longer range missiles, the submarine can increase its survivability and mobility--in fact, its patrol area will be more than tripled by the increase in missile range.

d. Theater Nuclear Missiles

We are presently developing two new missiles as candidates for modernization of our theater nuclear forces. GLCM is a ground-based version of the cruise missile, and PERSHING II is a modern, longer-range version of the PERSHING I ballistic missile. In both cases we are introducing mobility and stealth into their design and operational concepts. They will be designed to have off-road mobility, so that on strategic alert they can be dispersed from their main operating base and deployed on trails in the woods, with frequent relocations to maintain stealth.

e. Surface Ships

The advent of precision-guided weapons that are capable of direct hits on surface ships from stand-off ranges greatly complicates

the task of defending these ships and raises questions about the optimum design of surface ships and the appropriate mix of naval forces.

Submarines, if designed with acoustic quieting, will gain a high degree of survivability, since the ocean shields them from visual and radar observation; naval aircraft--when airborne--gain a high degree of survivability (unless seeking an engagement) by their mobility relative to a ship.

However, surface ships are susceptible to long-range observation by radars on aircraft and satellites. A ship can attempt electronic countermeasures against these surveillance systems, but this makes it more susceptible to ELINT surveillance so it has to devote an increasing portion of its fighting capability to defending itself. As a result, the balance is shifting in favor of the air attacker armed with precision-guided missiles. Giving the ship more mobility, that is, making it faster, is useful against the submarine threat but is not particularly effective against the air threat. Therefore, our principal thrusts are: (1) to introduce more stealth in surface ships (through emission control, deceptive countermeasures, and ship design); (2) to introduce improved protection, both active and passive, against air attack; and (3) to gradually evolve a shipbuilding program with a greater emphasis on smaller, cheaper ships (in larger quantities).

f. Tanks

The effectiveness of our own anti-tank systems, particularly those now in test, indicate that tanks will have a more difficult time surviving on the battlefield in the 1980's than ever before--the

technological balance is shifting in favor of the anti-tank systems. Tanks, however, will still play a paramount role in tactical warfare for the foreseeable future. Therefore, we need to give U.S. forces a continuing technological advantage in both tank and anti-tank weapons. We are dealing with tank vulnerability in four ways: (1) increasing the effectiveness of the armor--the XM-1 armor will defeat all presently deployed ground or helicopter based anti-tank weapons and we are working to further improve tank armor to meet future threats; (2) increasing tank mobility--the XM-1 will be able to move much faster over more difficult terrain than either the M-60 or, we believe, any existing Soviet tank; (3) giving tanks some stealth capability by allowing them to operate effectively in night and poor weather, when many anti-tank systems will not be able to detect and track them; and (4) giving our tanks a precision-guided large caliber (120mm) gun so that they can achieve a high probability of disabling their targets on the first round, and minimize the time they are exposed to counterfire.

Finally, in our mix of tank and anti-tank forces, we are emphasizing anti-tank systems. The Soviets have more than 40,000 tanks to our 10,000. Our strategy is to deal with the disparity by a modest increase in quantity--deploying 7,000 of the very effective XM-1 tanks in the late 1980's--and a substantial increase in both the quantity and quality of anti-tank weapons throughout the 1980's.

There are many other examples of how we can deal with the increasing vulnerability of our major weapons systems to precision-guided weapons. However, the actions that I have described serve to

illustrate our strategy. Precision-guided weapons are perhaps the only truly revolutionary weapon development since World War II. Their impact on warfare, however, will evolve over the next decade as they are introduced in quantity (into both our forces and into Soviet forces) and as they improve in quality. During that period we will be evolving a counter strategy which involves changing our force mix to put greater emphasis on precision-guided weapons. At the same time we will be increasing the mobility and stealth of those major systems that are prime targets for precision-guided weapons, and we will be developing countermeasures to mitigate their effectiveness.

6. Build Bridges Between Users and Technologists

We live in an era of unprecedented technology expansion which allows the development of revolutionary new weapon systems. Since we cannot afford to develop and build everything our technology permits, we must be selective, and this selectivity should be guided by those applications of technology which are "force multipliers" (applications which allow for significant increases in military effectiveness or significant decreases in equipment cost or manpower requirements). Intelligent selectivity requires a "shotgun marriage" between the technologist and the user. New technical concepts are developed in our Science and Technology program which is "technology driven"; that is, it is structured by our technologists to advance technology. Our management problem is to determine when to "promote" a concept from the Science and Technology base into a structured development program leading to production and operational use. Understanding the issues

involved in whether or when to make this "promotion" requires bridging the communication gap between the technologist and the user. We are dealing with this problem by greatly increasing the emphasis on Technology Demonstration programs both in the Services and in DARPA. In these programs we select a promising technology, build a demonstration system and operate it in the field to expose it to users, demonstrate its capabilities and reveal its conceptual weaknesses. These demonstrations can be done quickly and relatively cheaply, because the equipment does not have to meet military specifications. Such demonstrations are proving invaluable in introducing the user to the potential of new technology and introducing the technologist to the operational problems faced by the user. Because of the importance I place on achieving these objectives, I have requested a 17 percent increase in our Technology Demonstration program in FY 1980. Programs of particular interest are BETA (Battlefield Exploitation and Target Acquisition), which demonstrates the value of fusing different sources of intelligence data in a tactical environment, and Assault Breaker, which applies precision-guided munitions technology to attacking large formations of tanks in rear echelons.

Bringing together the technologist and the operational user in the field will not only lead to equipment designs which are better suited to the users needs, but will stimulate the earlier development of tactics and doctrine necessary to effectively exploit this new technology in combat operations.

7. Direct Commercial Technology to Defense Needs

Between our funded Science and Technology program and the contractors' Independent R&D program, we have an outstanding ability to direct technology resident in the defense industry to high priority defense programs. However, we have little ability to influence those companies whose sales are predominantly commercial. This is a serious limitation in the case of the semiconductor industry, whose products play a crucial role in nearly all of our advanced weapon systems. Therefore, we have initiated a new technology program intended to direct the next generation of large-scale integrated circuits to those characteristics most significant to Defense applications.

This initiative, called the VHSIC (very high speed integrated circuits) program, will require expenditures of \$31 million in FY 1980, and involve a total program cost of about \$200 million over six years. While this is a substantial investment for a technology base program, we expect this investment to stimulate at least an equal amount in industry. The semiconductor industry is very competitive and attuned to large R&D investments in new technology. In 1978, for example, they invested over \$300 million in R&D on new products and improved technology. Our goal is to get the full benefit of our investment plus the added benefit of influencing the direction of a substantial amount of company R&D.

The technical objective of our VHSIC program is to develop chips that have more than ten times the density and 100 times the speed of current chips and are capable of meeting military specifications of

ruggedness and reliability. Basically, we are developing "computers-on-a chip", or high speed microprocessors, that will perform advanced signal processing and the rapid computation required for our "smart weapons". We will concentrate on those chips which will be critical components in our next generation of weapons--precision-guided munitions, air-to-air missiles, cruise missiles, ICBM's, night vision devices, torpedoes, and ASW processors, for example. This program will insure that the U.S. maintain a commanding lead in semiconductor technology and that this technology will achieve its full potential in our next full generation of weapons systems.

8. Develop a Framework for Improved Cooperation with Allies

In Section C, I described the urgent requirement for cooperation in the NATO-wide development and procurement of arms. I also described the formidable barriers to achieving this cooperation. In order to overcome these barriers, we have proposed a triad of cooperative programs: General Memoranda of Understanding (MOUs) in reciprocal purchasing; Dual Production in NATO countries; and the Family of Weapons.

a. General MOU's

The purpose of the general MOU's is to facilitate competition by NATO's defense industry in the defense market of each NATO country. These MOU's waive various "Buy National" restrictions on a reciprocal basis. We have already negotiated such MOU's with the U.K., Canada, Germany, Norway, the Netherlands, and Italy. It is too early to forecast the precise benefits which will result from these MOU's. Nevertheless, initial results are encouraging, and I believe that this approach is valid for the whole alliance. We have invited NATO countries who have not yet done so to enter into such agreements with the U.S.

b. Dual Production Programs

Dual production is the second leg of the cooperative triad. When one nation has completed development of a system which is useful to the alliance, that nation should make its system available for production by other countries or consortia of countries. This will eliminate unnecessary duplication in R&D, while avoiding the trade and labor imbalance that would result from exclusive development and sales. We are already engaged in such dual production arrangements on the French/German developed ROLAND. The Germans will produce the MODFLIR night vision device and have formed a consortium to produce the AIM-9L air-to-air missile, and we have offered the COPPERHEAD laser-guided artillery projectile, and the STINGER shoulder-launched surface-to-air missile to European consortia. We will offer others, and we will consider reciprocal offers of NATO countries to the U.S. These dual production programs can lead to the near-term introduction of the latest technology in NATO's deployed forces at the lowest practical cost.

c. Family of Weapons

The Family of Weapons is the third leg of our cooperative triad. Here the principal objective is to obtain greater efficiency by reducing needless duplication in our development programs. We want the \$12 billion we spend for R&D and the \$4 to \$5 billion our allies spend to yield \$16 to \$17 billion worth of combined results. Our approach is to examine the weapons which member nations plan to develop in the next few years and aggregate these weapons by mission area. When we find two or three that perform similar missions, we will agree to

divide the responsibility, with one party developing a long-range version, the other a short-range version, for example. We would anticipate such divisions to be made among the U.S. and Canada on the one hand and European consortia on the other. Each nation would fund the program for which it is responsible. When the development is completed, the developing nation would make available to the other participants a data package for production. Exchange of production data packages would be on a reciprocal basis to include all programs in the family.

As a result of discussions with our Allies and an industrial dialogue initiated in the recent Defense Science Board Summer Study, we have modified this Family of Weapons proposal somewhat. When the U.S. has the lead, we will designate a portion of the development to be available to European industry. The European consortium, in turn, will designate a corresponding portion of their development to U.S. industry. The purpose of this modification is to encourage trans-Atlantic industrial teaming, to provide the best available technology and to facilitate the information exchange that will be needed for the dual production that will follow. On all programs for which we are responsible for development and production, we will select the U.S. prime contractors, sub-contractors, and European subcontractors on a competitive basis to insure the best technology and lowest cost in the resulting system. We have not yet negotiated specific Family of Weapons agreements, but are exploring as families: Anti-Tank Guided Missiles, Air-to-Surface Weapons, Ship-to-Ship Missiles and Air-to-Air Missiles.

There are important details to be worked out before we can begin development under the Family of Weapons concept. However, I

believe that the mechanics of how to implement the families concept can be worked out, provided all have the desire and determination to do so.

Consider, for example, efforts related to a potential family of air-to-air missiles. There is a joint Air Force and Navy program underway to develop an Advanced Medium-Range Air-to-Air Missile (AMRAAM) which will be a replacement for the AIM-7 SPARROW. The program has recently completed selection of two contractors who will proceed into a competitive validation phase.

The operational characteristics of the missile being developed were derived from an Air Force/Navy Joint System Operational Requirements document which has been substantiated by a Mission Element Need Statement (MENS), both of which include the F-14, F-15, F-16 and F-18, and we are working with our European Allies to be sure unique European requirements are considered. To promote interoperability, we have requested design packages on European aircraft (MRCA and Mirage 2000) so the validation phase contractors will have the data required for this task.

We have proposed to our allies that the U.S. AMRAAM become the NATO standard for the medium-range missile. In turn, our European partners would develop the next generation short-range missile as the NATO standard. We also agreed that it would be desirable to have a portion of the AMRAAM development carried out in Europe and a portion of the short-range missile development carried out in the United States. We will encourage the AMRAAM contractors to use European subcontractors to bring the best alliance technology to bear on missile development, and we expect similar participation of U.S. industry in the European

program. We have initiated action to schedule two technical interchange meetings to discuss air-to-air missile requirements, European short-range missile technology and AMRAAM technology. Present planning envisions one production line for AMRAAM in the United States as well as one in Europe to encourage procurement of a large NATO inventory of this advanced weapon. Also, we would plan to produce, in the United States, our inventory requirements for the European-developed short-range missile.

d. Effectiveness and Efficiency Through Armament Cooperation

The ultimate objective of armament cooperation is improved combat force effectiveness. So the first test of a candidate program is whether that program will improve the overall effectiveness of alliance forces. Improving the effectiveness of U.S. forces alone is not sufficient. We will be dependent upon the combat effectiveness of the forces on our flanks, and the criterion for force effectiveness must reflect this reality. The importance of our allies is underscored by the fact that U.S. forces today constitute only 20 to 25 percent of NATO's conventionally armed forces in Europe.

A related criterion is efficiency. A cooperative program should not be considered unless we can reasonably expect it to result in improved exploitation of alliance defense resources. We have not taken full advantage of the total economic and technological resources of the NATO countries, and we will be looking to future cooperative programs to do so.

Efficiency should not be judged solely in terms of an individual weapons system or subsystem. Our judgment should be made on

the basis of the improvement offered by the combination of programs in a cooperative agreement. If the program as a whole will improve efficiency and effectiveness, it should be considered favorably.

e. Competition

I have already pointed out that in our national program of armaments development and production competition is vital to maintaining efficiency. I know of no better mechanism to control costs and stimulate peak performance. Our proposed framework for cooperative programs is entirely consistent with maintaining a competitive environment in development and production on all U.S.-managed acquisition programs. Moreover, it is a framework which can actually increase competition throughout the Alliance.

Our actions to establish General MOU's will open up defense markets to competition, removing on a reciprocal basis the barriers resulting from "Buy National" restrictions. Dual production programs provide competitive alternatives to national programs which are often constrained to national markets and associated small-scale inefficient production. Our proposed Family of Weapons includes a mechanism for cross-participation by the partners in development of a family, allowing competition to work in creating the best team. The family approach also provides production data packages, improving the potential for competition in production.

E. OUR PROGRAM

The Defense budget requests \$13.5 billion for RDT&E and \$35.4 billion for procurement of weapon systems and other materiel and supplies. The allocation of RDT&E and procurement resources is provided in Tables I-1 and I-2. Highlights of the program are summarized in the following sections and described in detail in Sections V through IX of the Posture Statement.

1. The Science and Technology Program

The DoD Science and Technology (S&T) Program is made up of the Technology Base, Advanced Technology Developments and the Manufacturing Technology Program. Our funding request provides real growth of ten percent in Research and five percent in Exploratory Development efforts sponsored by the Services; it also provides for a 17 percent real increase in the Advanced Technology Developments. Primary efforts are being focused on a set of high-leverage technologies such as:

- o Precision-Guided Munitions Technology--The DoD precision-guided munitions (PGM) S&T effort will capitalize on advances made in micro-electronics and signal processing. Payoffs include adverse weather and long-range engagement PGM capabilities as well as improved short-range capabilities.
- o Directed Energy Technology--We will concentrate our efforts on identifying the scientific and engineering uncertainties associated with laser and particle beam technology, the means for their resolution, and on determining the feasibility and utility of directed energy weapons for the 1980-1990 environment.
- o Very High Speed Integrated Circuits (VHSIC)--The VHSIC program is designed to expedite innovation in an area essential to DoD's mission, but an area where DoD and commercial consumer needs are diverging. The goal is to achieve major advances in an accelerated time frame in IC technology, including an order of magnitude

reduction in size, weight, power consumption and failure rates and a hundred-fold increase in processing capacity. ICs with these capabilities will allow important and significant advances in cruise missiles, satellites, avionics, radar, undersea surveillance, electronic warfare, communications and intelligence systems.

- o Advanced Composite Materials--Efforts are directed at development of materials that can be used to improve survivability and accuracy of advanced re-entry vehicles under adverse conditions, and to improve the structural performance of a wide variety of military systems.
- o Manufacturing Technology--The program develops techniques to reduce the cost of production of the entire spectrum of commodities purchased by DoD. Illustrative examples include programs in composite materials fabrication, advanced inspection methods, and improved technology for ammunition production.

2. Strategic Programs

We will continue to rely on a TRIAD of offensive forces to ensure that the U.S. maintains a position of essential equivalence. However, we are concerned about the increasing vulnerability and age of these forces, and our key programs are aimed at easing these concerns. We are in the midst of an intensive study on the best way to enhance the survivability of our ICBM forces, and we expect to make a decision on this issue in FY 1979. In FY 1980, we expect to be in full-scale development of a new missile (M-X) and an associated basing system. The SLBM force continues to be our most survivable TRIAD element, and our current actions are designed to provide even greater assurance of its enduring survivability. Introduction of the longer range TRIDENT I missile, to be backfitted into POSEIDON submarines and later deployed on TRIDENT submarines, will allow our submarines to operate in larger

ocean areas, making them harder to find and thereby more survivable. When the quieter TRIDENT submarines are introduced, they will be even harder to find. Development of the TRIDENT II missiles will lead to increased accuracy and throwweight. The air-breathing leg of the TRIAD will rely heavily on the air-launched cruise missile (ALCM)/B-52 combination. ALCM activity will include a fly-off between two candidate missiles leading to a production decision in February 1980.

Our defensive programs are oriented primarily toward Ballistic Missile Defense (BMD) technology development and improvement of our ability to detect and characterize air and missile attacks on the CONUS. Our BMD technology efforts can provide us with an option to deploy a BMD system in the future should we deem it necessary. Air defense will continue to rely on a variety of dedicated active and Air National Guard squadrons, augmented with additional tactical fighters as needed. Programs for warning and detection include improvements to our satellite early warning system and a variety of ground-based radars such as the BMEWS, PARCS, PAVE PAWS, and DEW radars.

Our main concern with strategic control programs is to ensure that we have an adequate, survivable means for controlling our strategic forces; our long-term goal is to make our C³ capability as survivable as our SLBM force. One of the main thrusts is to ensure that the National Military Command System can provide reliable and responsive support through the attack phase of a general nuclear war and into the post-attack period. Key efforts include development of the E-4B Advanced Airborne Command Post; upgrade and expansion of the TACAMO

aircraft fleet for future control of the TRIDENT and POSEIDON submarines in both the Pacific and Atlantic Oceans; and improvements to the AFSATCOM system to ensure worldwide communications to our nuclear forces.

3. Tactical Programs

In view of the destabilizing effect that the increasing capability of Warsaw Pact forces has had on the military balance, U.S. and NATO tactical forces capabilities need to be upgraded. Maximum use will be made of technological superiority and creativity to develop weapon systems able to defeat larger numbers of enemy systems. Reduction in costs for acquisition, operation and maintenance will be achieved by life extension programs and by cooperative programs with our allies.

The modernization of theater nuclear warfare systems includes the 8-inch artillery rounds, a new warhead for the LANCE missile, PERSHING II ballistic missile, the Ground-Launched Cruise Missile, and development concepts for a theater long-range mobile ballistic missile. These efforts include enhancement of system survivability and security.

Land Warfare capabilities are being improved on a broad front. Combat-zone programs such as the SOTAS, TPQ-36 and TPQ-37 radars and the Miniature Remotely Piloted Vehicle, together with longer-range theater surveillance and reconnaissance efforts will provide the battle-field commander with timely and accurate information on the deployment of opposing forces. Close combat systems, such as the XM-1 tank, Infantry Fighting Vehicle/Cavalry Fighting Vehicle, improved Light Anti-Tank Weapon and improved TOW anti-tank missile system will provide a

combined arms force better equipped to defeat a numerically superior armored force. Fire support systems, such as the Advanced Attack Helicopter armed with the HELLFIRE anti-tank missile, the COPPERHEAD laser-guided projectile and the General Support Rocket System, are complementary weapons that in combination will improve our ability to counter and defeat massed armor attacks. The new family of complementary air defense systems, PATRIOT, ROLAND and STINGER missiles and the Division Air Defense Gun (DIVAD), provide the necessary modernization to counter the significantly expanded air threat to our ground forces. Development of a more mobile assault vehicle will improve our amphibious assault capability.

Naval Warfare capabilities will be enhanced by programs such as the LAMPS MK-111 helicopter, the P-3 modernization and its eventual follow-on maritime Patrol Aircraft, and an advanced aircraft carrier. Improvements to the MK-48 torpedo, development of an Advanced Lightweight Torpedo, and development of underwater towed arrays should provide a better capability to cope with the projected increased submarine threat to our sea lines of communication. The surface threat requires that we proceed with programs such as Over-the-Horizon (OTH) Targeting, and the TOMAHAWK, HARPOON and PENGUIN missiles for long-, medium- and short-range application. Improved fleet air defense will be provided by development of systems such as AEGIS and improved standard missiles and deployment of the PHALANX gun system and Improved Point Defense Missile System. Mine Warfare advancements will be provided by such programs as the MH-53E helicopter for minesweeping and

the CAPTOR, Intermediate Water Depth and QUICKSTRIKE mines for deep, intermediate and shallow-depth mining, respectively.

In Air Warfare, continued procurement of the F-14, F-15, F-16 and F/A-18 will ensure that we maintain our current advantage in air superiority capabilities, particularly when development of a new Advanced Medium-Range Air-to-Air Missile and improvements to today's SIDEWINDER are also completed. Continued procurement of the A-10, F-16 and F/A-18 and a variety of systems such as Assault Breaker, Wide Area Anti-Armor Munitions, Imaging Infrared MAVERICK and Air-to-Ground Stand-Off Missiles will improve our ability to support our ground forces in coping with the projected armored threat. Full-scale development of the High Speed Anti-Radiation Missile and advanced development of a short-range Advanced Defense Suppression Missile will provide increased survivability of our aircraft in a difficult air defense environment.

Our mobility forces will be enhanced through a variety of rotary and fixed-wing programs, as well as improvements to our sealift capability. Procurement of the CH-53E and BLACKHAWK modernization of the CH-47 and replacement of our present combat rescue helicopter should significantly enhance the maintainability, reliability and survivability of our helicopter forces, while modification of the C-5A wing, lengthening the C-141 and emphasizing the very efficient CRAF modification program will go a long way toward alleviating our strategic airlift shortfalls. Sealift improvements are being made in the areas of off-shore bulk fuel transfer, underway replenishment and container off-loading and transfer.

Theater and tactical C³I programs are aimed at improving interoperability between the Services and with the general purpose forces of our allies, as well as providing needed mobility features. Greater attention is also being focused on protection of our systems from hostile counter-C³ efforts. Improved theater command and control will be provided by development of a deployable crisis management capability. The control of Naval forces will be enhanced by improved integration and automation of Navy command and control facilities. Improvements in theater and tactical data communications will result from the development of the Joint Tactical Information Distribution System (JTIDS); from programs directed at providing accurate, timely and common perception of the combat situation; and from efforts to overcome the shortcomings to today's friend-or-foe identification systems. Continued deployment of the AWACS, modernization of the EP-3E, and improvements in intelligence support to NATO are intended to enhance our theater surveillance and reconnaissance capabilities, while tactical capabilities will benefit from initiation of the TR-1, development of improved airborne radars, acquisition of complementary ground-based and airborne SIGINT sensors, development of the Precision Location Strike System (PLSS), and evaluation of automated sensor information fusion centers that provide improved near-real-time location and identification of land targets and dissemination of targeting data. Communication systems with greater reliability and survivability will permit us to make better use of forces; specific programs include the Ground Mobile Force Satellite Communications, Joint-Tactical Communications (TRI-TAC)

and Combat Net Radio. Special attention is being focused on upgrading our electronic warfare capabilities, including self-protection systems against Soviet air defense systems and command, control and communication jammers.

4. Defense-Wide Support Programs

Defense-wide C³I programs are designed to enhance U.S. operations worldwide by developing systems that provide a tie between decision-making elements and operating elements in support of both strategic and general purpose forces. Improvements are being made to our intelligence capabilities in areas such as the Consolidated Cryptologic Program, the General Defense Intelligence Program, Indications and Warning Intelligence, and particularly in the use of national and tactical intelligence assets in support of tactical forces. Navigation and position-fixing capabilities will be substantially enhanced by continuing development of the NAVSTAR Global Positioning System and user equipment. Greater communications capacity, reliability and survivability will be provided by development of a follow-on satellite for the Defense Satellite Communications Systems and by other communications efforts, such as the AUTOSEVOCOM II and Digital European Backbone. Opportunities for cost-savings are being enhanced by sharing of satellite communications and consolidation of facilities.

Other key defense-wide support activities include test and evaluation and space and orbital support. The test and evaluation program continues to emphasize the improvement of reliability and reduction of the vulnerability of our weapon systems. Space and orbital

support activity continues to center around the Space Shuttle. We are continuing development of the Inertial Upper Stage to deliver DoD and other shuttle user spacecraft to the required orbits, and we are providing a shuttle launch and landing capability at Vandenberg Air Force Base.

Table 1-1

R&D/FUNDING BY MAJOR MISSION AREA
(\$ Millions)

	<u>FY 79</u> (FY 79 \$)	<u>FY 79</u> (FY 80 \$)	<u>FY 80</u> (FY 80 \$)	<u>% Real</u> <u>Increase</u>
S&T Program	2540	2700	2948	9.2
Defense Research	477	507	573	13.0
Exploratory Development	1550	1648	1739	5.5
Adv. Tech. Developments	513	545	636	17.0
Strategic Warfare	2383	2533	2411	-4.8
Strategic Offense	1701	1808	1589	-12.0
Strategic Defense	408	434	446	2.8
Strategic Control	274	291	375	29.0
Tactical Warfare	5310	5644	5251	-7.0
Land Warfare	1163	1236	1023	-17.0
Air Warfare	1427	1517	1294	-15.0
Naval Warfare	1473	1566	1556	0.6
Combat Support	1248	1327	1378	3.8
Includes Mobility, Logistics, Tactical C ³ , CB Defense, Electronic Warfare, etc.				
Defense-Wide C ³ I	672	714	910	27.0
CDIP	424	451	658	46.0
Global Comm.	248	264	252	-5.0
Defense-Wide Management & Support	1868	1986	2016	1.5
Technical Integration	115	122	129	5.7
Test & Evaluation Support	1001	1064	1064	0.0
Int'l Cooperative R&D	11	12	14	17.0
Management Support	376	400	399	-0.3
Defense-Wide Mission Support	366	389	410	5.4
Includes Space, Weather Support, etc.				
TOTAL	12774	13578	13536	-0.3

Table I-2

PROCUREMENT BY DEFENSE PROGRAM CATEGORY
(\$ Millions)

	<u>FY 79</u> (FY 79 \$)	<u>FY 79</u> (FY 80 \$)	<u>FY 80</u> (FY 80 \$)	<u>% Real Increase</u>
Strategic Forces	2,995	3,160	4,914	56.0
General Purpose Forces	22,141	23,363	23,624	1.1
Intelligence and Communications	3,015	3,181	3,357	5.5
Airlift/Sealift	389	410	402	-2.0
Guard/Reserve Forces	1,448	1,528	1,276	-16.0
Central Supply/ Maintenance	927	978	1,013	3.6
Training, Medical, Other Personnel Activities	452	477	503	5.5
Administration and Associated Activities	48	51	63	24.0
Support to Other Nations	85	90	250	180.0
TOTAL	31,500	33,238	35,402	6.5

IV. INTERNATIONAL INITIATIVES

A. INTRODUCTION

In my overview in Section 1 I described an investment strategy for defense R&D and acquisition which had as one of its major components achieving much greater armaments cooperation with our NATO and other Allies. I see this as indispensable to the common defense. While such cooperation has always been given lip service in NATO, and there have been some solid accomplishments, for the most part such pledges have been honored more in the breach than the observance. However, as I pointed out in Section 1, the steady increase in Soviet military R&D and procurement outlays, which now far outstrip our own, give us no real alternative to wiser utilization of the combined resources of the Western powers if we are to preserve credible deterrence and defense in the 1980s. We and our Allies must squeeze full collective value out of our respective R&D and procurement, and avoid wasteful overlap and duplication, if we are to keep abreast of massive Soviet spending at a cost politically acceptable to our free societies.

As NATO's leading power, the U.S. must give as well as get, in order to promote this more rational utilization of scarce defense resources. The European demand for more of a "two-way street" in reciprocal defense purchases reflects Western Europe's increasing unhappiness with past U.S. domination of the defense R&D process and equipment market. In consequence, our Allies are increasingly

designing and producing their own equipment, a sharp departure from the situation in the 1950s and early 1960s. Unless the U.S. provides positive leadership in establishing cooperative armament programs, this trend will likely continue--both reducing our European exports and preventing essential interoperability.

These concepts provided the rationale behind President Carter's initiatives for greater Alliance Cooperation at the May 1977 NATO Summit, and the May 1978 Summit agreement on a bold Long Term Defense Program. They are the source of my direction from the Secretary of Defense, and they are something I deeply believe to be essential to adequate U.S. defense at a politically acceptable cost. Alone, we cannot meet the challenge posed by massive Soviet and Warsaw Pact military investment outlays without unreasonably high U.S. expenditures. Further, the European nations have the technological capability and political needs to develop and produce modern weapons and will do so independently--but wastefully--if joint solutions are not found.

Hence the primary thrust of our international programs is the enhancement of the overall military capabilities of the NATO alliance to counter the continued growth of the Warsaw Pact forces. The basic objectives of our program are:

- o Reduction of duplicative NATO research and development for more effective and efficient use of collective resources.
- o Promotion of fuller industrial collaboration in military equipment to achieve economies of scale and reduce unit costs.

- o Enhancement of NATO military strength by procuring more and better military equipment because of the effectiveness in R&D and procurement resulting from cooperation.
- o Enhancement of NATO military strength through increased interoperability and standardization of Allied military equipment.

These objectives will not be easy to achieve. They require major changes from nationally-focused armaments planning, development and acquisition to a multinational perspective. Given deep seated national vested interests and all the other obstacles entailed, this transition will only take place gradually over time. But this is all the more reason for accelerating our efforts to rationalize NATO defense R&D and procurement to meet the Warsaw Pact challenge.

Therefore, we have launched a triad of initiatives: First, a series of general Memoranda of Understanding (MOUs) in arms development and procurement; Second, dual production of existing systems on both sides of the Atlantic; and Third, we have adopted a Family of Weapons concept which I will discuss in more detail later. In aggregate, these actions can help insure that NATO forces are equal to the challenge of Warsaw Pact forces. Moreover, I am confident that they will not impair the overall competitive position of our defense industry or undermine our technological positions.

The purpose of the general MOUs is to open up the defense market of each country to international competition and facilitate industrial cooperation among the defense industries of participating nations. We have negotiated such MOUs with the U.K., Canada,

Germany, Norway, the Netherlands and Italy. We have invited other allies to enter into such agreements with the U.S.

Dual production is the second leg of the cooperative triad. When one nation has developed a system which meets the needs of other nations of the Alliance, the developing nation could make its system available for production by other countries. Straight sale of the main systems and spares to another country facilitates operational capability but may seriously impact the in-country employment profile of the receiving country. Dual production alleviates this problem and can lead to the near-term introduction of weapons with the latest technology in NATO's deployed forces without duplicative research and development cost.

The Family of Weapons concept is the third leg of our cooperative triad. We want the \$12 billion we spend and the \$4 to \$5 billion our allies spend on R&D to yield \$16-17 billion in results. Our approach is to examine mission areas to find operational requirements which can only be satisfied by more than one of a "Family of Weapons." When the mission needs of the U.S. and at least one European country coincide both in time and required capability, the U.S. would develop one of the required weapon systems while a European country or consortium would develop the complementary weapon system. The fully developed systems would then be made available to allies for purchase or co-production. Cost savings would be realized in development because of the elimination of

redundant programs. As part of this concept, the defense industries of the cooperating countries would participate in the development program of the other to make certain that the best technology was available and that the operational and technological requirements of all countries are satisfied. It is important to stress that for U.S. developed systems the U.S. prime contractors, subcontractors and European subcontractors will be chosen on a competitive basis to insure the lowest cost and there will be early participation by industry with a minimum of government involvement in licensing and industrial teaming negotiations.

We believe that the cooperative programs which we recommend will not lead to the loss of jobs within the U.S. industrial base. Indeed, this danger is much more real if we do not improve cooperation and thus further encourage the "Buy European" approach which has been developing in Europe.

Finally, in order to further our objectives we need an effective technology transfer policy. Such policy must be uniformly applied in both export case decisions (FMS, Munitions, U.S. Exports and COCOM) and in the multiple government-to-government channels for cooperation in science and technology with our Allies. Two points should be made with regard to our overall international strategy; First, we should consider technology transfer not only in terms of the risk of compromise and threat to our competitive position but also in terms of the risk to NATO effectiveness if

our policies are too restrictive. In the interest of common defense we want our Allies to have equipment comparable to ours. Only in this way can they adequately meet their share of the common defense burden. Second, technology transfer is also a two-way street--we stand to gain by capitalizing on our Allies' technological and industrial strengths.

B. PROGRESS TOWARD ARMS COOPERATION

1. Key Cooperative Programs

Table IV-1 at the end of this chapter presents a comprehensive summary of programs and activities underway that demonstrate progress toward the objective of improving cooperation in arms development and production. While many of these projects will take time to reach fruition, they represent a notable increase in allied efforts to cooperate in concrete ways. We are making a good beginning, some of the highlights of which I will discuss below.

NATO Airborne Early Warning and Control (AEW&C) Program

This program includes planned acquisition and operation of 18 E-3A aircraft (in a standard configuration with U.S. AWACS aircraft); modifications to make 52 ground sites interoperable with the AWACS aircraft; and refurbishment of a main operating base and other support facilities. U.S. participation in this program will be in two capacities, first as agent for NATO's acquisition of the E-3As and second as purchaser and user of the system. The U.S. Air Force as agent will work with the NATO AEW&C

Program Management Organization to procure the 18 AWACS aircraft. As a member of NATO, the U.S. will also participate in both the management and operation of the NATO Airborne Early Warning and Control System.

The multinational NATO AWACS program will be the largest, single commonly-funded project ever undertaken by the Alliance. In taking this crucial step to counter the Warsaw Pact low-level air threat, NATO has demonstrated its military and political solidarity. NATO Defense Ministers formally approved the NATO AEW&C program during their 5-6 December 1978 Defense Planning Committee (DPC) meeting in Brussels.

120mm Tank Gun

The German 120mm smoothbore gun system was selected for future incorporation on the XM-1 as a result of a U.S. evaluation of the FRG and U.K. 120mm tank main armament systems. It consists of a 120mm smoothbore cannon of German design using a fin-stabilized family of ammunition composed of kinetic energy and high explosive service rounds and two companion training rounds. A DSARC production decision is now anticipated in September 1982, and the first production delivery of a XM-1 tank equipped with the 120mm gun is currently planned in late FY 84.

The U.S. is negotiating a licensing agreement with the German producer and an addendum to the December 1974 US/FRG MOU for tank harmonization with the FRG for U.S. production of their gun system.

It is also anticipated that the U.S. and the FRG will participate in a cooperative effort to develop modern-technology 120mm ammunition. Configuration management working groups have been established to assure the maximum degree of standardization and interoperability. The approved FY 1979 funding level for this program is \$35.6M.

General Support Rocket System (GSRS)

The General Support Rocket System (GSRS) is a multiple-launch rocket system designed to deliver a large volume of firepower in a short period of time against critical, time-sensitive, area-type targets, particularly during surge periods when the rate of targets acquired exceeds available cannon weapons fire support. This system is following an accelerated acquisition cycle with DSARC III scheduled in May 1980. Currently, the U.S., France, the FRG and the U.K. are negotiating an MOU for a cooperative development program for a Multiple Launch Rocket System (MLRS), scheduled to be signed in Spring 1979. If signed, all four countries will adopt a standardized MLRS, which will be the GSRS. Italy has also expressed interest in the system. The Army FY 80 budget submission included the funds necessary to start Low Rate Initial Production beginning in FY 80.

Advanced Medium-Range Air-to-Air Missile (AMRAAM)

AMRAAM is an all-weather, all-aspect, radar missile capable of engaging numerically superior aircraft forces before

they close to within visual range. This missile will have the capability for multiple launches at beyond visual ranges and become autonomous soon after launch to permit the launch aircraft to maneuver and/or engage more targets quickly. It will be compatible with the F-14, F-15, F-16 and F-18 aircraft as well as applicable Air Defense and Air Superiority NATO interceptor aircraft of the late 1980s. The AMRAAM program has passed DSARC I for initiation of the competitive prototype phase with deliveries anticipated in the mid 1980s. Missile development is in response to a Joint Service Operational Requirement (JSOR) and a Mission Element Need Statement (MENS) and is consistent with NATO requirements being formulated in NAFAG Subgroup 13. All five of the participating contractors have contracted NATO industry for potential technical support. Initial exchange of aircraft/missile interface data requirements has occurred with the U.K. In consonance with ongoing efforts for agreement on a NATO family of air-to-air missiles, the AMRAAM program has initiated planning for early NATO industry participation in full-scale development leading to U.S./NATO co-production. AMRAAM is fully funded for the prototype phase leading to Milestone/DSARC II.

2. Long Term Defense Program (LTDP) Implementation

The LTDP adopted by heads of the North Atlantic Alliance governments in May 1978 recognized at the highest political level the need for the Alliance to intensify a collective cooperative

effort in defense preparedness in order to counter the Warsaw Pact buildup. Although much of the LTDP is focused on upgrading Alliance readiness, quicker reinforcement and better logistics cooperation, it also calls for cooperative development of numerous defense systems. The triad of cooperative activities which we have begun will greatly facilitate their successful completion. In turn, the impetus and common context provided by the LTDP will also increase our chances for success in other cooperative projects.

3. Periodic Armaments Planning System (PAPS)

Substantial progress has been made over the past year toward the development of a framework for a NATO armament planning system. Creation of an institutionalized process for planning and programming key NATO research, development and procurement actions is fundamental to more efficient resource allocations within the Alliance.

During the past year, the recommended framework was developed under the direction of the Conference of National Armaments Directors (CNAD). The framework gives due recognition to the sovereignty of nations in equipment decisions by using the basic existing Alliance structure without radical change. Initial efforts focused on the development of mission needs and the early phases of the life cycle of a weapon system at the time when arms cooperation among partners can be most effectively achieved. By Spring 1979 we expect to have a detailed plan for trial implementation of these early phases.

C. CONGRESSIONAL/INDUSTRY ROLE

Our initiatives for defense cooperation are very complex efforts in which the partnership participation of Congress and U.S. industry is a prerequisite to success. Hence during the past year we have tried hard to further a better understanding of our goals in Congress and with U.S. industry. For example, the extensive hearings of the HASC Subcommittee on Standardization, Interoperability and Readiness provided an excellent forum for fully describing the scope and thrust of our efforts. They also gave us an opportunity to better understand Congressional concerns about some of the aspects of RSI, particularly as related to the Family of Weapons concept and to the issue of technology transfer.

I would strongly reiterate the need for Congressional support of our legislative proposals that would permit the Secretary of Defense to waive certain restrictive statutory provisions when they impede our entering into desirable agreements or contracts with allied governments and international organizations. Clearly, such agreements or contracts involve considerations of sovereignty and national foreign relations policy which are not present in purchases by the Department of Defense from private commercial parties. DoD legislative proposal 96-4 would facilitate the entering into mutual logistics support agreements with NATO governments and organizations covering such things as rations, billeting, transportation, fuel, medical supplies, ammunition,

base operations support, storage facilities, and training ranges. It would not cover the purchase of major equipment. DoD legislative proposal 96-5 would facilitate our acquisition of property and services in furtherance of cooperation arrangements in the interest of NATO standardization and interoperability.

We have actively solicited the advice and assistance of U.S. industry in several industry-DoD meetings specifically organized for this purpose. The Defense Science Board Summer Study on RSI provided us with both a constructive critique of our approach and a specific set of recommendations for action many of which are now being implemented. One example of the implementation actions is the DSB-sponsored study group that will address the practical aspects of the Family of Weapons concept as applied to air-to-air and Anti-Tank Guided Weapons.

The issue of intellectual property rights is a potential stumbling block to RSI and co-production programs. Contractors are concerned that their proprietary data may be disclosed to foreign competition against their will and without their full compensation. A committee of the Conference of National Armaments Directors (CNAD), referred to as AC/94, was tasked a year ago to study and identify the obstacles to cooperative programs in this area, and to recommend solutions. Since then, AC/94 has presented to the CNAD a set of principles, and specific guidelines for implementing them. Essentially the guidelines provide that

Governments must lay early groundwork in R&D contracts to facilitate the licensing of resulting systems and encourage other NATO partners to standardize on them. The CNAD accepted the principles and guidelines provisionally, and on condition that industry be fully consulted. A concerted effort has since been made to inform industry, both at home and abroad, and to solicit support. A special delegation of the NATO Industry Advisory Group appears to be on the verge of agreement on the final principles and guidelines. This should clear the way for final CNAD approval, and full implementation throughout the Alliance.

D. NON-NATO INITIATIVES

Middle East. Defense cooperation with allied and friendly Middle-East nations is primarily accomplished through security assistance sales and commercial munitions licensing procedures.

Northern Pacific. The focus of Defense R&D cooperation in the Northern Pacific region is primarily with Japan and the Republic of Korea.

With regard to Japan, this key ally is beginning to strengthen its defense forces and defense industry. Exploratory discussions of cooperative development/production/system interoperability have been initiated whereby both the U.S. and Japan will seek ways to selectively improve defense cooperation on a mutually beneficial basis. Working level discussions commenced in November 1978 in preparation for R&D policy level meetings in the Spring 1979.

E. PRIORITY EMPHASES FOR 1979 AND BEYOND

In the coming year, I will emphasize effective implementation of the triad measures with our NATO Allies as a means to improve the use not only of U.S. resources, but those of our Allies as well, in our common defense. Implementation of the General MOUs is well underway. I would expect to see significantly greater transatlantic procurements building over the next couple of years mirroring our experience with the U.K. since that MOU was signed in 1975.

We will offer additional U.S.-developed systems for production in Europe where this would advance the military effectiveness and promote efficient resource usage in the Alliance and will consider European-developed systems for our production.

Implementation of one or two programs in the Family of Weapons will be a high priority during 1979. Because of the enormity of simultaneously satisfying multinational requirements, schedules, industrial interests, economic factors, foreign policy, etc. the long term future of the Family of Weapons concept will depend heavily on whether our initial efforts in 1979 are successful.

I have given priority budget emphasis to those acquisition Programs most needed for improved capability in NATO, particularly where other Allies are also relying on the program for their defense, and I am giving priority management attention to the successful execution of these programs.

Table IV-1

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
<u>ARMY</u> <u>ROLAND</u>	FR FRG Norway	Short range air defense system, developed by FR/FRG, which is intended to protect the Corps and Division areas.	- o FRG/FR/US established Joint Control Comm to insure max standardization - o 90% of field-replaceable sub assemblies interchangeable.
<u>COPPERHEAD</u>	UK FRG IT	155mm cannon launched projectile, developed by the US, which gives ARTY systems capability to engage stationary and moving armored targets with direct fire.	- o Interoperability with non-US artillery systems - o MOU with UK signed June 78 (FMS, or coproduction at UK's option) - o Possible collaboration with FRG and IT
<u>MOD FLIR</u>	FRG	Family of forward looking IR common modules (MOD FLIR) developed by US for use in target acquisition and fire control systems, e.g., TOW Night Sight (AN/TAS-4) and Tank Thermal Sight (AN/VSG-4).	- o MOU with FRG signed April 78 (FMS and coproduction) - o Same modules used in Navy and AF airborne FLIR's - o Possible employment by many Allies
<u>MAIN BATTLE TANKS</u>	FRG UK Netherlands	US/FRG MOU for harmonization of Main Battle Tanks (XM-1, Leopard II, etc.) was initiated in Dec 74, Addendum added in July 76, and amended in Jan 77 to include standardization of key tank components.	- o NATO harmonization/standardization of Main Battle Tanks - o Fuel and organizational level metric fasteners have been standardized. - o US plans to adapt the FRG 120mm gun to the XM-1 - o Initiatives in achieving a common sprocket interface design may result in near-term track interoperability.
<u>PATRIOT</u>	Netherlands Belgium Denmark Greece FRG FR	Surface-to-air, medium and high altitude, air defense system designed to counter the field Army air defense threat of the 1980's and 1990's.	- o NATO RSI of air defense systems - o MOU signed, Oct 78, by Netherlands, Belgium, Denmark, Greece, and US to determine preferred European option to acquire PATRIOT - o MOU signed 15 Jan 79 by France and 17 Jan 79 by FRG

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
ARMY (Cont'd) <u>STINGER</u>	FRG Italy Norway Netherlands	Advanced man-portable air defense system (MANPADS), which is the follow-on of the REDEYE system. It uses a passive IR homing guidance system which operates independently after initial arming and launching by the operator. Target engagement will be possible regardless of engagement aspect. STINGER and Swedish RBS-70 (3 man team) are the leading contenders for future NATO MANPADS weapons.	- o NATO RSI of short range air defense (SHORAD) systems. - o Approved for production 1977-- expected to be produced for NATO use. - o STINGER requirements discussed in NAAG Panel V, Land Based Air Defense Weapons. Formal briefing by US Reps scheduled for Spring 79 meeting.
<u>GSRS/MLRS</u>	FRG FR UK Italy	General Support Rocket System (GSRS)/ Multiple Launch Rocket System (MLRS) designed to deliver large volume of ordnance in a short period of time against critical, time sensitive, area-type targets.	- o NATO RSI of general support systems - o US, FRG, FR, and UK are negotiating an MOU for cooperative development program for MLRS.
<u>ASH</u>	FRG FR UK Italy	Advanced Scout Helicopter (ASH) is a day-night/adverse weather, combat survivable aerial scout system designed to provide surveillance, security, target acquisition, and laser designation functions for precision guided munitions.	- o NATO RSI for helicopters. - o ASH requirement briefed to NATO Panel X (Tactical Air Mobility). - o In interests of NATO RSI, US offer being made to NATO nations for possible production programs. - o Italy has expressed interest in commonality between ASH and their AGUSTA A-129 "Mongoose" helicopter.
<u>ATGM</u>	All NATO Nations	Anti Tank Guided Munitions (ATGM) Improvements formerly Advanced Heavy Anti-Tank Missile System (AHAMS) will provide evaluation of critical components for Army's next generation infantry heavy anti-tank weapon to replace improved TOW in all configurations (ground, vehicle and helicopter modes). Evaluation will include	- o NATO RSI of anti-armor systems. - o NATO has agreed to being cooperative anti-armor system program family package.

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
ATGM (Cont'd)		components for improved capabilities against projected threat armor and operation in sophisticated counter-measures and battlefield obscuration environment.	
<u>NAVY</u> <u>NATO ASSM</u>	UK	US Navy's NATO Anti-Surface Ship Missile (ASSM II) is a second generation system, similar to HARPOON in size and range, but will be able to accept varying modules within its configuration to meet different NATO nations requirements	- o NATO RSI of anti-surface ship missile - o NATO Project Group 16 of Naval Armaments Group working on development of second generation anti-surface ship missile.
<u>NATO SEA GNAT</u>	All NATO Nations	Ship-launched decoy system to protect against air and sea launched anti-ship missiles	- o Goal - provide NATO with standardized decoy system with resultant economies in development costs as well as potential savings in procurement and logistics costs. - o Coop R&D effort, sponsored by NATO Naval Armaments Group, under MOU signed in 1976. - o NATO SEA GNAT project established in 1977 by consortium of NATO nations.
<u>Mid-Course Guidance</u> <u>System</u>	FRG	Anti-Ship Missile Defense system, which has capability of rotating.	- o NATO RSI of anti-ship missile defense systems. - o MOU between US and FRG for Mid-course Guidance demonstration program proposed under Weaponizing Prototypes using guidance from rotating and utilizing self defense VELARC (vertically launched) missile

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
<u>IRST</u> <u>NAVY (Cont'd)</u>	Canada Denmark FRG FR UK Netherlands Norway	Ship board IR Search and Track System (IRST). Joint US/Canada three-phased program, under MOU, signed in 1976. Phase I - demonstration of feasibility to form basis for providing operational capability, Phase II - T&E. Phase III - procurement.	- o NATO RSI of electro-optical devices. - o NATO Project Group to consider coop development and production of IRST. - o Strong possibility that other NATO nations will participate in IRST development and procurement phases.
<u>P-3 ORION</u>	Canada Netherlands Norway	Maritime patrol aircraft with missile for surveillance, location and attack operations against submarines and surface ships.	- o NATO RSI of anti-submarine systems. - o Studies results indicate that P-3 is one of NATO's most effective and economical anti-submarine systems.
<u>HARPOON</u>	FRG UK Netherlands Denmark Turkey	Anti-Surface ship missile which would be launched from ship, submarine, aircraft, or shore.	- o NATO RSI of anti-surface ship systems - o Currently in use by Netherlands, Denmark and Turkey. - o UK and FRG will take deliveries on their purchases starting in CY 1980.
<u>PENGUIN II</u>	Norway Greece	Norwegian PENGUIN MK 2 system provides combatant craft and patrol boats with means to launch surface-to-surface anti-shipping missiles against surface vessels.	- o NATO RSI of anti-surface ship systems - o US Navy negotiated MOU with Royal Norwegian Navy (RNON) on test and evaluation project to adapt PENGUIN MK 2 to US Navy combatant craft. - o PENGUIN MK 1 was developed in 1962-1970 by RNON, with US Navy participation.
<u>NATO SEASPARROW</u>	FRG Italy Belgium Denmark Netherlands	Point defense missile system, which includes fire control radar, launcher and a variation of the SEASPARROW missile intended to provide point defense to various classes of ships.	- o NATO RSI of naval point defense systems. - o MOU, signed in 1977 with US, FRG, Italy, Belgium, Denmark and Netherlands to form consortium to produce NATO SEASPARROW. - o As of Nov 78, US ships and NATO Consortium ships have installed NATO SEASPARROW.

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS																		
<u>NAVY (Cont'd)</u> <u>SONOBUOYS</u>	FRG FR UK Canada	US Navy participation in NATO Sonobuoy (aircraft launched submarine acquisition system that deploys a sonic listening device which transmits signals to the aircraft) Interoperability Demonstration hosted by the French Navy in France on 4-6 Oct 78. Demonstration included: sonobuoy handling; sonobuoy launching from aircraft; and VHF data link between sonobuoys and aircraft with simultaneous monitoring by shore based facility.	- o Interoperability of sonobuoys and launching mechanisms in ASW/maritime patrol aircraft employed by NATO nations. - o Demonstration proved NATO has attained high degree of interoperability of sonobuoys. - o Systems included were:<table><thead><tr><th>Nation</th><th>Aircraft</th><th>Sonobuoy</th></tr></thead><tbody><tr><td>US</td><td>S-3A, P-3B, P-3C</td><td>AN/SSQ-41A, 41B, 36, 57A</td></tr><tr><td>FR</td><td>ATLANTIC</td><td>DSTV-4L</td></tr><tr><td>UK</td><td>NIMROD</td><td>Type 30068</td></tr><tr><td>FRG</td><td></td><td>AN/SSQ-41A (HERMES)</td></tr><tr><td>Canada</td><td>ARGUS</td><td>AN/SSQ-517B</td></tr></tbody></table>	Nation	Aircraft	Sonobuoy	US	S-3A, P-3B, P-3C	AN/SSQ-41A, 41B, 36, 57A	FR	ATLANTIC	DSTV-4L	UK	NIMROD	Type 30068	FRG		AN/SSQ-41A (HERMES)	Canada	ARGUS	AN/SSQ-517B
Nation	Aircraft	Sonobuoy																			
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UK	NIMROD	Type 30068																			
FRG		AN/SSQ-41A (HERMES)																			
Canada	ARGUS	AN/SSQ-517B																			
<u>ERMIS</u>	FRG FR UK Netherlands	U.S. Navy participating in NATO project to develop explosive resistant multi-influence sweep system (ERMIS) specially designed "guinea pig" ships to counter the pressure influence sea mine and withstand repeated explosions of such mines beneath the ERMIS.	o MOU signed in Sep 78, with FRG, FR, UK and Netherlands, which covers the initial 2-3 years of the ERMIS development. The MOU goal is to proceed with construction of two prototype ships. Actual construction expected to proceed under subsequent MOU. Each nation will contribute approximately \$160K (US) to cover project's work during period of current MOU.																		
<u>AIM-9L</u>	FRG UK Italy Norway	IR air-to-air missile to be employed on numerous NATO aircraft, including the F-16 and MRCA.	- o NATO RSI of air-to-air missiles - o MOU, signed in Oct 77, with FRG to lead European consortium to co-produce the AIM-9L missile in Europe. UK, Italy and Norway are participating. FRG now arranging for manufacture of specific parts by each country.																		

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
<u>F-16</u> <u>AIR FORCE</u>	Belgium Denmark Netherlands Norway	F-16 Multinational Fighter Aircraft Program is a joint development/production effort between the US and European Participating Governments (EPG's).	- o NATO RSI of Fighter Aircraft. - o MOU between US and EPG's was signed in June 1975. - o Letters of Offer and Acceptance totalling over \$2.6B signed in May 77 for purchase of 348 EPG F-16 aircraft and associated support.
<u>NAVSTAR</u>	FRG FR UK Canada Belgium Denmark Norway Netherlands Italy	NAVSTAR Global Positioning System (GPS) is a satellite-based, universal positioning and navigation system. It was designed by the US to provide precise position information and time for accurate world-wide weapons delivery and reduce proliferation of navigation aids.	- o Provide continuous world-wide, all-weather positioning system for NATO use. - o MOU, signed in Apr 78, with nine Allies for NATO participation in NAVSTAR GPS. MOU created a NATO team located at the NAVSTAR Joint Program Office (JPO) LA, AFS Calif. - o CNAD and the Tri-Service Group on Comm and Electr Equip (TS6CEE) created the NATO GPS Group (PG-1 under AC 302).
<u>ATLIS II</u>	FR	USAF has proposed joining the French ATLIS II pod development program to satisfy requirements for a near term, day, laser target designator for use by single-seat aircraft, such as the F-16.	- o NATO RSI of laser target designators for aircraft. - o Informal negotiations resulted in draft MOU for US to acquire 2 prototype pods for engineering and flight T&E in FY's 79 and 80. - o ATLIS II, with US/FR interest now and possible UK participation later, could become part of the NATO family of air-to-ground systems.
<u>JP-233</u>	UK	UK developed airfield attack system consisting of area denial and cratering submunitions for low-level high speed deliveries. The US has no capability to accomplish this task with current conventional munitions at the extremely low altitudes necessary to minimize losses to our attack aircraft.	- o Standardize upon single interoperable munition for airfield attack. - o In interests of NATO RSI and the "two way street," the UK offered JP-233 to the US for coop development.

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
<u>AIR FORCE (Cont'd)</u> <u>STREBO</u>	Several NATO Nations	FRG's STREBO anti-armor seek cluster munitions. US now has program to test several STREBO submunitions and the complete MW-1 system on the A-10 aircraft. Since STREBO in early development (now in AD), US decision to test prototype submunitions to determine potential operational utility. STREBO dispenser redesign needed for USAF strike aircraft and tactics.	- o NATO RSI of anti-armor munitions. - o STREBO BL-755 is in inventory of several NATO nations.
<u>AWACS</u>	Several NATO Nations	E-3A Airborne Warning and Control Systems (AWACS) combines sophisticated radar with advanced data processing and commo systems in a modified Boeing 707 aircraft to provide mobile, survivable, jam resistant, wide area all altitude air surveillance command control.	- o NATO RSI of AEW systems. - o In 1975, NATO judged AWACS superior to other AEW candidates. - o In 1977, UK began development of their own AEW aircraft (NIMROD). - o MOU was approved for our participation and funds for our share of program will be sought in early 1979.
<u>HARASSMENT DRONE</u>	Several NATO Nations	FRG developed HD is a low radar cross-section, expendable vehicle designed to harass the enemy's threat radars by delivering a warhead to damage the equipment. It is a one way vehicle to eliminate post launch C2, recovery and refurbishing problems. Preprogrammed flight profiles eliminate enemy intrusion and takeover.	- o NATO RSI of harassment drones/EW systems. - o NATO Long-Term Defense Program (LTDP) as the #3 priority program for improving the air EW capability of NATO in the 1980's.
<u>AMRAAM</u>	All NATO Nations	Advanced Medium Range Air-to-Air Missile (AMRAAM) is an all weather, all aspect, radar missile capable of engaging numerically superior aircraft forces before they close to visual range. It will have compatibility for multiple	- o For NATO family of air-to-air missiles AMRAAM program initiated planning for early NATO industry participation in full scale development, leading to US/NATO coproduction. - o All five US aerospace contractors,

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
AMRAAM (Cont'd)		launches at beyond visual ranges and becomes autonomous soon after launch to permit the launch aircraft to maneuver and/or engage more targets quickly. It is being developed to replace the SPARROW AIM-7F missile.	competing in the Concept Definition (CD) Phase, have contacted NATO industry for technical support (one, Ford Aerospace, has three NATO sub-contractors for seeker, fuze and warhead). The UK, Italy and FR currently have a BVR missile capability. - o AMRAAM NATO RSI plan has been developed. - o Analyses indicated that USAF fighter aircraft and EPG F-16's with AMRAAM's will have NATO capability. - o AMRAAM will be compatible with F-14, F-15, F-16 and F-18 aircraft, as well as applicable Air Defense and Air Superiority NATO Interceptor aircraft of the late 1980's.
AMMO COMMONALITY <u>155mm AMMO</u>	UK FRG Italy	155mm weapons and ammo standardization with participating NATO nations.	- o 155mm ammo RSI within NATO. - o MOU with UK, FRG, Italy signed in 1969, revised in 1978. Revision requires participating nations to develop only 155mm ammo that meets criteria in MOU and that ammo and howitzer development conform to ballistic parameters in MOU.
<u>120mm (Tank Gun)</u>	FRG UK	US/UK/FRG program conducted for standardization of tank main armament systems.	- o Tank Gun ammo S/I within NATO. - o FRG 120mm smoothbore gun selected for XM-1 as result of tests of US's 105mm, UK's 120mm rifled bore and FRG's 120mm, all firing improved ammo. - o Configuration management working groups established for max S/I for NATO use.

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
<u>20-40mm</u>	UK FRG FR	Standardized families of ammo between 20-40mm calibers.	- o Goal—that within 15-20 years NATO nations will have no calibers between 20-40mm which are not interoperable. - o Ad Hoc Group of tech members of US/UK/FRG/FR has worked toward agreement on standard families of ammo between 20-40mm calibers.
<u>NATO Small Arms Ammunition</u>	Belgium Canada Denmark FR FRG UK Greece Netherlands Norway Luxembourg	NATO program for standardized interoperable small arms ammo within NATO.	- o NATO S/I of small arms ammo. - o MOU between eleven NATO nations for T&E and selection of second NATO standard of small arms ammo, as well as NATO infantry weapon. - o NATO standard 7.62mm ammo will continue as NATO cartridge for use in heavy weapons, such as crew served machine guns.
<u>Communications and Identification Systems</u> <u>Identification (IFF)</u>	All NATO Nations	Systems capable of positive and reliable identification of friends or foes (IFF) is problem common to all weapon systems, especially those engaging targets beyond visual range. US participating in NATO-wide architecture and development of NATO Future Identification System (FIS) that will overcome short comings of current Mark XII IFF, which is early 60's design.	- o Achieve NATO IFF interoperability. - o NATO operational commanders emphasis on IFF system to preclude self-inflicted losses, as demonstrated during 1973 Middle-East War. - o STANAG for signal architecture of NATO FIS has been drafted by TSGCEE Sub-Group 6. If systems proposed could provide NATO with significant improvements over MARK XII, Mode 4 within next seven years, it will be difficult to justify a NATO investment for Mode 4 equipment. Conversely, if proposed FIS system

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
<u>Identification (IFF) Systems (Cont'd)</u> <u>Tactical Area Communications</u>	All NATO Nations	During past several years, NATO nations agreed to device allowing limited degree of interoperability among tac area commo systems. Since this is hardly adequate, a major effort is currently being made to improve interoperability.	requires lengthy development program, prior to T&E, then earliest possible NATO implementation of Mode 4 appears warranted. - o Goal - NATO nations expected to field completely interoperable tac area commo equipment. - o During interim period, NATO nations striving for improved interoperability between existing and new systems.
<u>Combat Net Radio</u>	All NATO Nations	US has proposed, under auspices of the TSGCEE, NATO nations study, define and agree to NATO ECCM technical interoperability standards for VHF tactical single channel combat net radios (CNR) for post 1985 time frame.	- o NATO interoperability of all combat net radio equipment. - o US offered NATO nations participation in US funded SINGARS V ECCM development and testing to provide them with threat, R&D and test data produced as well as insuring NATO interoperability. - o NATO Ministers agreed that all new combat net radio equipment introduced after 1985 would be designed to common specs, or common standards.
<u>SATCOM</u>	UK	Satellite Communications (SATCOM) sharing between US, UK and NATO SATCOM assets to enhance NATO interoperability.	- o Goal - Completely interoperable NATO Satellite Commo systems and ground terminals. - o US and UK have made use of NATO satellites 111A in the Atlantic area and NATO 111B in East Pacific. - o US has used UK SKYNET satellite to provide communications for special users.

Table IV-1 (Continued)

KEY NATO PROGRAMS

PROGRAM	ALLIES	DESCRIPTION	RSI GOALS AND ACHIEVEMENTS
<u>JTIDS</u>	UK FR FRG	Joint Tactical Information Distribution System (JTIDS), in joint development by US, will provide means of interconnecting and facilitating real time, jam resistant, secure exchange of combat critical communications between tactical force elements.	- o Goal - provide jam resistant communications systems interoperability with NATO. - o MOU with UK, signed in Dec 78. - o US-FR tech exchanges held to achieve interoperability between JTIDS and French developed system. - o As NATO nations adopt JTIDS, or introduce JTIDS compatible equipments, significant improvements in interoperability between tactical elements NATO forces will be achieved.

**THE DEPARTMENT OF DEFENSE
WRITTEN STATEMENT ON
NATO-IMPROVED ARMAMENTS
COOPERATION**

by

**The Honorable William J. Perry
Under Secretary of Defense for
Research and Engineering**

to the
**Research and Development Subcommittee
of the
Committee on Armed Services
of the
United States Senate
96th Congress, First Session**

April 4, 1979

Mr. Chairman, Gentlemen:

The focus of my statement is on improved armaments cooperation within the North Atlantic Alliance. Before describing our program for improved cooperation, I will briefly discuss the challenge which confronts us, and the investment strategy developed to counter that challenge. Our program for improved armaments cooperation should be viewed in the context of that strategy.

One measure of the challenge which we face is relative defense investment. The CIA has compared the dollar costs of Soviet and US Defense activities from 1967-1977. Their comparisons reflect a decline in real US defense spending during this period, while Soviet defense costs have grown at 4-5 percent per year. In 1977, estimated Soviet defense expenditures exceeded corresponding US expenditures by 25 to 40 percent. In investment, Soviet expenditures were estimated to be about 75 percent greater.

These additional expenditures are being applied by the Soviet Union to sustain a significant production advantage. For example, the Soviets are producing new tanks, guns, and aircraft at a rate from two to five times that of the US. This advantage is worrisome in two respects: (1) it indicates that the present numerical imbalance

is going to be even worse in the future, and (2) it raises concerns about maintaining our present qualitative advantage in the face of Soviet production programs often characterized by the fielding of two successive generations of a system while we are fielding one generation.

This is the nature of the challenge. However, we are not without strengths of our own in meeting this challenge. We have the greatest technological capability and the strongest industrial base in the world. And we have Allies who, in aggregate, have technological and industrial capability equivalent to our own.

In my Posture Statement for FY 1979, I described an investment strategy for our Research, Development and Acquisition program that was designed to meet the challenges I have described by exploiting our principal strengths. This investment strategy has three components:

- o Selective concentration on those technologies which have the greatest potential of multiplying the effectiveness of our forces,
- o More effective exploitation of our industrial base,
- and
- o Increased cooperation with our Allies in the development and procurement of weapons.

After more than a year of applying this investment strategy, I still believe that it is the proper basis for planning our RD&A programs, and cooperation with our Allies remains as a central element.

Let me now focus on this element. US forces today constitute only 20 to 25 percent of NATO's conventionally armed forces in Europe. Our forces are dependent upon the combat effectiveness and sustainability of the forces on their flanks. Our efforts to achieve cooperation must reflect this reality. The Culver-Nunn Amendment does reflect this fact--"the policy of the US is that equipment procured for the use of personnel of the Armed Forces of the United States stationed in Europe under the terms of the North Atlantic Treaty should be standardized or at least interoperable with equipment of other members of the North Atlantic Treaty Organization."

I note further that the bipartisan leadership of the Congress, and both Presidents Ford and Carter have called for greater armaments cooperation with our NATO allies. President Carter, in a broad initiative at the NATO Summit meeting, stressed alliance agreement to improve armaments collaboration. However, despite this important policy structure, there remain major obstacles to allied cooperation in armaments development and production.

NATO is an alliance of fifteen independent nations, and it is inherently difficult for any one of them to subordinate its sovereign rights for the benefit of all. Each of the nations has its own laws and regulations for the procurement of defense equipment, and these laws generally are designed to protect perceived national interests. In this regard, there are two principal barriers to improved cooperation:

- o The European NATO countries have built up their defense industries this past decade and some are fearful that cooperation with the US may threaten these industries.
- o Legislation in the US, designed to protect US industry from foreign competition, inhibits the formulation of cooperative programs.

New Framework

Recognizing these significant barriers, we are proceeding with a new framework for cooperation in development and procurement.

The need for a new framework is evident in view of the cumulative inertia of 30 years of failure with the many tales of why it will not work. It is also evident in view of the emerging strength of the European defense industry. This industry now has the capability to develop and produce nearly every type of weapon system; it has a significant sales base outside of NATO; it provides jobs that

have become important to the economies of these nations; and it has gained confidence in the implementation of multi-national cooperative projects.

Our primary objective in this new framework is to achieve improved combat effectiveness. Thus we must make it possible for all within the alliance to seek out the best equipments and to relentlessly insist upon interoperability and standardization in the acquisition and use of these equipments. The result will be excellence of equipment, readiness of forces, and the ability to operate together.

Our second objective is to further the overall strength of the alliance, recognizing that strength means more than military forces alone. Thus we are seeking to promote and maintain a technically advanced, industrially productive and economically viable defense industry on both sides of the Atlantic. We are seeking to reduce the harmful duplication of resources, and to provide a tangible basis for renewed political cohesion within the alliance. If we are successful, the result will be an industrial base capable of offering continued excellence in the weapons we seek, a capacity to equitably share in the burdens of defense, and increased popular and political support for the alliance.

We can achieve these objectives with leadership, commitment and the proper attention to economic incentives.

Initiatives

We have initiated within the alliance a triad of cooperative actions along with a supporting management structure. The triad includes: General Memorandum of Understanding (MOUs) in reciprocal purchasing; Dual Production in NATO countries; and the Family of Weapons.

The purpose of the general MOU's is to facilitate competition by NATO's defense industry in the defense market of each NATO country. These MOU's waive various "Buy National" restrictions on a reciprocal basis. Consequently, each nation will be able to seek out the best equipments for their money without artificial restraints. These equipments may be end items or components for a locally assembled equipment.

We have already negotiated such MOU's with the UK, Canada, Germany, Norway, the Netherlands, and Italy. It is too early to forecast the precise benefits which will result from these MOU's. Nevertheless, initial results are encouraging, and I believe that this approach is valid for the whole alliance. We have invited NATO countries who have not yet done so to enter into such agreements with the US.

Dual production is the second leg of the cooperative triad. When one nation has completed development of a system which is useful to the alliance, that nation should make its system available

for production by other countries or consortia of countries. This will eliminate unnecessary duplication in R&D, while avoiding the trade and labor imbalance that would result from exclusive development and sales. We have such a dual production arrangement on the French/German development ROLAND. Similarly, the Germans will produce the MODFLIR night vision device and have formed a consortium to produce the AIM-9L air-to-air missile. We have offered the COPPERHEAD laser-guided artillery projectile, and the STINGER shoulder-launched surface-to-air missile for production by European consortia. We will offer others, and will consider reciprocal offers of NATO countries to the US. These dual production programs can lead to the near-term introduction of the latest technology in NATO's deployed forces at the lowest practical cost.

The option of dual production will not foreclose the option of a direct buy from the developer. Direct buys within the alliance will remain a viable possibility where the investment cost of establishing dual production is not warranted or not comparatively attractive. There certainly will be instances where, even with dual production of the major equipment, components and subcomponents will be acquired by direct buy in lieu of the expenditure to create another source.

The Family of Weapons is the third leg of our cooperative triad. Here the principal objective is to obtain greater efficiency by reducing needless duplication in our development programs. We want

the \$12 billion we spend for R&D and the \$4 to \$5 billion our allies spend to yield \$16 to \$17 billion worth of combined results. Our approach is to examine the weapons which member nations plan to develop in the next few years and aggregate these weapons by mission area. When we find two or three that perform similar missions, we will agree to divide the responsibility. For example, one party would develop a long-range air-to-air missile and the other a short-range version. We would anticipate such divisions to be made among the US and Canada on the one hand and European consortia on the other. Each nation would fund the program for which it is responsible.

As a result of discussions with our Allies and an industrial dialogue initiated in the recent Defense Science Board Summer Study, we have modified this Family of Weapons proposal somewhat. When the US has the lead, we will designate a portion of the development to be available to European industry. The European consortium, in turn, will designate a corresponding portion of their development to US industry. The purpose of this modification is to encourage trans-Atlantic industrial teaming, to provide the best available technology and to facilitate the information exchange that will be needed for the dual production that will follow. On all programs for which we are responsible for development and production, we will select the US prime contractors, subcontractors, and European subcontractors on a competitive basis to insure the best technology and lowest cost in the resulting system.

When the development is completed, the developing nation would make available to the other participants a data package for production. Exchange of production data packages would be on a reciprocal basis to include all programs in the family. Present planning envisions one production line for the long-range air-to-air missile in the United States as well as one in Europe to encourage procurement of a large NATO inventory of this advanced weapon. Also, we would plan to produce, in the United States, our inventory requirements for the European-developed short-range missile.

The family of weapons will not serve to restrain innovation. We and our allies expect to maintain our planned levels of R&D. But by allocating tasks between ourselves and our allies, we will create the opportunity to adequately fund those projects we undertake instead of each attempting to spread our funds across the full spectrum of weapon possibilities. We will then be able to undertake the technology advances and developments needed to insure technological lead for our forces; developments which cannot be given support until our combined efforts truly sum to \$17B. We will thereby be receptive to, and have the resources to devote to, many new innovations.

We have not yet negotiated specific Family of Weapons agreements, but are exploring as families: Anti-Tank Guided Missiles, Air-to-Surface Weapons, Ship-to-Ship Missiles and Air-to-Air Missiles.

There are important details to be worked out before we can begin. However, I believe that the mechanics of how to implement the families concept can be worked out, provided all have the desire and determination to do so.

This triad of cooperative actions can be effective in the long term only if cooperation begins very early in the acquisition process. These actions should begin at the requirements definition stage, recognizing that once programs are started, sponsoring nations are reluctant to terminate them. In recognition of this, we have supported within the NATO CNAD the development of a Periodic Armaments Planning System (PAPS). PAPS is comprised of two basic elements. The first is a procedure which aids the identification of military needs prior to the establishment of national programs, and encourages multi-lateral definition of these needs. The second element provides feedback on NATO programs which will tell us how well the requirements process is working. Information provided by nations on all major systems will be analyzed and published in an annual NATO document called the NATO Armaments Planning Review (NAPR). It will identify opportunities for cooperation as well as potential divergence in national plans. We expect approval in principle for NAPR this spring, with subsequent refinement of the procedures.

Effective long-term application also requires identification and direction of cooperative programs within the DoD. We have taken

a number of steps to implement and refine standardization policy and objectives. Basic DoD policy is to "actively seek standardization and interoperability of weapons systems and equipment within NATO on a priority basis in order to conserve resources and increase the combined combat capability of US and NATO forces." The overall DoD weapons system acquisition process is outlined in two DoD Directives (5000.1 and 5000.2). These documents describe the process in great detail. DoD Directive 2010.6, issued in March 1977, further assigns RSI responsibilities to each DoD component. The essence of these new procedures is to ensure that we maintain a better liaison with our allies on armaments, consider allied solutions to our military needs, and offer our allies suitable participation in our own programs. Key to implementation of our RSI directive is the use of the Defense Systems Acquisition Review Council (DSARC) and the Decision Coordinating Papers (DCP). The Assistant Secretary of Defense for International Security Affairs and the Advisor to the Secretary of Defense on NATO Affairs are now members of the DSARC for programs having RSI implications, and they review related DCPs. For systems with a total or partial application to NATO, RSI is a fundamental part of the acquisition strategy.

The planning process relates in a key way to the definition of mission needs and thus weapon requirements. The Sense of Congress Statement contained within the Culver-Nunn Amendment emphasized

the need to establish regular procedures and mechanisms within the North Atlantic Treaty Organization for defining common military requirements. The mechanisms cited are part of this implementation, but other basic steps have been taken as well.

The Allied Tactical Publication on NATO Land Force Tactical Doctrine has been issued to units in the field as a modernized doctrinal foundation for all succeeding NATO land forces' doctrine and procedures manuals. During 1978 the US and FRG Armies agreed in principle on two more concept papers (Night Operations and Nuclear-Biological-Chemical Defense) to add to the seven previously agreed. They also agreed in principle on an interoperability concept for operational cooperation in the areas of personnel, operational command, a liaison system, logistics assistance and exercises. US Army bilateral staff talks with the UK Army also are underway. NATO also produced or rewrote three naval warfare tactical doctrine publications in 1978: mine countermeasures, amphibious embarkation and doctrine/tactical instructions. Six new NATO Standardization Agreements related to doctrine were ratified and ten were revised. The NATO Allies are participating in development of a series of standard concepts such as maritime operations, air defense, AEW&C, and maritime mining. In addition, nations reviewed Allied Tactical Publications on NATO Tactical Air Doctrine and Offensive Air Support Operations. The latter will be broadened in scope to include such operations as defense suppression. A new publication on "Counter

Air Operations" is being circulated for national comments, with ratification expected in 1980.

Program Criteria/Impact

The first objective of armament cooperation is improved combat force effectiveness. So the first test of a candidate program is whether that program will improve the overall effectiveness of alliance forces. I want to stress alliance forces. Improving the effectiveness of US forces alone is not sufficient given our dependence on alliance forces who will be on our flanks. As I previously stated, the US forces today constitute only 20 to 25 percent of NATO's conventionally armed forces in Europe.

A related criterion is efficiency. A cooperative program should not be considered unless we can reasonably expect it to result in improved exploitation of alliance defense resources. We have not taken advantage of the total economic and technological resources of the NATO countries in the past. We will be looking to future cooperative programs to do so.

Efficiency should not be judged solely in terms of an individual weapons system or subsystem. Our judgment should be made on the basis of the improvement offered by the combination of programs in a cooperative agreement. If the program as a whole will improve efficiency and effectiveness, it should be considered favorably.

I want now to speak to competition. In our national program of armaments development and production, competition is vital to maintaining efficiency. I know of no better mechanism to control costs and stimulate peak performance. Our proposed cooperative programs are entirely consistent with maintaining a competitive environment in development and production on all US-managed acquisition programs. Moreover, it is a framework which can actually increase competition throughout the Alliance.

Our actions to establish General MOU's will open up defense markets to competition, removing on a reciprocal basis the barriers resulting from "Buy National" restrictions. Dual production programs provide competitive alternatives to national designs which are often constrained to national markets and associated small-scale, inefficient production. Our proposed Family of Weapons includes a mechanism for cross-participation by the partners in development of a family, allowing competition to work in creating the best team. The family approach also provides production data packages, improving the potential for competition in production.

The cooperative programs which we recommend will produce no net loss of jobs for US industry. But, the key question here is loss with respect to what. If the frame of reference is the 1960s in the midst of the "Buy American" program, then there has already been a loss of jobs--not from our efforts to improve cooperation, but from the isolationist "go-it-alone" approach that is beginning to

develop in Europe. If, instead, the frame of reference is established by the level of defense activity already underway in Europe, then the programs we recommend will not involve a loss of US jobs.

Europe is no longer content to proceed with one-sided purchases from the US. They are proceeding to successfully develop their defense industry. The inherent disadvantages of small size are being overcome by formation of consortia and various multi-national corporations. The Europeans will continue this trend toward exclusive dependence on their own defense industry if they are not offered a reasonable opportunity to participate in a cooperative program.

The programs we are pursuing will cause no loss of jobs given these facts of life. At this point, we have but two alternatives. We can participate with our allies in a broad NATO defense market, expecting our fair share. Or we can go it alone, and our allies will increasingly do the same. If we do go it alone, there will be no benefit in US jobs, and there will be incredible duplication of effort and waste. The net result would be reduced effectiveness of our NATO forces, higher defense costs, or both.

Prudent transfer of technology is a key criterion in future cooperative programs. Technology is a precious commodity--precious in both military and commercial applications. In transfer of technology, we must balance the benefits of sharing technology to improve NATO

combat effectiveness against protecting our other interests. We will be especially attentive to transfer of technology that could reduce our industrial competitive edge, and would recommend such transfer only if the benefits to our national security outweigh the potential negative effects.

We are also concerned that advanced technology may fall into the hands of our adversaries. Technology transfer is reviewed very carefully in the DoD. All requests are handled on a country-by-country, case-by-case basis under provision of the Arms Export Control Act and the Export Administration Act. We do not always approve or release complete information. We are also mindful of the need to accomplish technology transfer with full industrial cooperation, and without compromising the valuable intellectual properties of our contractors.

On the other side, I am equally concerned about the impact on our industry and the alliance if we do not share technology. If we hold back US technology, especially in areas where our allies have agreed to defer development of their own equipment, we will see barriers against our industry and our products. The net result could be reduced US sales in Europe and reduced combat effectiveness of NATO forces.

The Independent European Program Group and the Trans-Atlantic Dialogue

The Sense of Congress statement contained within the Culver-Nunn Amendment said cooperation with Europe in defense procurement "could only work in a realistic sense if European nations operated on a united and collective basis." The Europeans have formed an organization, known as the Independent European Program Group (IEPG). Its objective is to strengthen their defense industry by forming European coalitions to develop and produce armaments, and by presenting a united front in dealing with the United States and Canada on armament development and production.

The IEPG could become a barrier to cooperation if its emphasis were put on increasing arms sales through cartelization. However, I believe it can become instead an instrument through which we and our allies can develop programs of cooperation which benefit the entire alliance. To that end, a Trans-Atlantic Dialogue has been established between the Armament Directors of the IEPG and the Armament Directors of the US and Canada. Our contribution to the Trans-Atlantic Dialogue has been a proposal for the Triad of programs for armament cooperation. I hope to insure that as the Europeans move toward rationalization of their arms production and procurement, it will be done in a framework of cooperation with the United States and Canada.

Long-Term Defense Program

The centerpiece of NATO activity during 1978 was the response to the President's call for a Long-Term Defense Program (LTDP). Approved by NATO Heads of State and Government at the May 1978 Summit in Washington, the LTDP marks a significant milestone for NATO through its projection of Alliance defense planning into a longer-term framework and its emphasis on cooperative efforts to strengthen Alliance defense through the 1980s. The LTDP was developed as a means of coping with the challenge to Alliance security posed by the continuing momentum of the Warsaw Pact military build-up. NATO's leaders recognized the need to finally address this imbalance between the conventional forces of the Warsaw Pact and the Alliance. The LTDP is designed to meet this challenge.

The NATO Conference of National Armaments Directors (CNAD), of which I am the US Representative, at its fall 1978 meeting reviewed those aspects of the LTDP which offered areas for greater equipment cooperation, tasked its main groups to pursue vigorously 38 LTDP measures and will continue to review the LTDP for additional opportunities in this regard. In addition, the CNAD has been assigned action on most of the agreed measures in the rationalization program area of the LTDP. In the meantime, agreements were reached among various groupings of Allies to participate in cooperative programs for a NATO Anti-Surface Ship Missile (ASSM), an Explosive Resistant Multi-Influence Sweep

System (ERMISS), a Small Surface-to-Air Ship Self Defense System (NATO 6-S), Torpedo NEARTIP Conversion, Aircraft Cross-Servicing, Small Arms Ammunition and NATO AWACS.

Three new NATO Projects were established: the satellite-based worldwide positioning and navigation system (NAVSTAR), the PATRIOT surface-to-air missile system, and cooperative support of the 76/62 OTO MELARA compact gun system. In the high-priority area of command and control the Tri-Service Group on Communications and Electronics Equipment has several subgroups working on the interoperability aspects of tactical area communications and tactical radio equipment, multifunctional information distribution systems, and a future NATO identification system. Continuing its program of information exchange and scientific studies, the Defense Research Group completed long-term studies in new technologies for the design of high speed vessels and counter-mobility. Armaments cooperation is clearly a vital part of the LTDP.

Congressional Support

The recently issued report on NATO Standardization, Interoperability and Readiness by the House Subcommittee pointed out many obstacles and problems. Clearly, we have work yet to do to convince all of the need and to demonstrate a new framework for cooperation which can overcome the obstacles. We will continue, and we ask for your full support as we bring before you programs which will make cooperation a reality.

Overview Statement on the Department of Defense
FY 1980 Procurement Program

By

The Honorable William J. Perry
Under Secretary of Defense for Research and Engineering

Before the

Subcommittee on General Procurement

Committee on Armed Services

of the

United States Senate
96th Congress, First Session

6 April 1979

Mr. Chairman and Members of the Subcommittee:

I am pleased to discuss with you today the FY 1980 Department of Defense Procurement Program. The FY 1980 Procurement request is for \$35.4 billion, with approximately one-third of this total (\$11.7 billion) of specific interest to this Subcommittee.

With me today are Dr. Mann, Dr. Martin and Dr. Pierre, each of whom are prepared to provide a brief statement on their respective Service Procurement programs. I will begin by providing an overview of our FY 1980 Procurement Program. My overview will be in the context of our overall Research, Development and Acquisition (RD&A) Program.

The basic objective of our defense Research, Development and Acquisition (RD&A) program is to provide our armed forces with weapons which give them the unambiguous strength necessary to deter war. In my Posture Statement for FY 1979, I described an investment strategy for our Research, Development and Acquisition program that was designed to meet our challenges by exploiting our principal strengths. This investment strategy has three components:

- o Selective concentration on those technologies which have the greatest potential of multiplying the effectiveness of our forces.
- o More effective exploitation of our industrial base, and
- o Increased cooperation with our Allies in the development and procurement of weapons.

After more than a year of applying this investment strategy, I still believe that it is the proper basis for planning our RD&A programs. However, in applying this strategy, we should recognize the formidable obstacles we must overcome. I will first describe these obstacles, then describe our management initiatives to overcome these barriers or at least to mitigate their effects.

Barriers to Applying Technology

1. Technology as a Cost Problem

As our systems have become more technically sophisticated, so also have they become more expensive. For example, the procurement cost of tactical aircraft has grown at a rate of 9-10% per year in real terms since WWII. This real cost increase reflects the increase in complexity and capability of these aircraft. These cost increases force us to buy fewer units, which increases unit costs even more. And we already face quantitative disadvantages that are so great that we cannot expect performance advantages to totally compensate.

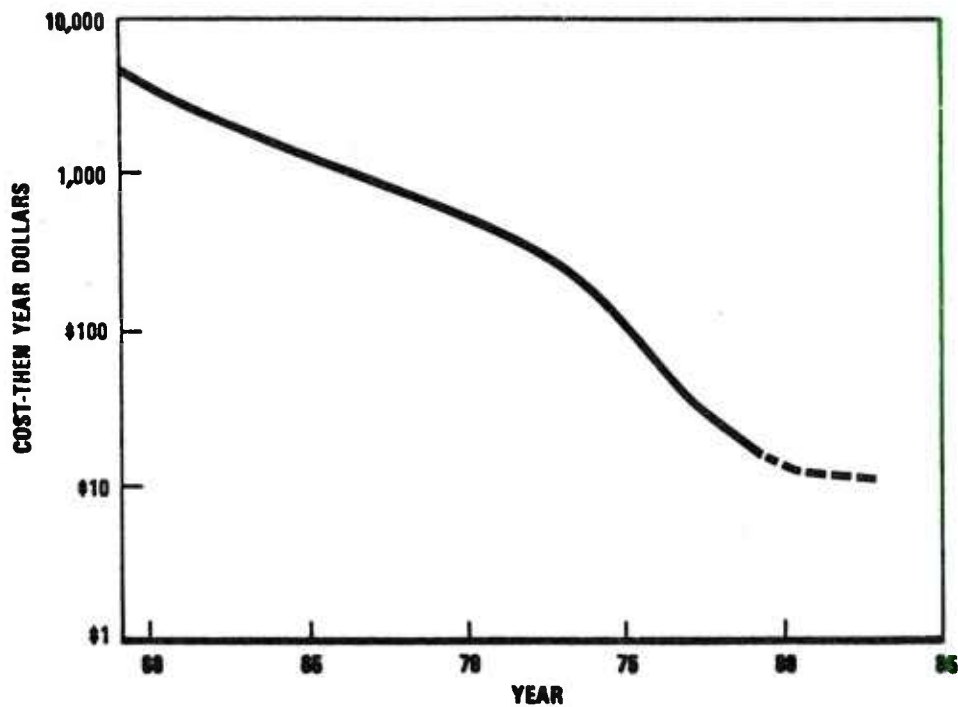
This phenomenon is not unique to defense; neither is it inevitable. Figure 1 illustrates the cost trend of scientific calculators for the last two decades. Here the same technology that led to an increase in performance also facilitated a significant decrease in price, even in inflated dollars. This, of course, is an example which we seek to emulate in Defense, and I will describe how we plan to reverse the trend of increasing acquisition cost to defense equipment by: (1) improved procurement techniques which emphasize greater use of competition and of commercial components; (2) application of technology explicitly for cost reduction; and (3) extending the life and capability of existing systems.

2. Technology as a Schedule Problem

Concomitant with the increasing sophistication and cost of military equipment in the past few decades, there has been an increase in acquisition time. Figure 2 illustrates the time from beginning of full-scale development to Initial Operational Capability (IOC) for several different kinds of weapons systems. It indicates that the time increased from 4½ years in the 1960's to over 7 years in the 1970's. Typical on-going programs are scheduled to achieve IOC in 6-7 years after the start of full-scale development, but programs in the early 1970's were also scheduled to achieve IOC in 6-7 years. The consequences are two-fold: first, there is an increase in total acquisition costs, second, the delay in IOC means that by the time the equipment gets in the field it embodies technology that often is more than ten years old--so we can lose in our fielded equipment the technology lead we enjoy in our laboratories.

These long acquisition times are not inevitable and, in fact, are not experienced in the commercial airline industry which is comprised of many of the same companies that supply our military systems. Figure 3 illuminates the problem. It gives the time from full-scale development contract award to first flight for major military and commercial aircraft since the beginning of WW II. Surprisingly, the time has not increased at all during that period--we are developing military airplanes today as fast as we did in the 40's and 50's, even though the aircraft are much more complex. Also surprising is that the development time for military aircraft is no longer than for commercial aircraft.

COST TREND OF SCIENTIFIC CALCULATORS IN THEN YEAR DOLLARS
Figure 1



LENGTHENING TIME FROM FULL SCALE DEVELOPMENT TO DEPLOYMENT

Figure 2

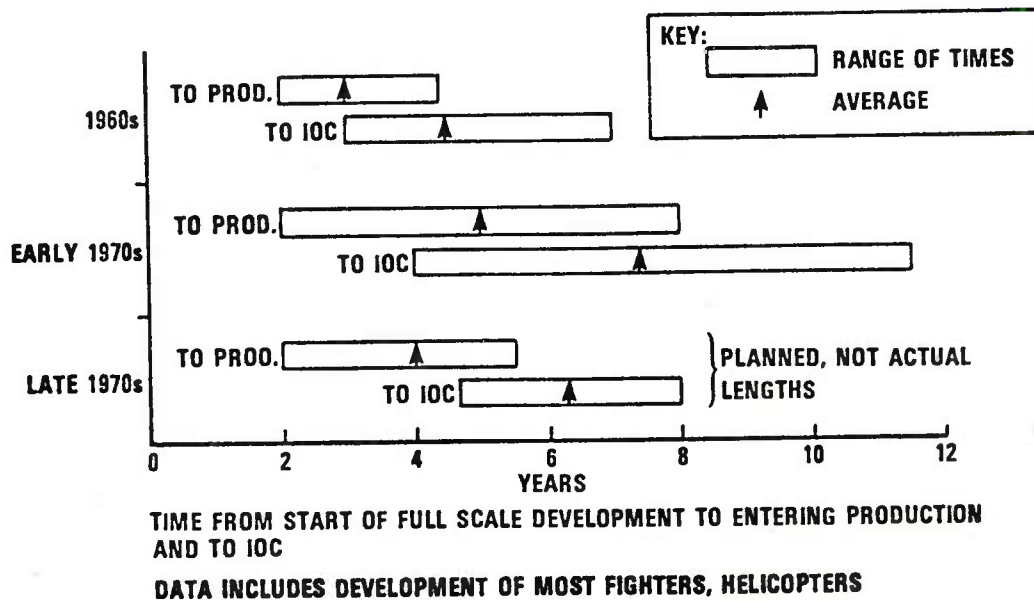
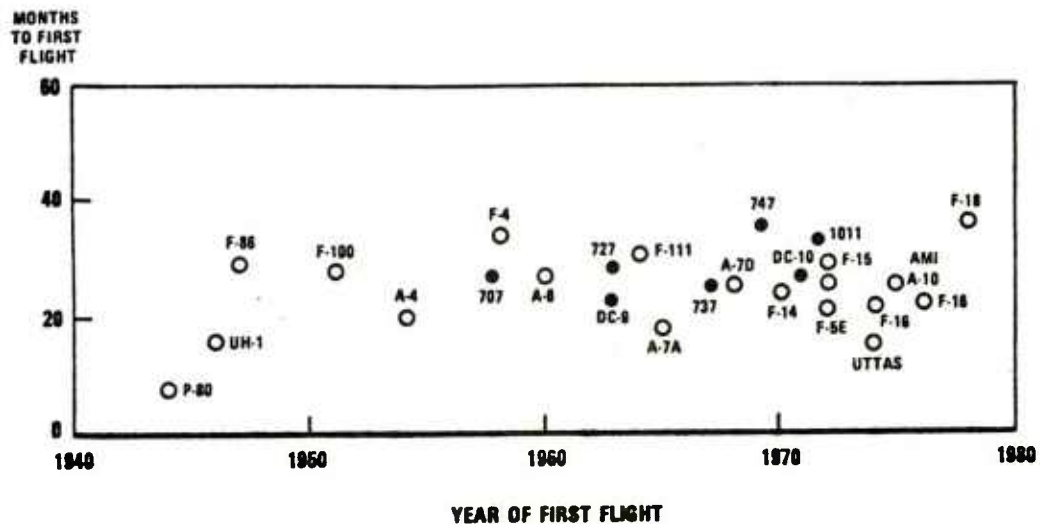


Figure 3
TIME FROM FULL SCALE DEVELOPMENT CONTRACT AWARD TO FIRST FLIGHT



The delays we are experiencing in the fielding of new equipment occur primarily during the test phase and the production phase. Our testing has delayed the acquisition process because we generally do our development, testing and production in sequence, whereas commercial practice is to overlap testing with both development and production. Our production gets delayed because we often "stretch out" a production program to reduce the budget drain that year. That not only delays the date by which operational capability is achieved, but it also increases unit cost as a result of inefficient production rates. This latter problem is pervasive in defense acquisition and requires determined action both by the DoD and the Congress to correct. The former problem must be approached carefully, because misapplication of concurrency (to programs with high technical risk, for example) can result in higher life cycle costs from fielding equipment difficult to operate and maintain.

3. Technology as a Two-Edged Sword

The development of precision-guided weapons by the United States in the late 1960's was the most significant application of technology to modern warfare since the development of radar (excluding nuclear weapons). Precision-guided weapons result from the application of microminiature electronics to devices which detect and track targets and guide weapons to a direct hit (or a hit within the lethal radius of the warhead). This allows for much more effective weapons (with smaller warheads) and greatly reduces the logistics problems attendant to supplying vast quantities of ammunition of barrage-type firings. These weapons make high value targets such as ICBM's, bombers, carriers, and tanks much more vulnerable to destruction and will force a revolutionary change in force mix and tactics as they become more prevalent.

We have a substantial lead in the technology critical to precision-guided weapons, and since we give this technology highest priority in our R&D program, we expect that lead to continue. Nevertheless, the Soviet Union is working hard on this technology. We are beginning to see significant progress in weapons now under test, and we expect to see precision-guided weapons entering Soviet forces in quantity in the early 1980's. Even these first generation weapons will present us with a significant problem. Our response to this emerging problem will be three-fold: we will strive to keep one generation ahead of the Soviets in these weapons; we will pursue a vigorous counter-measure program; and we will evolve different force mixes and tactics with a strong emphasis on mobility and stealth features.

4. Technology as a Problem for the User

In an age of technological explosion, where new weapons can become obsolete before they are fielded, we see a dangerous communication gap developing between the developer of equipment and the user. This leads to systems being fielded that are largely "technology driven" and are poorly suited to the operational need, because the user did not know how to state his need in terms of the available technology. Even when a technology program anticipates a need and supplies the user with equipment well suited to his mission, our technology may be rendered inefficient because the user does not understand its potential well enough to develop appropriate tactics and doctrine. At the beginning of WW II, the French Army had perhaps the most effective tank in the world; the German Army, however, had developed the Blitzkrieg tactics which effectively exploited the tank, and they won that tank war. We must insure that our tactics are capable of exploiting the full potential of our weapons.

We are also concerned with balancing the need for high performance on the one hand with the capability to maintain required readiness levels. Too often our R&D programs have applied technology to enhance performance without adequate consideration of its impact on the user, in terms of support costs and the number of skill levels of our military personnel. The results have been visible in a number of operating weapons with low readiness and needs for expensive retrofits and modifications. Consequently, there is a need to make readiness objectives and skilled manpower constraints major design objectives along with technical performance.

Barriers to Using Industry More Efficiently

The United States has the most powerful industrial base in the world. This is the foundation on which we build our weapons development and acquisition program. But we have not realized the full potential of our industry for two reasons:

- o We have overmanaged industry, thereby reducing its efficiency to less than it achieves on commercial programs; and

- o Industry has not been sufficiently responsive to the unique needs of the Defense Department.

I believe that industry generally does not produce as efficiently for the defense market as it does for the commercial market. Some of this cost difference results from our imposition of military specifications; some results from the increased overhead required to deal with government regulations and procedures; and some results from the stifling of management incentives to decrease cost.

The tendency to impose government regulation and procedures and, more generally, to oversee company management functions, is a defensive measure which developed as a response to poor performance by some contractors on programs critical to national security. I believe this response generally has been counterproductive and, in fact, perpetuates the very problem it was intended to solve--poor company management. We must turn the management of industry back to company management and then hold them responsible for contract performance. In most cases this will result in more effective management and certainly in reduced overhead for both the company and the government. The key to achieving this result, while still protecting our vital national interests, is to extend the use of the competitive process. By conducting competitive development programs we insure that the most creative engineering teams and management are assigned to defense programs without our intervention, and we have two (or more) technical concepts to select from. By extending competition into production we can let the competitive process, rather than government inspectors, drive production efficiencies.

Barriers to a More Effective Alliance

In 1978 the United States spent \$12 billion for defense R&D and our NATO allies spent another \$4 to \$5 billion, a total of \$16 billion to \$17 billion. But the net effect of this combined R&D spending was much less, because of significant overlap and redundancy among the national programs. The Alliance is developing three different main battle tanks, four different fighter aircraft and three different air defense guns. This not only entails duplicative funding of R&D, but leads to high unit costs because of the inefficiency of three or four production lines.

A key objective of our investment strategy is to achieve significant increases in cooperation in the development and production of NATO armaments so we can increase the efficiency of our procurement and the effectiveness of the equipment deployed with NATO forces. The barriers to achieving this improved efficiency are formidable.

NATO is an alliance of fifteen independent nations, and it is inherently difficult for any one of them to subordinate its sovereign rights for the benefit of all. Each of the nations has its own laws and regulations for the procurement of defense equipment, and these laws generally are designed to protect perceived national interests. In this regard, there are two principal barriers to improved cooperation:

- o The European NATO countries have built up their defense industries this past decade and some are fearful that cooperation with the U.S. may threaten these industries.
- o Legislation in the U.S., designed to protect U.S. industry from foreign competition, inhibits the formulation of cooperative programs.

MANAGEMENT INITIATIVES

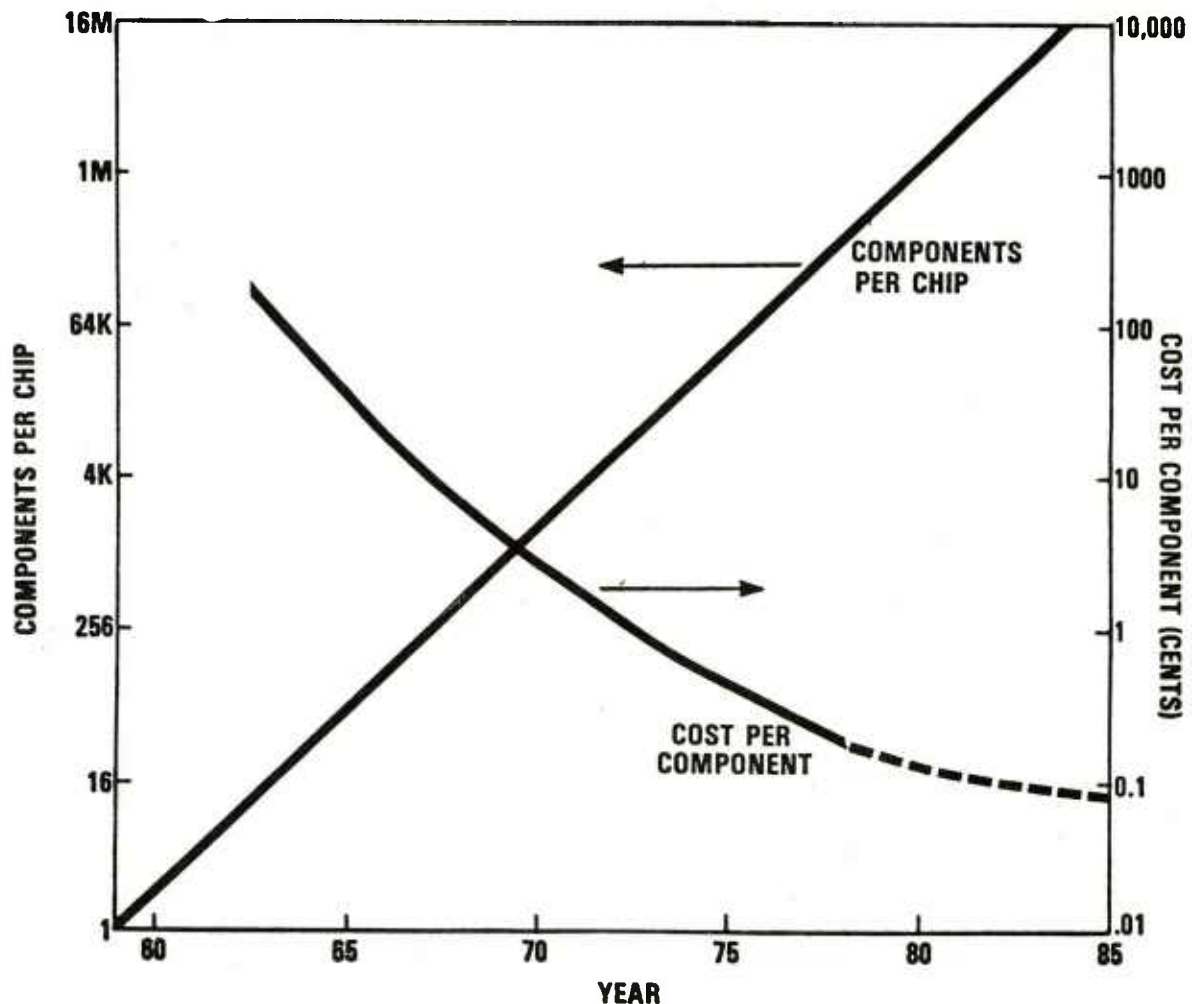
1. Extend Application of Competition

The U.S. semiconductor industry is perhaps the most efficient industry in the world. This phenomenon of our free enterprise system thrives on two ingredients: large doses of high technology and intense competition. As a result, it is one of the few industries that has succeeded in reversing the upward spiral of costs. Two products of this industry are well known: the hand-held calculator which, at a price of ten dollars, exceeds the performance and reliability of the electro-mechanical calculator which ten years ago sold for nearly a thousand dollars; and the electronic wristwatch which, at a price of ten dollars, exceeds the accuracy, versatility and reliability of mechanical watches which ten years ago sold for more than a hundred dollars. The basic development that underlies these products is known as LSI (large-scale integration). LSI technology involves depositing thousands of electronic components on a single chip less than an inch square. The intense competition in this industry has forced technology in the direction of more and more components on each chip which has resulted in less and less cost per component. The net result is indicated in Figure 4, which shows the increase in components and the decrease in cost per component in the last ten years. This has allowed significant increases in performance at the same time that costs were being reduced by a factor of ten or even a hundred.

This dramatic development has two important effects on Defense acquisition. First, we are making use of integrated circuits and thereby benefitting directly from the increased performance and decreased cost. Second, we see a product development example which has features worthy of emulation. In particular, we will seek to emulate this industry's use of competition as a force to drive costs down. We will not, of course, be able to achieve identical results, because we typically are producing quantities in the thousands instead of in the millions. Nevertheless, there are significant cost benefits to be gained by introducing more competition into defense acquisition, and we intend to do just that.

In FY 1978, 17 percent of our acquisition programs were sole source awards that followed after competition. That is, we conducted a competitive development program, selected the winner and thereafter awarded all subsequent contracts sole source to that winner. The advantage of this approach is obvious--we do not have to pay for two continuing development programs, nor do we have to pay for establishing two production facilities. The disadvantage is well recorded in our acquisition history--it promotes contractor "buy-ins" with subsequent cost overruns from which the government has no satisfactory means of extraction short of program cancellation. We have tried to get around this problem by more careful cost reviews and contractor supervision which has added to both contractor and government overhead. I believe that in many acquisitions a preferred alternative will be to pay the extra cost for continuing the competition through the entire development cycle and, in some cases, on into production.

Figure 4
TRENDS IN ELECTRONICS



We are beginning to apply this management principle to an increasing number of programs. In the air-launched cruise missile (ALCM) program, we continued competition into engineering development (the competition "fly off" will be in 1979) and plan to continue competition into production (with a dual production procurement), since we expect to build more than 3,000 ALCM's. We have already begun dual source production on cruise missile engines and inertial guidance systems. We are producing the Navy's new frigates (FFG-7 Class) at three shipyards, which will be reduced to the two best in FY 1980 or FY 1981 and eventually to the one best. We plan to procure COPPERHEAD and STINGER in a dual production mode. If we can get our Allies to join us in dual production, whether of a U.S. or European system, it will further broaden competition.

It is worth noting that while we expect this increase in competition will result in significant cost benefits in the long-term, there will be no near term cost reduction; in fact, there is an investment cost in getting such a program started--but we expect a healthy return on this investment. There also will be an indirect cost benefit to both industry and the government. When we have the projection of cost competition, we can reduce the level of contract supervision, cost auditing, and form-filling, thereby allowing both the contractor and government overhead to be reduced.

2. Use Technology to Reduce Manufacturing Costs

We think of technology as a tool for improving performance, but as the semiconductor industry has shown, it can also be a tool for reducing cost. In our FY 1980 program we place a major emphasis on technologies which can lead to cost reduction. One example is our VHSIC (very high speed integrated circuits) initiative, in which we plan to invest about \$200 million over the next six years to direct the next generation of integrated circuit technology to unique Defense applications. This program, which is one of our top priority Science and Technology programs, will lead to very significant cost reduction by decreasing component cost and by greatly reducing assembly costs of electronic equipment. Examples of a different type are found in our Manufacturing Technology program, which is funded at \$164 million in FY 1980, a 23 percent real growth over FY 1979. This program is directed specifically at the advancement of manufacturing processes that will allow production of equipment (e.g., jet engines, missile castings, helicopter blades) more efficiently, thereby reducing costs in quantity production. One example is the development of lightweight composite materials for aircraft and missiles. These materials reduce weight (thereby increasing performance) and manufacturing cost. Another example is the development of "near-net shape" fabrication techniques (using a hot isostatic process) which allows the pressing of engine chassis, for example, to a nearly final form, thereby reducing time and wasted material in the manufacturing process. Especially noteworthy is our program to develop new techniques for computer-aided manufacturing (CAM). The CAM program uses the very technology which is leading to more complex weapon systems to reduce the cost of manufacturing these systems.

3. Extend the Life and Capability of Existing Systems

Our technology allows us to build the best missiles and the best aircraft in the world today--and the most expensive. This puts us in the position of having to fight out-numbered in men and materiel. Up to a point, superior performance is an offset to this quantitative disadvantage. Lanchester's theory of warfare derived simplified relations between quantity and quality in warfare. Basically these relations predict that force effectiveness increases as the square of the quantity of units and linearly with the quality of the units. That is, if you are out-numbered 2 to 1, your force must be four times more effective in order to break even; if you are out-numbered 3 to 1, your force must be nine times as effective.* Our forces in NATO are typically out-numbered 2 or 3 to 1 in tanks, armored vehicles and guns, so it is unreasonable to expect the quality of our forces to totally offset such a large disadvantage.

Therefore, we have focused our attention on additional ways of dealing with the problem of fighting out-numbered. One promising approach is to extend the life and capability of existing systems. The ALCM program is a prime example. The B-52 might have ended its useful life in the mid-80's because of its declining ability to penetrate the growing strength of the Soviet Air Defense complex. However, as a carrier of cruise missiles, it should have a useful life well into the 90's, since it will not have to penetrate this vast air defense complex in order to accomplish its mission. The cruise missile (ACLM or its successors), because of its very low radar signature, will be able to effectively penetrate Soviet Air Defenses for the indefinite future.

Another life extension program is the A3 modification to the M60 tank. This modification gives the M60 a night vision and fire control system equivalent to that developed for the XM-1, thereby extending its useful life into the late 80's, by which time we will have the XM-1 force deployed.

4. Introduce More Flexibility in Program Management

To realize the full benefit of our technological superiority, we must get technology out of our labs and into the field more rapidly. We have evolved, during the past two decades, a highly stereotyped system of acquisition that basically was conceived in reaction to our failures--that is, our well-publicized cost and schedule overruns. As a consequence, our acquisition process is cautious, slow and expensive. It now takes us 12 years or more for development, production and deployment of a typical system, so that our lead in technology is lost by the time the equipment is deployed.

*These numbers are strictly applicable to only a very special form of combat; they are, however, indicative of trends even in more complex forms of warfare.

I believe that we have overreacted to our earlier acquisition problems and must find some way of reducing acquisition time, at least in those programs in which technology is crucial to equalizing the quantitative disadvantages we face. We have underway a pilot program in which we select a number of high priority programs* to receive expedited acquisition treatment. These programs include:

- o DIVAD (Division Air Defense Gun) and GSRS (a tactical multiple launch rocket system)--We have compressed the Advanced Development and Engineering Development phases into one 27-month "hands-off" competitive development, thereby cutting acquisition time by two years.
- o ALCM (Air-Launched Cruise Missile)--We have started the production program on the ALCM missile while the development competition is still underway. This allows full-scale production to start as soon as the competition is complete, thereby cutting acquisition time by one year.
- o F-16 aircraft and XM-1 tank--We are conducting development tests and operational tests (DT III and OT III) concurrently with the low rate initial production run. This will take very careful management attention, but will allow us to get these important programs deployed two years sooner than a standard sequential program.

We are particularly concerned that concurrency not be applied in such a way that new equipment has performance and support problems when it reaches the field. We hope to avoid, for example, the problems that have been encountered on the S-3 and F-14 programs by introducing in the DIVAD program an "equipment maturing" phase upon completing development.

5. Develop Technology and Tactics to Counter Precision-Guided Weapons

As I stated in the section on "Barriers", Precision-Guided Weapons are a two-edged sword. While we maintain a commanding lead over the Soviet Union in this field, they will be introducing large quantities of precisionguided weapons in their forces in the early 1980's. Even though these weapons will generally be a generation behind weapons entering U.S. forces at that time, they will pose a formidable threat to our forces, particularly our large, high-value targets such as ICBM's, bombers, aircraft carriers and tanks. Our response will be to keep one generation ahead of the Soviets in these weapons, to conduct a vigorous countermeasure program, and to increase the emphasis on mobility, stealth, and low-value weapons in our forces. Our countermeasure program is receiving greatly increased emphasis in the FY 1980 program, and I

*Several of these programs were accelerated at the urging of Congress, which, for a number of years, has expressed concern at the bureaucratic nature of our acquisition process.

expect that it will continue to grow in the early 1980's. Here I will describe some of the major changes we are making in our major weapon programs to introduce mobility and stealth to respond to the growing threat of Soviet precision-guided weapons.

a. ICBM's

The Soviet Union has developed greatly improved guidance systems for their SS-18 and SS-19 ICBM's. These systems demonstrate accuracies less than the lethal radius of the SS-18 and SS-19 MIRVed warheads, even against very hard targets like ICBM silos. Therefore, when large numbers of these guidance systems are introduced into their ICBM forces, our silos will no longer protect our ICBM force and no feasible improvement in hardening will restore their ability to survive a mass attack of SS-18's or SS-19's. More generally, it is clear that fixed, hardened bases for any high-value target will not be a viable option in the 1980's. We have studied a variety of options for rebasing our ICBM force to allow it to survive an attack by SS-18's or SS-19's. One of the primary candidates achieves survivability through a stealthy deployment--we would build a large number of silos and move the missiles from silo to silo in a covert manner. With a constraint on the total number of re-entry vehicles, the Soviet Union could not target all of the silos, and they would not know which silos have the missiles, because of the covert movement. Another primary candidate achieves survivability through mobility--we would put our ICBM's in airplanes and launch the airplanes (but not the missiles) on strategic alert or tactical warning, or on the failure of our warning system. We expect to select a new survivable basing system for our ICBM's in 1979.

b. Strategic Bombers

Our bomber force, even though stationed at fixed airbases, achieves survivability by escaping these bases on warning of attack (our ICBM's cannot escape unless the attack assessment is certain, because, unlike the bombers, they cannot be recalled if the attack assessment proves to be in error). This bomber base escape will become more difficult in the future as the Soviet Union builds up its SLBM force, because a depressed trajectory SLBM launched from U.S. coastal waters can arrive at some of our SAC airfields before most of the airplanes can take off. We are exploring solutions to this problem which involve making a faster attack assessment and achieving faster aircraft launch.

An additional problem is the introduction of precision-guided weapons in the Soviet Strategic Air Defense complex. We plan to achieve penetration by flying the bombers close to the earth, which would give the ground defensive systems a very small operating radius and would render the airborne interceptors ineffective, because their airborne radars could not pick out the bombers from the background of ground clutter. During the past two years the Soviets have been testing a "look-down/shoot-down" radar and a missile which is capable of engaging

low-altitude bombers and fighters. When this system becomes deployed in quantity our bombers will have a much more difficult task penetrating. Our solution to this problem is to introduce cruise missiles into the force. This allows the bombers to operate in a stand-off mode with cruise missiles penetrating the defenses. The cruise missile presents such a small radar target that the "look-down/shoot-down" radar now being tested will not be able to track it at operationally useful ranges. Also, the Air Defense system will have to engage thousands of cruise missiles instead of hundreds of bombers. This approach typifies two distinct, generic solutions to the problem of precision-guided weapons: move to very small (stealthy) weapon systems which nullify the tracking circuits of the precision-guided systems, and move to lower-value weapons which can saturate the defense complex.

c. SLBM's

Our SLBM force enjoys a high degree of survivability, even against precision-guided weapons, because of its mobility and its stealthy nature. It cannot be targeted at a fixed location, and it is very difficult to detect and track. We believe that this force will be essentially invulnerable to an effective attack for the next decade. Beyond that, it is very difficult to forecast, but we know tht the Soviets are working very hard on ASW (Anti-Submarine Warfare), and we also know that the problem of detecting and tracking submarines, while very difficult and expensive, is by no means infeasible. Therefore, we plan to introduce even more mobility and stealth into our SLBM forces. Our new TRIDENT submarine, the first of which will begin sea trials in 1980, is considerably quieter than previous nuclear submarines, thereby making detection and tracking of it more difficult. Our new TRIDENT missile, which will achieve IOC in 1979, will have more than twice the range of the POSEIDON it will replace. With longer range missiles, the submarine can increase its survivability and mobility --in fact, its patrol area will be more than tripled by the increase in missile range.

d. Theater Nuclear Missiles

We are presently development two new missiles as candidates for modernization of our theater nuclear forces. GLCM is a ground-based version of the cruise missile, and PERSHING II is a modern, longer-range version of the PERSHING I ballistic missile. In both cases, we are introducing mobility and stealth into their design and operational concepts. They will be designed to have off-road mobility, so that on strategic alert they can be dispersed from their main operating base and deployed on trails in the woods, with frequent relocations to maintain stealth.

e. Surface Ships

The advent of precision-guided weapons that are capable of direct hits on surface ships from stand-off ranges greatly complicates the task of defending these ships and raises questions about the optimum

design of surface ships and the appropriate mix of naval forces. Submarines, if designed with acoustic quieting, will gain a high degree of survivability, since the ocean shields them from visual and radar observation; naval aircraft--when airborne--gain a high degree of survivability (unless seeking an engagement) by their mobility relative to a ship.

However, surface ships are susceptible to long-range observation by radars on aircraft and satellites. A ship can attempt electronic countermeasures against these surveillance systems, but this makes it more susceptible to ELINT surveillance so it has to devote an increasing portion of its fighting capability to defending itself. As a result, the balance is shifting in favor of the air attacker armed with precision-guided missiles. Giving the ship more mobility, that is, making it faster, is useful against the submarine threat but is not particularly effective against the air threat. Therefore, our principal thrusts are: (1) to introduce more stealth in surface ships (through emission control, deceptive countermeasures, and ship design); (2) to introduce improved protection, both active and passive, against air attack; and (3) to gradually evolve a shipbuilding program with a greater emphasis on smaller, cheaper ships (in larger quantities).

f. Tanks

The effectiveness of our own anti-tank systems, particularly those now in test, indicate that tanks will have a more difficult time surviving on the battlefield in the 1980's than ever before--the technological balance is shifting in favor of the anti-tank systems. Tanks, however, will still play a paramount role in tactical warfare for the foreseeable future. Therefore, we need to give U.S. forces a continuing technological advantage in both tank and anti-tank weapons. We are dealing with tank vulnerability in four ways: (1) increasing the effectiveness of the armor--the XM-1 armor will defeat all presently deployed ground or helicopter based anti-tank weapons and we are working to further improve tank armor to meet future threats; (2) increasing tank mobility--the XM-1 will be able to move much faster over more difficult terrain than either the M-60 or, we believe, any existing Soviet tank; (3) giving tanks some stealth capability by allowing them to operate effectively in night and poor weather, when many anti-tank systems will not be able to detect and track them; and (4) giving our tanks a precision-guided large caliber (120mm) gun so that they can achieve a high probability of disabling their targets on the first round, and minimize the time they are exposed to counterfire.

Finally, in our mix of tank and anti-tank forces, we are emphasizing anti-tank systems. The Soviets have more than 40,000 tanks to our 10,000. Our strategy is to deal with the disparity by a modest increase in quantity--deploying 7,000 of the very effective XM-1 tanks in the late 1980's--and a substantial increase in both the quantity and quality of anti-tank weapons throughout the 1980's.

There are many other examples of how we can deal with the increasing vulnerability of our major weapons systems to precision-guided weapons. However, the actions that I have described serve to illustrate our strategy. Precision-guided weapons are perhaps the only truly revolutionary weapon development since World War II. Their impact on warfare, however, will evolve over the next decade as they are introduced in quantity (into both our forces and into Soviet forces) and as they improve in quality. During that period we will be evolving a counter strategy which involves changing our force mix to put greater emphasis on precision-guided weapons. At the same time we will be increasing the mobility and stealth of those major systems that are prime targets for precision-guided weapons, and we will be developing countermeasures to mitigate their effectiveness.

6. Build Bridges Between Users and Technologists

We live in an era of unprecedented technology expansion which allows the development of revolutionary new weapon systems. Since we cannot afford to develop and build everything our technology permits, we must be selective, and this selectivity should be guided by those applications of technology which are "force multipliers" (applications which allow for significant increases in military effectiveness or significant decreases in equipment cost or manpower requirements). Intelligent selectivity requires a "shotgun marriage" between the technologist and the user. New technical concepts are developed in our Science and Technology program which is "technology driven"; that is, it is structured by our technologists to advance technology. Our management problem is to determine when to "promote" a concept from the Science and Technology base into a structured development program leading to production and operational use. Understanding the issues involved in whether or when to make this "promotion" requires bridging the communication gap between the technologist and the user. We are dealing with this problem by greatly increasing the emphasis on Technology Demonstration programs both in the Services and in DARPA. In these programs we select a promising technology, build a demonstration system and operate it in the field to expose it to users, demonstrate its capabilities and reveal its conceptual weaknesses. These demonstrations can be done quickly and relatively cheaply, because the equipment does not have to meet military specifications. Such demonstrations are proving invaluable in introducing the user to the potential of new technology and introducing the technologist to the operational problems faced by the user.

Bringing together the technologist and the operational user in the field will not only lead to equipment designs which are better suited to the user's needs, but will stimulate the earlier development of tactics and doctrine necessary to effectively exploit this new technology in combat operations.

7. Direct Commercial Technology to Defense Needs

Between our funded Science and Technology program and the contractors' Independent R&D program, we have an outstanding ability to direct technology resident in the defense industry to high priority defense programs. However, we have little ability to influence those companies whose sales are predominantly commercial. This is a serious limitation in the case of the semiconductor industry, whose products play a crucial role in nearly all of our advanced weapon systems. Therefore, we have initiated a new technology program intended to direct the next generation of large-scale integrated circuits to those characteristics most significant to Defense applications.

This initiative, called the VHSIC (very high speed integrated circuits) program, will require expenditures of \$31 million in FY 1980, and involve a total program cost of about \$200 million over six years. While this is a substantial investment for a technology base program, we expect this investment to stimulate at least an equal amount in industry. The semiconductor industry is very competitive and attuned to large R&D investments in new technology. In 1978, for example, they invested over \$300 million in R&D on new products and improved technology. Our goal is to get the full benefit of our investment plus the added benefit of influencing the direction of a substantial amount of company R&D.

The technical objective of our VHSIC program is to develop chips that have more than ten times the density and 100 times the speed of current chips and are capable of meeting military specifications of ruggedness and reliability. Basically, we are developing "computers-on-a-chip", or high speed microprocessors, that will perform advanced signal processing and the rapid computation required for our "smart weapons". We will concentrate on those chips which will be critical components in our next generation of weapons--precision-guided munitions, air-to-air missiles, cruise missiles, ICBM's, night vision devices, torpedoes, and ASW processors, for example. This program will insure that the U.S. maintain a commanding lead in semiconductor technology and that this technology will achieve its full potential in our next full generation of weapons systems.

8. Develop a Framework for Improved Cooperation with Allies

Earlier in my statement, I described the importance of co-operation in the NATO-wide development and procurement of arms. I also described the formidable barriers to achieving this cooperation. In order to overcome these barriers, we have proposed a triad of cooperative programs: General Memoranda of Understanding (MOUs) in reciprocal purchasing; Dual Production in NATO countries; and the Family of Weapons.

a. General MOU's

The purpose of the general MOU's is to facilitate competition by NATO's defense industry in the defense market of each NATO country. These MOU's waive various "Buy National" restrictions on a reciprocal basis. We have already negotiated such MOU's with the U.K., Canada, Germany, Norway, the Netherlands, and Italy. It is too early to forecast the precise benefits which will result from these MOU's. Nevertheless, initial results are encouraging, and I believe that this approach is valid for the whole alliance. We have invited NATO countries who have not yet done so to enter into such agreements with the U.S.

b. Dual Production Programs

Dual production is the second leg of the cooperative triad. When one nation has completed development of a system which is useful to the alliance, that nation should make its system available for production by other countries or consortia of countries. This will eliminate unnecessary duplication in R&D, while avoiding the trade and labor imbalance that would result from exclusive development and sales. We are already engaged in such dual production arrangements on the French/German developed ROLAND. The Germans will produce the MODFLIR night vision device and have formed a consortium to produce the AIM-9L air-to-air missile, and we have offered the COPPERHEAD laser-guided artillery projectile, and the STINGER shoulder-launched surface-to-air missile to European consortia. We will offer others, and we will consider reciprocal offers of NATO countries to the U.S. These dual production programs can lead to the near-term introduction of the latest technology in NATO's deployed forces at the lowest practical cost.

c. Family of Weapons

The Family of Weapons is the third leg of our cooperative triad. Here the principal objective is to obtain greater efficiency by reducing needless duplication in our development programs. We want the \$12 billion we spend for R&D and the \$4 to \$5 billion our allies spend to yield \$16 to \$17 billion worth of combined results. Our approach is to examine the weapons which member nations plan to develop in the next few years and aggregate those weapons by mission area. When we find two or three that perform similar missions, we will agree to divide the responsibility, with one party developing a long-range version, the other a short-range version, for example. We would anticipate such divisions to be made among the U.S. and Canada on the one hand and European consortia on the other. Each nation would fund the program for which it is responsible. When the development is completed, the developing nation would make available to the other participants a data package for production. Exchange of production data packages would be on a reciprocal basis to include all programs in the family.

As a result of discussions with our Allies and an industrial dialogue initiated in the recent Defense Science Board Summer Study, we have modified this Family of Weapons proposal somewhat. When the U.S. has the lead, we will designate a portion of the development to be available to European industry. The European consortium, in turn, will designate a corresponding portion of their development to U.S. industry. The purpose of this modification is to encourage trans-Atlantic industrial teaming, to provide the best available technology and to facilitate the information exchange that will be needed for the dual production that will follow. On all programs for which we are responsible for development and production, we will select the U.S. prime contractors, subcontractors, and European subcontractors on a competitive basis to insure the best technology and lowest cost in the resulting system. We have not yet negotiated specific Family of Weapons agreements, but are exploring as families: Anti-Tank Guided Missiles, Air-to-Surface Weapons, Ship-to-Ship Missiles and Air-to-Air Missiles.

There are important details to be worked out before we can begin development under the Family of Weapons concept. However, I believe that the mechanics of how to implement the families concept can be worked out, provided all have the desire and determination to do so.

Consider, for example, efforts related to a potential family of air-to-air missiles. There is a joint Air Force and Navy program underway to develop an Advanced Medium-Range Air-to-Air Missile (AMRAAM) which will be a replacement for the AIM-7 SPARROW. The program has recently completed selection of two contractors who will proceed into a competitive validation phase.

The operational characteristics of the missile being developed were derived from an Air Force/Navy Joint System Operational Requirements document which has been substantiated by a Mission Element Need Statement (MENS), both of which include the F-14, F-15, F-16 and F-18, and we are working with our European Allies to be sure unique European requirements are considered. To promote interoperability, we have requested design packages on European aircraft (MRCA and Mirage 2000) so the validation phase contractors will have the data required for this task.

We have proposed to our allies that the U.S. AMRAAM become the NATO standard for the medium-range missile. In turn, our European partners would develop the next generation short-range missile as the NATO standard. We also agreed that it would be desirable to have a portion of the AMRAAM development carried out in Europe and a portion of the short-range missile development carried out in the United States. We will encourage the AMRAAM contractors to use European subcontractors to bring the best alliance technology to bear on missile development, and we expect similar participation of U.S. industry in the European program. We have initiated action to schedule two technical interchange meetings to discuss air-to-air missile requirements, European short-range missile technology and AMRAAM technology. Present planning envisions

one production line for AMRAAM in the United States as well as one in Europe to encourage procurement of a large NATO inventory of this advanced weapon. Also, we would plan to produce, in the United States, our inventory requirements for the European-developed short-range missile.

d. Effectiveness and Efficiency Through Armament Cooperation

The ultimate objective of armament cooperation is improved combat force effectiveness. So the first test of a candidate program is whether that program will improve the overall effectiveness of alliance forces. Improving the effectiveness of U.S. forces alone is not sufficient. We will be dependent upon the combat effectiveness of the forces on our flanks, and the criterion for force effectiveness must reflect this reality. The importance of our allies is underscored by the fact that U.S. forces today constitute only 20 to 25 percent of NATO's conventionally armed forces in Europe.

A related criterion is efficiency. A cooperative program should not be considered unless we can reasonably expect it to result in improved exploitation of alliance defense resources. We have not taken full advantage of the total economic and technological resources of the NATO countries, and we will be looking to future cooperative programs to do so.

Efficiency should not be judged solely in terms of an individual weapons system or subsystem. Our judgment should be made on the basis of the improvement offered by the combination of programs in a cooperative agreement. If the program as a whole will improve efficiency and effectiveness, it should be considered favorably.

e. Competition

I have already pointed out that in our national program of armaments development and production, competition is vital to maintaining efficiency. I know of no better mechanism to control costs and stimulate peak performance. Our proposed framework for cooperative programs is entirely consistent with maintaining a competitive environment in development and production on all U.S.-managed acquisition programs. Moreover, it is a framework which can actually increase competition throughout the Alliance.

Our actions to establish General MOU's will open up defense markets to competition, removing on a reciprocal basis the barriers resulting from "Buy National" restrictions. Dual production programs provide competitive alternatives to national programs which are often constrained to national markets and associated small-scale inefficient production. Our proposed Family of Weapons includes a mechanism for cross-participation by the partners in development of a family, allowing competition to work in creating the best team. The family approach also provides production data packages, improving the potential for competition in production.

E. OUR PROGRAM

The Defense budget requests \$13.5 billion for RDT&E and \$35.4 billion for procurement of weapon systems and other materiel and supplies. the allocation of procurement resources is provided in Table 1. Highlights of the FY 1980 Procurement Program are summarized in the following sections.

1. Strategic Programs

We will continue to rely on a TRIAD of offensive forces to ensure that the U.S. maintains a position of essential equivalence. However, we are concerned about the increasing vulnerability and age of these forces, and our key programs are aimed at easing these concerns. We are in the midst of an intensive study on the best way to enhance the survivability of our ICBM forces, and we expect to make a decision on this issue in FY 1979. In FY 1980, we expect to be in full-scale development of a new missile (M-X) and an associated basing system. The SLBM force continues to be our most survivable TRIAD element, and our current actions are designed to provide even greater assurance of its enduring survivability. Introduction of the longer range TRIDENT I missile, to be backfitted into POSEIDON submarines and later deployed on TRIDENT submarines, will allow our submarines to operate in larger ocean areas, making them harder to find and thereby more survivable. When the quieter TRIDENT submarines are introduced, they will be even harder to find. Development of the TRIDENT II missiles will lead to increased accuracy and throw-weight. The air-breathing leg of the TRIAD will rely heavily on the air-launched cruise missile (ALCM)/B-52 combination. ALCM activity will include a fly-off between two candidate missiles leading to a production decision in February 1980.

2. Tactical Programs

In view of the destabilizing effect that the increasing capability of Warsaw Pact forces has had on the military balance, U.S. and NATO tactical forces capabilities need to be upgraded. Maximum use will be made of technological superiority and creativity to develop weapon systems able to defeat larger numbers of enemy systems. Reduction in costs for acquisition, operation and maintenance will be achieved by life extension programs and by cooperative programs with our allies.

The modernization of theater nuclear warfare systems includes the 8-inch artillery rounds, a new warhead for the LANCE missile, PERSHING II ballistic missile, the Ground-Launched Cruise Missile, and development concepts for a theater long-range mobile ballistic missile. These efforts include enhancement of system survivability and security.

Land Warfare capabilities are being improved on a broad front. Close combat systems, such as the XM-1 tank, Infantry Fighting Vehicle/ Cavalry Fighting Vehicle, and the improved TOW anti-tank missile system will provide a combined arms force better equipped to defeat a numerically superior armored force. The new family of complementary air

defense systems, PATRIOT, ROLAND and STINGER missiles and the Division Air Defense Gun (DIVAD), provide the necessary modernization to counter the significantly expanded air threat to our ground forces.

Naval Warfare capabilities will be enhanced by programs such as the LAMPS MK-111 helicopter, and the P-3 modernization. Improvements to the MK-48 torpedo should provide a better capability to cope with the projected increased submarine threat to our sea lines of communication. The surface threat requires that we proceed with programs such as the TOMAHAWK and HARPOON missiles for long and medium range application. Improved fleet air defense will be provided by deployment of the PHALANX gun system and Improved Point Defense Missile System. Mine Warfare advancements will be provided by such programs as the MH-53E helicopter for minesweeping and the CAPTOR, Intermediate Water Depth and QUICKSTRIKE mines for deep, intermediate and shallow-depth mining, respectively.

Our mobility forces will be enhanced through a variety of rotary and fixed-wing programs, as well as improvements to our sealift capability. Procurement of the CH-53E and BLACKHAWK modernization of the CH-47 and replacement of our present combat rescue helicopter should significantly enhance the maintainability, reliability and survivability of our helicopter forces, while modification of the C-5A wing, lengthening the C-141 and emphasizing the very efficient CRAF modification program will go a long way toward alleviating our strategic airlift shortfalls.

4. Defense-Wide Support Programs

Space and orbital support activity continues to center around the Space Shuttle. We are continuing development of the Inertial Upper Stage to deliver DoD and other shuttle user spacecraft to the required orbits, and we are providing a shuttle launch and landing capability at Vandenberg Air Force Base.

Table 1

PROCUREMENT BY DEFENSE PROGRAM CATEGORY
(\$ Millions)

	<u>FY 79</u> (FY 79 \$)	<u>FY 79</u> (FY 80 \$)	<u>FY 80</u> (FY 80 \$)	<u>% Real Increase</u>
Strategic Forces	2,995	3,160	4,914	56.0
General Purpose Forces	22,141	23,363	23,624	1.1
Intelligence and Communications	3,015	3,181	3,357	5.5
Airlift/Sealift	389	410	402	-2.0
Guard/Reserve Forces	1,448	1,528	1,276	-16.0
Central Supply/ Maintenance	927	978	1,013	3.6
Training, Medical, Other Personnel Activities	452	477	503	5.5
Administration and Associated Activities	48	51	63	24.0
Support to Other Nations	85	90	250	180.0
TOTAL	31,500	33,238	35,402	6.5

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SPECIAL SUBCOMMITTEE ON NATO
STANDARDIZATION, INTEROPERABILITY AND READINESS,
Washington, D.C., Thursday, June 22, 1978.

The subcommittee met at 10 a.m. in room 2118, Rayburn House Office Building, Hon. Dan Daniel (chairman of the subcommittee) presiding.

Mr. DAN DANIEL. The subcommittee will come to order.

The Special Subcommittee on NATO Standardization, Interoperability and Readiness welcomes the Honorable William J. Perry who is Under Secretary of Defense for Research and Engineering. Dr. Perry's testimony will complete this segment of our hearings where we have had testimony from each branch of the military services regarding the application of the Department's policies for standardization and interoperability within NATO.

Dr. Perry, since copies of your statement have been provided to the subcommittee members beforehand—and we appreciate your meeting the requirements of the subcommittee—I suggest we follow the usual format of having you summarize your statement and submit the entire presentation for the record, and then you can respond to such questions as the members may have. Dr. Perry, we are looking forward to hearing your testimony. Your contribution is always tremendously helpful to us. You may proceed as you desire.

BIOGRAPHICAL SKETCH OF DR. WILLIAM J. PERRY

Dr. William James Perry was nominated by President Jimmy Carter to be Under Secretary of Defense for Research and Engineering on October 21 1977. He was confirmed by the United States Senate on November 2, and was sworn in on November 4, 1977.

Dr. Perry had served as Director of Defense Research and Engineering since April 1977. That position was redesignated as Under Secretary of Defense for Research and Engineering on October 21, 1977, and Dr. Perry was nominated to fill the newly created position.

As Under Secretary he is the principal advisor and assistant to the Secretary of Defense for Department of Defense scientific and technical matters; basic and applied research; development and acquisition of weapon systems; communications; command and control; atomic energy; and intelligence resources. He serves as the focal point for all test and evaluation matters. He has also been designated the Defense Acquisition Executive. As such, he is responsible for effectively integrating the acquisition of defense systems and equipment within the Department of Defense.

Dr. Perry is one of the founders of ESL, Incorporated, Sunnyvale, Ca., and was serving as President of ESL when nominated on March 11, 1977, to direct Defense Research and Engineering. Besides his management duties, he engaged in analysis of missile systems and the design of electronic reconnaissance systems. His technical specialties include partial differential equations, propagation theory, and statistical decision theory.

Dr. Perry has served on scientific advisory committees for the Department of Defense and the National Security Council. He advised the Government on national security issues beginning with a panel to study the missile gap issue in 1960, and including an analysis of verification problems in Strategic Arms Limitation Talks.

He received the United States Army's Outstanding Civilian Service Medal for "the development of systems for the collection of vitally important intelligence through the use of advanced electronics." He also was awarded the Defense Intelligence Agency's Exceptional Civilian Service Medal for his service as a charter member of the Defense Intelligence Agency's Scientific Advisory Committee.

Prior to establishing ESL, Inc. in January 1964, Dr. Perry spent 10 years with Sylvania Electric Products, Inc., Mountain View, Ca., where he was Director of the Electronic Defense Laboratories. He was mathematics instructor at Pennsylvania State University and a part-time lecturer in mathematics at the University of Santa Clara.

Dr. Perry received his Bachelor of Science and Master of Science degrees in mathematics from Stanford University in 1949 and 1950, respectively, and his Doctor of Philosophy degree in mathematics from Pennsylvania State University in 1957. He has written many classified reports in the field of signal analysis and advanced systems design, and several unclassified papers in mathematics analysis. He is a member of the Scientific Research Society of America, the American Mathematical Society, and the National Academy of Engineering.

He was born at Vandergrift, Pa., October 11, 1927. He and his wife, the former Leonilla Mary Green, have five children.

STATEMENT OF HON. WILLIAM J. PERRY, UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

Dr. PERRY. Thank you, Mr. Chairman. I would like to begin by introducing Dr. Garber, sitting on my left. He is Director of International Programs in my office, and Mr. Dale Church, sitting on my right, who is the Deputy Under Secretary of Defense for Acquisition Policy. Both of them play a key role in implementing these policies.

Mr. DAN DANIEL. We are pleased to have both gentlemen with us.

Dr. PERRY. I will follow your suggestion, simply entering my written statement into the record and confining my comments to highlights of that statement.

I would like to start by pointing out that this is a very significant problem which we are addressing and I would like, to the maximum extent possible, Mr. Chairman, to avoid discussing this problem in sloganeering terms.

There has been a great amount of discussion and debate on the so-called two-way street and on standardization where the emphasis has been on the slogan aspect. The problem which we are addressing does not have as its objective creating a two-way street. What we are trying to create is improved military effectiveness in the alliance. And the various programs to produce standardization of equipment is simply a means to that end. That is a fair criterion by which anything we propose to use should be considered.

The fundamental problem which we are addressing is that in the last decade the Soviets have achieved a significant quantitative lead in the conventional weapons deployed in Europe. What is of even more concern to us is in the last few years we have seen a shift also in the qualitative aspect of the balance to where today we see that many, if not most, of the equipments actually deployed in Europe that we would give a qualitative edge to the equipment of the Soviet Union.

What is perhaps worse than this is the momentum that we can observe in both the Soviet R. & D. program and their equipment procurement and deployment. This results from the very significant investment which the Soviet Union is making in force modernization. We estimate that they are spending something in excess of 40 percent

more for defense than we are, and a greater proportion of their defense goes for equipment modernization and R. & D. than is the case in our own budget. This is the problem we are confronting.

There is an obvious solution to this problem, which is for the United States to try to match those expenditures. I would suggest to you that a 40-percent increase in our defense budget is not a political reality and perhaps just as significant, I do not believe it is necessary. I believe we can compete effectively militarily without matching them in expenditures.

The alternative solutions that are open to us are to exploit the fundamental advantages which we have over the Soviet Union which they are not able to equalize and which they cannot affect simply by spending. Those three advantages I have discussed with the House Armed Services Committee in the past, and they are the strength of our industrial base, the strength of our technology, and the strength of our allies. Any plan which we propose for solving this problem that has been thrust upon us by the Soviet Union should somehow take advantage of those three factors.

Therefore, I conclude that we need to modernize our forces with equipment that is technically superior to that of the Soviet Union.

We need to do that within probable budget constraints. For my planning purposes, I take as a budget constraint that the R. & D. and procurement budget over the period of the next few years will be growing at about 3 percent in real terms. And we need to effect that modernization without impeding the vitality of our defense industry, since that is one of the advantages we are depending on. If I take a specific example of a problem in competing with the Soviet Union, our R. & D. budget this year is \$12.5 billion. I can state flatly to you that it is significantly less than that of the Soviet Union and is not in itself sufficient for us to compete. And yet the area in which we are trying to compete is technology. But we have another \$4 billion in research and development being spent by the NATO countries.

Some people in Congress have pointed out to me that NATO countries should be expending more in R. & D. and should be doing more of their share in holding up the burden of competition, and I would agree that I would like to see the NATO countries spending more than \$4 billion on R. & D.

On the other hand, as long as they are spending the \$4 billion, we should figure out how to use it effectively. And if NATO as a whole could have the benefit of a \$16 billion R. & D. budget, we could really add that \$12 billion spent in the United States to the \$4 billion being spent in Europe, we could more than compete with the Soviet Union.

Now, the fact is the figures don't add that way, and the reason they don't is that a good bit of that \$4 billion is being spent in redundant development, being spent to develop in a competitive way equipment which is also being developed in the United States. That is a central problem, and it is a problem in which our efforts to achieve cooperation with R. & D. in NATO is addressed to solve.

How to describe that problem depends on your point of view. From our point of view, I have described their \$4 billion as redundant to our expenditures. We wonder why it is they have to spend R. & D. money doing the same thing we are doing and why don't they spend it on something else. Of course, from their point of view, it's the other way

around. Our expenditures are redundant to theirs and why should we be competing with them. Whichever point of view you take, it is clear that the money is being wastefully spent from the point of view of the overall alliance. It is also clear that both we and our allies must each be willing to yield some of our parochial national interest to the common good. Neither has much experience in this kind of yielding. Neither shows much inclination to do this sort of yielding, and each is waiting for the other to start.

I am trying to get this process started, and I can tell you that it is very difficult. When I proposed specific actions to try to get this cooperation going, our industry to a certain extent, and our Congress to a certain extent, asked me a question which in simple form is "Why us? The Europeans are not really doing their share and why don't we ask them to take the main burden of this cooperation."

When my counterpart in the Federal Republic of Germany or the United Kingdom or France tries to make these same sort of initiatives or tries to cooperate with these initiatives, the industry in his country and the parliament in his country says, "Why us? Why not let the United States carry the burden of this cooperation?" Both of the critics are correct.

Mr. DAN DANIEL. Excuse me, Doctor. There is a recorded quorum call on the House floor and the Chair will not respond. Please continue.

Dr. PERRY. Both of these critics, as I have pointed out, are correct because each side is highly susceptible to criticism for the history of this program, but both of these critics will continue to be correct unless we can get this process going.

I would make to you a specific request, as you look at our particular proposals here. It is premature to judge us on our detailed plans. It is premature to judge us on the success we have had to date in achieving standardization. There is more than a two-decade history of each country in NATO going its own way in arms development cooperation and we have a lot of history to overcome. I think you might fairly judge us by whether you think we understand the problem that we are trying to solve, whether you think we are bringing sound concepts to the solution of that problem and whether you think we have the management competence to carry these concepts into programs.

One of the specific concerns that is raised about cooperative programs I am describing to you is a concern on technology transfer, and the issue that is raised is will we not be sapping the vitality of our industry to allow them to transfer technology to companies in Europe?

I can bring to you one point of view on this question, but it is the point of view of a person who has spent his entire career in industry. It is that the vitality of the U.S. defense industry rests very much on being able to keep ahead technologically. In my observation, the experience of the shared technology programs which have been engaged in the past, both from a defense point of view and the commercial programs, is that the U.S. companies who have entered these cooperative programs have, in the long run, benefited from the technology transfer. This is because the additional sales and the additional profits which they have realized in these sharing programs have enabled them to invest more in research and development and therefore enabled them to keep ahead in the technological race.

I would further suggest that the concern on technology transfer, which is a negative concern, should be placed more in a positive consideration. We have a responsibility to keep our defense industry vital and keep it competitive. That can be done by properly controlled technology transfer. More importantly, it can be done by maintaining a strong defense R. & D. budget.

I would point out to you that the House in the authorization budget for R. & D. for 1979 has authorized in real terms a 2-percent decrease in R. & D. for 1979 over 1978. I think that is a move in the wrong direction. I think the positive action we can take to maintain the vitality of our defense industry is to keep a strong defense R. & D. program going.

I have described to you briefly what I think are the problems that lead us to want cooperation with our European allies in research and development and in procurement. I should further describe to you that there is an imposing set of obstacles which prevents us from achieving these objectives, but that some of these obstacles are being removed and some are being battered down. I would put it another way: A certain set of conditions has to exist before we have any chance of success.

The first condition is that both we and our allies have to be motivated to work together and I would suggest to you that the motivation comes from increasing recognition, both in this country and the European countries, of the growing strength of the Soviet Union militarily. Related to that is a reluctance in this country and a reluctance in the European countries to match the Soviet Union's defense expenditures. Put another way, a reluctance to increase defense spending more than the 3 percent per year which has been agreed upon by the defense ministers of the NATO countries.

So the first requirement is the motivation to work together. That motivation, I would suggest to you, exists today; whereas, 3 or 4 years ago it did not exist. Therefore, we have a possibility of making progress now that did not exist 3 or 4 years ago.

Second, we require, before we can get cooperation in arms development, an agreement on tactical doctrine. Dr. LaBerge, when he was speaking to you yesterday, discussed this topic and discussed it eloquently. I cannot add to what he said except to underscore the importance of it and point out that I am very pleased with the leadership that the U.S. Army is taking in this regard. And I observe that they are making very substantial progress with our allies in this field.

The third condition for success is that we have to be able to reach agreement on equipment requirements. Most of the contentious issues in the two-way street have arisen over equipment which the United States has developed unilaterally and which some European country has developed unilaterally and then the argument ensues as to which equipment is better. Each of them has a different perception of what the requirements are and therefore they have developed somewhat different equipment. Those arguments rarely get resolved satisfactorily once the argument is engaged and once the equipment has been developed.

Therefore, we have to start out early in the process with an agreement on what our equipment requirements are. We have made very substantial progress in that area in the last year. We have established meetings with the senior armament representatives of each service in

each of the key countries with the purpose of bridging the gap between the users of equipment in the NATO countries and the armament directors, bridging the gap between the users and the developers. They have been very successful in arriving at common statements of equipment requirements.

Again, in Dr. LaBerge's and Dr. Pierre's talk they described to you some of those successes yesterday. The antitank program is one that I think is particularly noteworthy and in which I have a particularly high degree of optimism.

The fourth requirement is that, if we are going to cooperate on procurement programs, we must begin at the R. & D. phase. Once we have an agreement on doctrine and then requirements, we have to work out some way of getting an R. & D. cooperation program together. That requires a concept of cooperation which permits a suitable economic balance among the countries involved, which maintains the vitality of the industry of the countries involved and which capitalizes on the technology which the alliance has that the Warsaw Pact countries do not have.

There are then very many ways in which we might put together cooperative R. & D. programs but there are only a few ways which satisfy those various constraints.

Previous witnesses have listed for you some of the programs that are under way or being discussed now. I do not plan to repeat that listing but I do want to categorize them for you in terms of ways of cooperating.

One of the principal ways of cooperating, which has been used in the past, is to agree on a joint R. & D. program. Three examples from history are the JP-233, a joint United States-United Kingdom program for the development of costly munitions; the Atlis program, a joint French-United States program, a development of a laser designator; and the AV-8A. & B. program, a V/STOL program, which is a joint United States-United Kingdom program. Basically a joint R. & D. program has one very strong advantage, namely it allows two countries to pool their R. & D. resources to get a single common product. The advantages of that are quite obvious. We plan to continue in the future with joint R. & D. programs whenever we can find possibilities for joint R. & D. that seem to be mutually beneficial.

Another method of cooperation is for one country to agree to produce the equipment that another country has developed. Three examples I would mention of that are the AIM-9L, where a consortium headed by the Federal Republic of Germany is going to be producing the AIM-9L, which is an air-to-air missile developed in the United States. The second program is FLIR, and these are the night vision devices developed in the United States. Again, the Federal Republic of Germany is going to head a consortium in Europe to produce those equipments. The third is the Roland missile, where the United States is producing equipment which was developed in France and Germany. The advantages of these sorts of programs are obvious, because only one country bears the R. & D. expenses and three, four, or five countries get the benefit of that in production. So it tends to stretch the NATO R. & D. dollars further.

A third example is coproduction and perhaps the most prominent current example of that is the F-16 program where five different na-

tions banded together to commonly produce one airplane. Again there is a significant savings in R. & D. expenses since they are spread over the five countries involved in the production. One disadvantage of that sort of system is that the production itself is less efficient and, therefore, the unit cost is higher than if a single country had done the production.

Then there are offset programs which I would contrast with the F-16. That is a different approach to cooperation. An example here is the F-5 which Switzerland bought from the United States. This involved a net savings of R. & D. In this case, the United States totally produced the F-5, but in order to provide the offsets for the Swiss economy, the United States agreed to offset at a certain percentage of those sales with unrelated equipment bought from Switzerland. The contractor primarily, and the U.S. Government to a less extent, had the responsibility of finding programs with which to offset the impact of those programs on the Swiss economy.

All of those are ways essentially of saving R. & D. money or stretching R. & D. to make it go further. I would like to suggest one more approach which we were just experimenting with this past year, and that is the approach which we call the family or package approach to weapons cooperation. In this approach—and instead of describing for you in general I will take a simple example and the example I would like to use is the antitank weapons.

The United States has fielded today a system called TOW, which is a heavy antitank missile mounted on vehicles and a system called Dragon, which is a medium-weight man transportable antitank missile. Our Army perceives a requirement to replace TOW and to replace Dragon with modernized improved equipment which would be developed in the eighties. We would anticipate spending in R. & D. in the eighties about one-quarter of a billion dollars for each of those programs. Therefore, without cooperation we would be expecting to come to Congress and ask for one-quarter billion for each or a total of one-half billion for research and development on them during the early eighties.

In the meantime we observe that France, Germany, and the United Kingdom are proceeding independently with developments of antitank missiles. Interestingly enough, these developments are intended to meet the same requirements that our developments are intended to meet. Therefore, we have proposed to these countries that some form of cooperation might be mutually beneficial. A particular form we are discussing is one whereby the United States, for example, would agree to develop a heavy antitank missile and would agree to refrain from developing the medium. The European countries on the other hand would form a consortium to develop the medium antitank missile and would refrain from developing the heavy.

If we could reach that kind of agreement, then the impact on our R. & D. would be to cut our requirements in half and the impact collectively on European R. & D. would be to cut their requirements in half. This is an example of what I mean by stretching our R. & D. dollars.

The proposal would then have to envision what happens after these equipments are developed. Our suggestion along that line is that the United States would offer to the European countries two options for

the missile we had developed: First, they could buy that missile from us and we would agree to sell it to them at terms compatible with the cost to our own services, or second, if they did not want to buy the missile, we would agree to provide the data package to them and let them produce it themselves.

In the reverse case, the case of the medium antitank missile, the Europeans would make a similar agreement with us. Now, that is one particular way of achieving cooperation in R. & D. and procurement which saves R. & D. dollars and has the potential of stretching procurement dollars as well. It does not get involved in the production inefficiencies which arise from coproduction programs such as the F-16. We are pursuing that as one interesting potential for achieving improved cooperation among our NATO allies.

I think I perhaps have given you a sample of what we perceive the problems to be and the approaches that we are taking to those problems.

I would summarize a bottom-line evaluation for you. All of our actions directed toward improved cooperation in research and development or in procurement are directed toward improving the military efficiency of the alliance at the lowest cost which we can achieve. We do not believe that the two-way street is an objective in itself. We do not believe that standardization is an objective in itself. And I am personally very tired of hearing those slogans bandied about town. What we do have as an objective within the available budget is more military effectiveness in the alliance. That is what we will be working to achieve. I think you can fairly judge us by that criterion, and that is the criterion by which our program should be accepted or rejected.

Thank you, Mr. Chairman.

WRITTEN STATEMENT OF DR. WILLIAM J. PERRY

Mr. Chairman, Gentlemen:

My purpose today is to discuss with you a subject of vital importance to the United States. I am referring to improved cooperation with NATO countries in the field of armaments development and acquisition; these issues may well spell the difference between victory and defeat in Western Europe.

The fact is, that with a GNP more than double that of the Warsaw Pact nations, a population 50% greater, NATO is today in a condition of numerical military inferiority--we are outgunned and outmanned.

Being numerically inferior, the Alliance must cooperate on the battlefield and must have common operational concepts in order to have a chance to prevail. Unfortunately the lack of unity in armaments, while not excluding operational cooperation, makes this cooperation very difficult--thus any progress we make in unifying our weapons will have a multiple effect: it will enable us to use our resources more efficiently, and it will promote unification of operational concepts thereby creating the environment for more effective cooperation in battle.

Previous witnesses have testified about this NATO-PACT unbalance. They have described the problems created by the multiplication of NATO systems to fulfill the same function. They have told you about communications systems that cannot communicate with each other, the lack of interchangeability of ammunition, the multitude of types of anti-tank weapons, guns and aircraft--I will not repeat their numbers here.

The conditions of NATO in 1978 reflect a history of more than 20 years of disunity in system development and acquisition. The United States must carry our share of responsibility for this situation, but our NATO allies are by no means blameless. However to recriminate about the past serves no purpose unless we draw from past lessons for our future.

For some time we said to ourselves that our qualitative superiority would make up for our quantitative inferiority; we cannot say this any longer. An examination of deployed Pact armaments reveals weapons of high quality; in many cases not as good as the best we have developed but in many cases better than the best we in NATO have deployed.

Warsaw Pact armaments generally are standardized with common doctrine of employment and common spares from nation to nation. The RSI symbol which means rationalization, standardization and interoperability refers precisely to the three characteristics of the Warsaw Pact equipment that are sadly missing in NATO equipment.

The time has come to give more than lip service to RSI.

Some of the steps that we will take may appear as not aimed at maximizing the sales or the profits of our own armament industry. I will try to prove later in this testimony that our actions should actually strengthen U.S. industry in the long run, but in any case I believe that making NATO strong in the important issue; because the strength of NATO is a major deterrent against another European conflict and the avoidance of a major conflict is of fundamental importance for the nation.

Let us look at the armament situation with European eyes. Their engineers are good and so is their equipment. In some areas, such as short range anti-ship missiles and short range Army air defense, they consider themselves ahead of the U.S.; in other areas they believe they are as good as we are or could do as well as we, if given the chance.

As a consequence of these beliefs there have been established, within NATO, organizational entities whose purpose is to have European countries buy armaments from Europe and not the U.S. This type of cartel would of course make the situation worse and would impair and exacerbate Europe-U.S. relations. Since NATO, unlike the Warsaw Pact, is not an alliance imposed and preserved by force, our allies

believe that they and their industries should be given a better chance than they have now. Europeans know, of course, that in weapons like the F-16, Hawk and others, they have secured co-production agreements; but they point out that their engineers have not participated in the developments and they believe that their military requirements are not always taken fully into account. Perhaps a comparison with a situation with which you are all familiar can help to explain European psychology.

Think what happened in the past when OSD tried to impose commonality upon the U.S. Navy and the U.S. Air Force. The history of the TFX, now F111, or that of the heavy lift helicopter are not so old. Why should nations in NATO not feel slighted, just like our Services do, if they are led to believe that we do not give enough weight to their needs or give the impression of evaluating unfairly their technical capabilities?

Without debating the validity of the European point of view, there is no doubt that: (1) We have not taken full advantage of the total economic and technological resources in the NATO countries; (2) The Warsaw Pact countries, thru RSI, have done a better job than NATO in utilizing their resources to increase the strength of their armies, as a whole; (3) The qualitative edge of NATO armaments may well not be sufficient to compensate for their quantitative inferiority. U.S. forces constitute only 20-25 percent of NATO conventionally armed forces. It would be folly for the U.S. to be concerned only about the capability of 25 percent of NATO.

Our failure to achieve satisfactory RSI in NATO is particularly surprising if we consider how successful we have been in solving similar problems. For example, our civilian aviation uses equipments built in competition by a variety of manufacturers. These devices must be interoperable and must interface successfully with ground equipments in many countries. In addition to this, air-

planes are built without defining the manufacturers of the avionics equipments.

All of these results were obtained without complete standardization--the combination of RSI and FFF (form, fit and function) solved the problem without preventing intense competition among the suppliers.

Thus the airlines teach us that one way to solve the RSI problem in NATO is to establish:

(a) an entity that defines an agreed upon set of functional specifications (for civil aviation, the FAA in the U.S., ICAO in the international field),

(b) A user association that defines interfaces, functions, and equipment dimensions (in the U.S. this Civil aviation association is AIRINC).

But following the lead of civil aviation is not by any means the only way of approaching the problem.

Answering the challenge to do something now about the lack of armaments cooperation and to harness the strengths of our free enterprise system is one of my most important problems. There are many obvious impediments to progress. I have initiated efforts to try to address and cope with some of them in order to lay the groundwork for substantive progress. Before proceeding to explain some of our thrusts and initiatives, I would like to highlight the major impediments⁽⁴⁾ that must be addressed.

First of all, we must create a mutual atmosphere of confidence among us, our industry, and our Allies. I intend to improve our communications with Congress and the opportunity to testify before this Subcommittee is a welcome chance to do this. I will continue to seek advice and feedback on our policies from industry, labor and our Allies. It is clear to me that unless we have the full support of the Congress, industry and labor, and unless we can accommodate the key concerns of our Allies and their industry, we will not make substantive progress.

I would like for a moment to address the concerns of our Allies. I hope to convince our Allies that we are serious about increased cooperation and will not limit our efforts to lip service. To this end, it will be very important to identify, test, and purchase selected cost-effective items from our Allies. Part of the difficulty is that when an item is already developed and in production, it is by no means sure that it will fill a military need of another country. We intend to harmonize requirements early and identify jointly with our Allies potential high pay-off programs that would contribute in a significant way to NATO military effectiveness or cost savings in the various mission areas. Key NATO projects will need to be identified by phase of development and acquisition so we can develop our cooperative programs in a jointly agreed time frame. Thus, in the future, the Allies could arrive at the production stage not with many redundant systems looking for a sale, but with a complementary list of products that could find broader markets and fill anticipated needs. Such a matrix of "key NATO programs" would include, and build on, the programs recommended in the Long-Term Defense Plan.

A related major difficulty is our policy for controlling third country sales that our Allies may desire if the equipment in question is of U.S. origin or development. Not knowing ahead of time what our decision may be presents a major disincentive to cooperation with U.S. If, as part of our cooperative agreements, we could identify a priori the limitations that would be imposed, our Allies could at least make an educated decision whether to cooperate with us in a given area. Conversely, there could be a "give and take" negotiation when we deal with equipment of non-U.S. origin. To this end, negotiating specific MOU's containing provisions for third country sales, with Department of State and Congressional approval, seems to be a possible solution.

Technology is a precious commodity and we must be careful in our implementation of the policy to share

advanced technology for the sake of increasing NATO combat effectiveness. Clearly, every country must maintain a balance between improving the Alliance defense and protecting its own interests.

I believe, however, that if we share technology judiciously, the policy will have a synergistic effect in stimulating technological progress and a favorable impact on our industry. Certainly within the European community there is an increasing recognition of the need for common science/technology policy and the necessity of increasing cooperation.

I anticipate that technology sharing will infuse vitality to both the U.S. and European technology base. We have seen such an effect of technology transfer here in the U.S., and within the European Community and there is reason to expect a similar effect from the relationship of the NATO Alliance.

I also intend to be especially watchful of any technology that could negatively impact on our industrial competitive edge and allow for such transfer only if the benefits to the national security outweigh any possible negative effects. But most importantly, we must maintain technological leadership by investing in the leading edge of technology. In DoD I intend to continue to insure our technological superiority by supporting seven percent real growth in the technology development funds for the next few years.

I am just as concerned, however, about the negative impact on our industry which I believe will result if we fail to cooperate adequately and in a fair manner with our Allies. If we do not engage in a two-way purchase of each others equipment, if we do not share technology, especially in areas where they have deferred development to us for the sake of a national application of our joint resources, we will see barriers against our industry and our

products that I believe will have a major negative impact on our industry.

We must prevent such a reaction (which has already started) and work with our Allies toward the establishment of a favorable climate for our industries. To this end I will be asking for your support in removing the legal and regulation barriers of protectionism on both sides of the Atlantic. We must be concerned about improving the climate for industrial innovation so essential to the well-being of the United States on a national level. I understand that the President has directed a study under the chairmanship of the Secretary of Commerce to develop a set of policy options on these issues.

Approach

What are the specific solutions to accomplish our goals? A few minutes ago I gave the example of present methods of procuring civil aviation equipments as a model that could be followed--I also alluded to a "key NATO programs" matrix that I will presently discuss in more detail but, let me first discuss the policy framework for Rationalization/Standardization/Interoperability (RSI). The broad policy for RSI has been previously set forth by Congress and last year reconfirmed by the President and the Secretary of Defense. We must work with Congress, industry and the Departments of State and Commerce to develop the specific foundations to guide the implementation of the RSI policies. Also, estimates of the economic benefits of RSI and the feasibility of specific implementation actions must be substantiated by analytical studies. We have initiated such efforts within the Department of Defense. Here are some of the examples of the types of studies which we are sponsoring:

--An effort by Rand Corporation to study European experience in multi-national weapons acquisition. We are also collaborating in a related study sponsored by the State Department to assess the impact of alternative U.S. approaches to transatlantic defense cooperation on the rationalization of European Defense Industry.

--Economic consequences which might result from NATO RSI.
--The impact of implementation of NATO Guidelines on Intellectual Property Rights (IPR).

I have also asked the Defense Science Board to conduct a summer study on the subject. This forum will provide us with means to obtain additional insights for dealing with the problems of RSI. In particular, a hard headed, practical businessman's review of this opportunity by those experienced in the high levels of government and industry should develop guidelines and actions that have realistic chances for implementation and success.

Four basic tasks will be undertaken:

--(1) Analyze the current US RSI initiatives and assess their projected impact on (a) NATO security and (b) U.S. industrial viability. What methodology/information base is needed to better estimate the macro and microeconomic impacts of RSI in the U.S. and abroad?

--(2) Investigate the feasibility of general guidelines that could be used to establish a basis for joint US/European management of defense projects. If general guidelines are impractical, can systems or industrial sector specific guidelines be developed?

--(3) Identify business and financial arrangements most conducive to standardization and recommend changes to U.S. Government procurement practices, business regulations, and export restrictions that would facilitate standardization. Conversely, what changes should we request from our Allies?

--(4) Identify and propose actions that would improve the harmonization of requirements, as well as any unilateral U.S. steps that would improve S/I. Guidelines should be developed for achieving S/I at the least cost to the U.S., as well as the cost we should be willing to pay to achieve S/I.

I intend to work for an atmosphere for industry where our RSI goals would be implemented to the maximum extent possible

by the "pull" of the free market forces rather than through the government's "push." Our policy will be to encourage our industry to establish industrial relationships with European firms to participate in European R&D. Also, industry will be free to participate as primes in European nations where this is allowed under MOUs between U.S. and European countries; for example, in Canada, the UK, and Norway. When European R&D is completed on a system, if a decision is made to produce in the U.S., production competition would be open to all U.S. industry. Teaming arrangements would be encouraged between industrial firms from both sides of the Atlantic since they could compete for U.S. and European funded programs, for the combined "two pots of gold." We should further set the stage for a viable and competitive arms industry--by eliminating to the maximum extent possible legislative and regulatory barriers on both sides of the Atlantic. I intend to implement guidelines on RSI that should be acceptable to industry by soliciting the advice of industry on this matter. Finally, I intend to develop RSI plans jointly with the Services for specific programs and projects that could be communicated early to industry so as to reduce uncertainties and allow for the formulation of investment strategies. We have already done this on AHAMS, HARM, STINGER, NAVSTAR, SINGARS, JTIDS, and NATO AWACS.

There is no one approach that will work best for all projects and areas of cooperation. For the large systems like AWACS, the PATRIOT-variant and future fighters, some form of joint venture between us and Europe may be the only acceptable alternative. Coproduction will continue to be a useful approach for achieving standardization and providing advanced technology solutions within NATO. We are looking for ways to minimize the problem of working out some approach for cooperation for each project. (This tends to be difficult and often expensive). Examples of programs worked out on a project basis where equity and efficiency were difficult to obtain are AWACS, F-16 and MBT-70.

I think an even more attractive solution lies in the use of the "package" or the "family of weapons" approach. Such an approach would not require joint development on all projects, as joint development is sometimes cumbersome and in effect requires multi-government involvement in the management of such programs. The "package" approach would rather identify countries or groups of countries for the funding and development of certain items of equipment to NATO requirements. Thus, for example, one could envision France, UK and West Germany taking the lead and organizing the European development of a short range ship-to-ship missile with our participation being limited to insuring that such a missile would meet our projected requirements; and, in turn, we would fund and take the development lead for the long-range ship-to-ship missile, being cognizant of the requirements of our Allies. At the completion of the development, we would make our developments mutually available for licensed production or two-way purchase from each other to insure cost effective production runs. A key to making this approach successful is to harmonize requirements as early as possible in the acquisition cycle. This we intend to do with the help from the PAPS that is being developed under the auspices of CNAD.

In executing our programs it is our intent to foster maximum competition and encourage industrial teaming on both sides of the Atlantic to assure that the best resources are brought to bear on the problem. The general MOUs that we have negotiated with Canada, UK, and Norway and which are being negotiated with Germany, Italy and the Netherlands are intended to set the stage for free market conditions on both sides of the Atlantic. The industrial teams will be looked to for the best technological solution to the system requirements. Thus technology transfer will take place in both directions, and the most competent teams would win, insuring a viable climate and cost-effective military systems. Therefore, in exercising our responsibility

for the transfer and control of military technology, we will have to weigh the contribution of NATO against any potential adverse effect, such as the possibility of compromise and the transfer of technology with significant civilian applications.

It would be appropriate at this point to summarize the current government-to-government vehicles for cooperation in science and technology with our allies. The main thrust of such cooperation is sharing of scientific and technological resources for the strengthening of collective defensive capabilities. These are systems specific MOUs, data exchange agreements (DEAs), the Technical Cooperative Program (TTCPs), Information Exchange Programs (IEPs), and cooperative work in NATO's Defense Research Group (DRG).

Let me finish my testimony by highlighting some of the accomplishments in both governmental and industrial cooperation to date. In a very important area of C³ we have concluded some and are developing many other MOUs in such areas as JTIDS, tactical area communications, IFF and navigation. These represent a sizeable investment of management energy and have significant promise. Of course, we have already developed considerable C³ "past experience" in NATO-NADGE, NICS and predecessor communications projects such as ACE HIGH and CLP-67. Although these last two are now common-funded, they weren't always although both represent NATO solutions to interoperability problems.

The Information Exchange Project with the UK, IEP-1972-UK-AF-4, on Airfield Attack was the precursor to the MOU on JP-233. JP-233 is certainly a prime example of a cooperative R&D venture with high potential for an eventual standardized airfield weapon.

Data Exchange Annex, DEA-AF-76-G-7441, on Digital System Architecture and Integration is an example of cooperative technical interchange which promises a degree of standardization at the component and subsystem design level and a resultant reduction in proliferation and life cycle costs of hardware and software.

Typical work accomplished by DRG includes anti-armor analysis, design of high-speed naval surface vessels and electronic warfare vulnerability studies. The Technical Cooperation Program achieves similar goals between the Australian, New Zealand, Canadian, United Kingdom and United States Defense Departments and is particularly effective in such areas as materials, chemical defense, electro-optical and undersea warfare, where opportunities exist for the integration of programs to increase the total science and technology output. Both of these programs have procedures for regular and systematic transfer of technology at both policy and working levels.

In summary, I have described to you a difficult problem, but a solvable one. The solution will have high payoff to this country and to our NATO Allies. But we must work together as a team with common objectives to realize this solution.

Mr. DAN DANIEL. Thank you very much, Dr. Perry. Do either Mr. Church or Mr. Garber have anything to add at this point?

Mr. CHURCH. Not at this point.

Mr. DAN DANIEL. Dr. Perry, you stated, I believe, that the United States is allocating about \$12 billion of its defense budget this year to R. & D. and the alliance has committed \$4 billion. You also talked about what you are doing to bring about better cooperation so that we would not have too much redundancy. Now, what is required of Congress to assist in meeting that objective?

Dr. PERRY. I guess I would make three points in that regard, Mr. Daniel.

The first point, which I guess is obvious enough, is that Congress would have to support our R. & D. program in general, provide the basis for the R. & D. program through the authorization and appropriation process. That is an obvious point, but a point which I would like to underscore, because whatever form of cooperation we get involved in does rest on the very strong base of the U.S. defense R. & D. program.

Second, I think Congress should review the policies, the objectives, and the plans which the department is engaged in to achieve approved cooperation and come to a judgment as to whether we are proceeding on the proper course and with the proper objectives.

Third, to the extent that any of the plans, or any of the specific projects I have described to you, are off target, or are moving in what you think is an improper direction, you have a very strong vehicle for correcting that misdirection in the authorization and appropriation process. All of the plans I have described to you for cooperation in arms development, as opposed to some of the other cooperative programs, require authorization and appropriation actions in order to realize them.

In the case of the antitank cooperation I described to you, the Congress each year will have a chance to approve our program by accepting our judgment that we do not need to develop a medium antitank missile and allowing that judgment to pass and by accepting our judgment that we should be developing a heavy antitank missile and authorizing sufficient funds to do that.

So Congress, in the case of arms cooperation, has an extremely powerful role to play, but that role is primarily through the authorization and appropriation process. Because of our sensitivity to that, I think it is extremely important that we communicate adequately to Congress what our objectives are and how we are trying to achieve them so we can gain the support necessary.

Mr. DAN DANIEL. I am delighted to hear you say that because my own feeling is that the DOD has been too reticent in many respects in making their views known to Congress. At the same time, I think they have been on the fence too much, and it is encouraging to me to note that there is a changed direction.

Dr. PERRY. I would comment on one point of that, Mr. Chairman, the mechanism for making our views known on NATO standardization as a subject is quite diffused.

Mr. DAN DANIEL. I was not referring to that specifically.

Doctor, when you and I talked last, I expressed to you my concern about the trend toward zero technology growth, which is highly dis-

turbing. Did you have an opportunity to read the article in the Washington Post yesterday on this subject in which they reported that the conclusion was that American industry is losing its edge because it is exporting much of the technology used to keep the United States ahead?

Dr. PERRY. Yes; I not only read that article but I attended that meeting. It is the meeting of the American Association for the Advancement of Science. I heard the speeches on both sides of that subject.

Mr. DAN DANIEL. Do you agree that the U.S. technology superiority is declining?

Dr. PERRY. I believe the U.S. technological superiority in a relative sense is declining, and the statistics are ample to back that up.

Mr. DAN DANIEL. Only relatively.

Dr. PERRY. In a relative sense. And the reason for that is primarily not because we are declining but because the European nations are improving, which, to the extent that improves the status of technology of our allies in Europe. I think it is a positive rather than a negative factor. Part of the reason for their improvement is because of the assistance we have given them in the early years. Another part is just that it took them generally longer to recover from the ravages of the Second World War than it did the United States. And so we see a natural buildup as they are recovering.

I might mention that at the meeting itself, there was an excellent speech given by the vice president for research of General Electric who took the opposite point of view to the conclusion you read in the paper. He said from the point of view of General Electric, looking at his own company, their experience in transferring the technology has been that it has stimulated sales in their company, the profit in their company, and it has allowed them to increase rather than decrease their technological lead over competitors.

Mr. DAN DANIEL. I had the opportunity to read that myself and it was not only intriguing but I thought encouraging.

Dr. PERRY. So I am not a pessimist at all about the state of health of U.S. technology. And I think the figures as I indicated to you are misleading because they are given in relative terms, and I don't think we should be unhappy or concerned because our allies in Europe are improving their status of technology. Our interest should be in the positive aspect of it, which is increasing the strength and vitality of our own companies.

Mr. DAN DANIEL. What are the critical issues which have been ignored, if any, in the past regarding technology transfer?

Dr. PERRY. I think, all too often in the past, Mr. Daniel, we have regarded it on a case-to-case basis without a policy framework to consider each decision. And then we have regarded it without a realistic consideration of the role of technology in maintaining the vitality of U.S. industries.

Different students of this subject come to different conclusions about what that role is. My conclusion is that technology transfer done intelligently actually stimulates the vitality of the U.S. industry and the U.S. economy. At least in those industries which are technology intensive, such as the defense industry is.

Mr. DAN DANIEL. Of course, having come from industry, you are aware of the concerns perhaps as much as anyone in Congress, and I wonder if you can tell us where are the safeguards to prohibit the inappropriate transfer of technology when the pressures are on to produce results? As you well know, this is difficult in any bureaucracy, public or nonpublic, for that matter. This Member would be interested in how DOD would avoid it.

Dr. PERRY. I would offer the observation that we probably have overregulated the problem from the point of view of safeguards and that we have impeded our industry from making commercial arrangements and industrial arrangements which would have been beneficial not only to them but, in the long run, to our own national security. The Secretary of Defense issued a departmental directive last fall intended to at least partially correct that problem in which he stated the importance of not releasing technology when it had a clear national security connection to it, but also stated in very positive terms that whenever we could demonstrate that the release of technology improved the collective security of the NATO alliance we should approve that release.

As far as I am concerned, those are more than words, they have been my guidelines in deciding issues involving technology transfer.

Mr. DAN DANIEL. Mr. Stump.

Mr. STUMP. I have no questions, Mr. Chairman.

Mr. DAN DANIEL. Mr. Whitehurst.

Mr. WHITEHURST. Thank you, Mr. Chairman.

Dr. Perry, you gave an excellent statement. You have made some interesting proposals. The thing I am impressed by is that they show a great deal of imagination which I think has to be brought to this subject. This is not meant in a hostile way, but how realistic are they, and what has been the European response so far, aside from the fact that they have said, "yes, it's a great idea" or, "no, these ideas are not practical"? Are they responding in a meaningful way?

Dr. PERRY. I would like to answer your question semifacetiously and then get more serious.

I observed in a discussion I was having the other day that these were great proposals and, with the exception of U.S. industry, U.S. Congress, European industry, and European parliaments, we had a groundswell of support. [Laughter.]

That is only semifacetious, because there is a great deal of apprehension in industry on both sides of the Atlantic and the Congress and parliaments on both sides of the Atlantic.

There are large economic issues involved here and we are proposing changes. Of course, there is the fear of the unknown anytime you propose it. So, getting down to the the question of the realism, we cannot succeed in these programs unless the industries on both sides of the Atlantic, unless the Congress and the parliaments develop a level of support for them. They are not actions which we can take in the executive branch unilaterally and carry them out. So I see it as an iterative education process. I am not sitting back and waiting until I get a mandate from industry and Congress to proceed on this program because the first question they will ask me is the one you asked, what kind of support are you getting from Europe. So I am proposing these ideas to Europe and they are very interested in them. They are appre-

hensive. They wonder, first of all, are we serious, and, second, they wonder will our Congress support us.

Mr. WHITEHURST. This subcommittee is going to Europe the week of July 4 and our chairman, who is a very industrious chairman, has scheduled us from morning to night meetings, including some working lunches and working dinners. We will meet with people in industry in the major countries as well as military and government leaders.

How would you feel about our taking copies of this along and distributing it along the way, not leaving a trail of blood behind us, but letting them have a chance to massage this thing so that they will see this is what we are looking at and examining. Or have they already got these proposals?

Dr. PERRY. I would feel very good about your doing that and, in fact, if you had a transcript of the testimony, the give-and-take on this discussion, I would feel good about your leaving that behind, too.

Mr. WHITEHURST. I think that is an excellent idea, and I recommend we do it.

Mr. DAN DANIEL. Without objection.

Dr. PERRY. One of the comments that is continually thrown in my face is, That's a great idea and we'd like to go along with it, but when it comes right down to it you won't be able to get your Congress to support you. And I don't believe that. I believe that if we can present to the Congress a reasonable plan which, as I said, is not a sloganeering plan, but is founded on increasing the military effectiveness of the alliance, I think the Congress will support it. I would not be proposing it if I thought it would not, in the last analysis, be supported by Congress.

Mr. WHITEHURST. Have the Europeans had a chance to see this and react to it?

Dr. PERRY. The European armament directors have. I have been discussing these ideas with them for about a year and very seriously over the last 6 months. They have talked with their defense ministers, and these ideas were discussed with not only the defense ministers but with the heads of state.

Mr. WHITEHURST. Do some of these ideas reflect their thinking, too?

Dr. PERRY. Some of those ideas indeed do. As I understand your itinerary, you will be talking with the armament directors in each of these countries. You also will be talking with industrial people.

Mr. WHITEHURST. So it is not just an American scheme and it is one with European input?

Dr. PERRY. European input and at least at the armament director level a strong level of support.

Mr. WHITEHURST. I think that is very significant when we have dialog with them to point out that this is not the American plan, this is one that has their mark on it too.

Mr. Chairman, I will reserve the balance of my time if I have any left.

Mr. DAN DANIEL. Dr. Perry, let us talk about incentives a bit, if we may. Are there Government incentives to private industry in the alliance countries which are greater than those provided industry in our own country through research and development funds?

Dr. PERRY. I missed the first part of the question.

Mr. DAN DANIEL. Are there Government incentives to private industry in the alliance countries which are greater than those provided private industry in our own country, for example, through research and development?

Dr. PERRY. Yes; there are. That is not across the board, but there are many examples in Europe where the government would provide direct support to their industry or direct support in R. & D. different from what is done in this country. In a certain sense that gives the European industry—when they get those advantages—a certain advantage over the U.S. industry.

On the other hand, the U.S. Government has its \$12½ billion R. & D. budget, the bulk of which goes to our industry and this gives them an advantage over European industry. The difference is that the Europeans sometimes dispense their favors on a selected instrument basis, a company at a time, whereas the U.S. R. & D. budget has to be competed for and we do not simply pass it out. We do not support individual companies. We support an industry which is a different point of view.

Mr. DAN DANIEL. Another thing that comes to mind also in this same connection is the absence of environmental protection safety and health laws. How do they compare with ours or has any cost comparison been done in these areas?

Dr. PERRY. I don't have good figures for that, Mr. Daniel. My observation is that they are emulating us in this respect and that they will have many of the same kind of expenses in the future that we have at present.

Mr. DAN DANIEL. What you have said is, if there is an advantage now, it won't be very long?

Dr. PERRY. I believe it is correct as to that particular advantage.

Mr. DAN DANIEL. Mr. Lloyd.

Mr. LLOYD. Thank you very much, Mr. Chairman.

Welcome, Dr. Perry. I enjoyed your presentation this morning. As always, it is not only succinct but represents good clear thinking and even though we don't always agree, I do indeed appreciate your presence.

You indicated that there might be some savings on the F-16 production, or that there was. How much of a savings would you say we have had as a result of the cooperation we have had with our NATO allies?

Dr. PERRY. It is hard to find the right frame of reference for that. Let me give you a generalized answer and see if I can get more specific numbers for you at the same time.

Regarding it as an alliance investment, there was a significant savings in the R. & D., because the R. & D. costs were spread over five countries instead of being borne by one.

Mr. LLOYD. When you say it was spread over five countries, was it done on a pro rata basis based on the buy, or was it a fixed percentage figure, or how did we arrive at that?

Dr. PERRY. It was pro rated and let me ask Mr. Church to tell you the formula.

Mr. CHURCH. I can provide it for the record.

Mr. LLOYD. Would you provide it?

Dr. PERRY. There was a pro rated formula and we will get the exact formula for you.

[The following information was received for the record:]

Based on a 2,000 aircraft program in fiscal year 1975 dollars the recoupment is as follows:

Each aircraft.....	\$470,000
Development support equipment (per aircraft).....	10,300
Avionics intermediate shop (million each shop).....	1.836

Mr. LLOYD. You discussed RSI in your written testimony and that the Warsaw Pact nations are really better off than NATO people——

Dr. PERRY. Excuse me. There was a second half to the answer. Besides the savings in R. & D. there is a savings on procurement which simply comes that as opposed to building F-16's just for the United States we are building them for many countries and we have a larger production.

Mr. LLOYD. I am, however, more interested in the R. & D. recoupment, but I appreciate your additional comment.

Speaking of RSI, you mentioned that the Warsaw Pact nations are really better off than NATO nations.

Can we really achieve the same kind of "standardization," the good of standardization that the Warsaw Pact nations can, or are we really limited, because of the kind of free confederated involvement of NATO, to the acceptance of a lowering or lessening of standardization or commonality, whatever words we might use there?

Dr. PERRY. I think the latter is true, that we are fundamentally limited by the fact that we are a confederation of independent nations and we do not have coercive power nor do we seek to have coercive power over our allies. So there is a limit to what we can do here. My contention is that we are very far from having reached that limit at this stage.

Mr. LLOYD. But politically, socially, and economically, is it really important that we try real hard to make everything, ammunition if you will, aircraft in the case of the F-16, and 120-millimeter smooth-bore guns on tanks, standardized?

Is it really worth to us the great effort that we are going to have to expend and to make those kinds of concessions which must be made, as inevitably it will be the United States who makes those concessions? Is that a goal that not only is achievable but worth the effort?

Dr. PERRY. No; as I said, I don't think we should use standardization as a shibboleth. There are a few areas in which we can make improvements which will make significant savings in R. & D. and significant savings in operational improvements. We can identify those areas and strive to achieve them. But that is a long way from saying we should have standardized equipment.

Mr. LLOYD. Don't you think that our commercial involvement in the publication of such things as "Scientific American" also drive the system toward a commonality of research design? For instance, using an easily identified situation, let's take an aircraft. If we were to build an aircraft that would punch out at around 2.2 or 2.3, we know that there has to be a certain thrust-to-weight ratio. You and I can sit down right now and sketch very crudely what the shape would be and, in

essence, if you drew it over there, and I drew it over here, our drawings would not be that far apart, would they? So doesn't the system drive what we are trying to achieve as a result of just the techniques of research and development, because, for instance, in the areas of solid state electronics, the schematic is mandated by the end product?

Dr. PERRY. True, there is a very high degree of similarity in the research approach and the design approach to our airplanes and our electronics, for example.

Mr. LLOYD. As a result, we are kind of getting what we are trying to do as a result of just state-of-the-art development. And this, in and of itself, does give us kind of an advantage over the somewhat rigid approach that the Warsaw Pact nations take. In other words, I think we get a better breakthrough in our state of the art pushing the frontiers. What do you think?

Dr. PERRY. I think we have a very strong advantage over the Soviet Union in that respect, and that is what I meant in my opening statement when speaking of our industrial strength and our technology strength. That is a very great advantage we have and for that reason we don't have to be able to match them in every detail of standardization. We should only pick out the items where we can see the highest payoff and drive for those. A great deal of the strength of the alliance is in its diversity, and we should not be trying to make every country a carbon copy of the other one.

Mr. LLOYD. The caveat in all of that is also that we may allow breakthroughs to be disclosed in our normal manner through newspapers, magazines, papers, presentations, et cetera. How much do you think we risk in allowing our Warsaw Pact friends to—and I do use that word advisedly—to benefit by what we do?

Dr. PERRY. By reading the journals you mean?

Mr. LLOYD. Yes, our presentation of papers and briefings. You know, with each presentation that is made even in this room, the risks grow greater at each level—it's like expanding circles in a pool.

Dr. PERRY. I don't think our advantage over the Soviet Union evolves from a scientific lead. I think it evolves from a lead in engineering and production skills and those are not easily communicated by documents and even to the extent that they are communicated there is a significant timelag in realizing them in practice. I would be happy to think that the Soviet Union was trying to maintain their technology by pursuing us in sort of a tail-chase mode. That is a long-term losing proposition for them, and I would be happy to see them adopt that tactic.

Mr. LLOYD. I see. You were talking about the F-5 deal with Switzerland and I am interested in the offsets that were used. Could we have some description of how you offset that and how we will do it in other areas?

As to the F-16, there is a complaint, as you indicated, that the NATO nations were not happy with the fact that we developed it and all of a sudden fait accompli, take it or leave it. You can get into the production but you are not in on the design. On the other hand, in looking at the F-16, I think it's a very basic design by today's standards. Certainly there is no great state of the art in the techniques of manufacture, so it really is a pretty basic, simplified aircraft as far

as manufacture, development, and operation is concerned, and, as a result, that promotes economies. I am also concerned whether we would lose very much when we transfer this technology of manufacture. I have given you three questions in there.

Dr. PERRY. In terms of the offsets, I think the simplest way would be to provide that to you for the record. For the Swiss F-5 offset we agreed on a percentage and the number was something like 30 percent. I will have to find the exact number for the record. It simply meant that if you took the total buy and took that percent, 30 percent or whatever, we had to buy products in Switzerland in that amount. It was not specified as to what they were or how they were to be bought, but it was over a period of time. In this case, the contractor, Northrop, was primarily responsible for making that happen. However, the U.S. Government agreed that, if after a certain amount of time it had not been achieved, we would try to use our good offices to facilitate it happening.

We can provide you more detailed information on that offset arrangement. But it is an example of one way of effecting savings in R. & D. by having only one country develop it. In this case, only one country produced. So you get more efficiency in R. & D. and production but you solve the economic imbalance on an offset basis. I am not personally in favor of the offset approach. It is an administrative nightmare and for that reason I tend to shy away from it whenever I can.

[The following information was received for the record:]

In July 1975, the Swiss Government purchased 72 F-5 aircraft for \$447 million. The purchase provides for a minimum 30 percent offset of 134 million. As of June 8, 1978, \$49.2 million of this offset has been attained.

The concern on the manufacturing technology is a little hard to get a simple answer to, but I would say there that I observe a fairly strong difference between United States and European countries in that respect. Our manufacturing has been structured for relatively large runs of equipment because we are a large country, have a large defense industry, and buy more. Whereas, European industry, in their manufacturing, has been structured for smaller runs and, therefore, they do things differently than we do. Thus, our manufacturing technologies are not interchangeable and not terribly compatible with each other. That is one thing which really makes F-16 like programs, true coproduction programs, difficult to implement because we have different procedures and practices. On the Roland program we got up to our ears in that because of the difference in documentation for European manufacturing. If you are making manufacturing drawings for very large production runs, you go into much more detail and much more precise elaboration than the Europeans do, and, therefore, the documents we got were not suitable for our own manufacturing so we had to spend a fair amount of money getting them improved for that purpose.

Mr. DAN DANIEL. If the members will indulge the Chair for just a moment for an observation, it has been my experience in visiting some of the Russian production facilities—I could not agree more with what you said, Dr. Perry. The real advantage, of course, is engineering and production techniques, methods, and incentives.

Mr. Dickinson.

Mr. DICKINSON. Thank you, Mr. Chairman.

Dr. Perry, I want to thank you for your appearance here today and your statement, which is very interesting. If I might get down to more mundane matters related closer to everyday experiences in how we work here. I understand the desirability of the two-way street, commonality, standardization and so forth, and I understand at some point a decision is made by someone that this is the way we should go. My concern is where we, as Members of Congress, who sit on this subcommittee, and we who sit on the Research and Development Subcommittee and have to approve the various programs, fit into the overall picture. Will we in the future have the same position with regard to input and decisionmaking as we have in the past?

As an example—I have mentioned this to the other witnesses too—we have the question of AWACS. How many do we need? Does NATO need them? If so, in what configuration? How many will it buy? And what will be the United States' portion of AWACS that is paid for if, in fact, the NATO buys the AWACS? What portion of the total will they manufacture? And then that has a direct impact on the 120-millimeter cannon. They are tied together, as I understand it.

Now, in making decisions on unrelated matters, we can buy so many jeeps or so many trucks of European manufacture, which offsets the balance of payments and works out as to a partnership with our NATO allies, because this quid pro quo is something you can see. It is making jobs there and we will buy so much of an unrelated matter. But when it gets down to impacting on what weapon systems we will buy, produce, and deploy, then I feel like that gets down to our business here.

But in the past we have been out of the loop, so to speak. We have had no part in the decision of what will be a common weapon system, what we will purchase from our NATO allies, and what, in turn, they will buy from us. Someone else does this, whether it be the smooth-bore 120-millimeter gun and how much of that is going to be common, or whether it be the Roland system. This committee, at least, had no input into that until we were asked to approve the R. & D. effort. It had escalated to the point where, had we known at the beginning what it was going to be, it was doubtful we would have bought it in the beginning. But this was a tradeoff someone made somewhere else that we were not privy to and had no input into.

I could give you any number of examples, such as the XM-1 tank and what portion of it would be common, what type of drive train and treads and so forth.

So my question to you is: Is there going to be a difference in the future that you see as to the decisionmaking process? Will the Congress, in particular this part of Congress, the Armed Services Committee, be consulted or have more input in the future? And if so, how would you envision this? I could not give a more graphic example than to say that General Haig called members on this committee and said, "Hey, don't rock the boat on any announcement of procurement on the 120-millimeter gun, because we are about to have a NATO summit over here discussing AWACS." You know, they come back after the fact and say, "Be careful what you do because you're messing up something over here." And we didn't have anything to do with either part of it. So could you address that? Is there going to be any change in the future, or are you expecting us to continue to go on blindly and someone in

DOD, State Department, or wherever makes these decisions and then tells us after the fact, "Well, you've got to go along because we made a decision."

Dr. PERRY. I think I can suggest three very specific roles that the Congress can and should play in this process.

Mr. DICKINSON. You mentioned about getting into approving the R. & D. and approving procurement. This is after the fact. I am not talking about that point in the process. But I am talking about before the decision is made and we are locked into a position.

Dr. PERRY. Yes. First of all, I would personally welcome a strong statement from the Congress which represents the sense of Congress on what our policy should be in this field and what our objectives should be in this field. I can assure you that if we have such a policy and objective statement that we will try very hard to mold our plans to comply with this policy.

Mr. DICKINSON. I think you can get one from this committee. I don't know about the Congress.

Dr. PERRY. We will take it anywhere we can get it. Although it would help if that statement of policy were not different from the statement of policy which comes from the Senate Armed Services Committee.

Second, I would find it helpful to establish some sort of a forum with Congress whereby we could discuss actions we are taking to implement that policy on a periodic basis. This subcommittee has been established for the purposes of making a one-shot review, so to speak, of what we are doing, and I find this very helpful. It gives us a chance to clear up problems and issues. It gives us a chance to educate each other and I think that is very helpful. If some sort of a forum could be continued on a permanent basis of this sort, dealing not just with the R. & D. and procurement issues but with broader issues of standardization, I think that would be beneficial, not only to the Congress, but to the Department as well.

And finally, the third point is one we have already discussed, which is the final authority for all of these R. & D. and procurement actions lies with the authorization and appropriation budget. But if we had these first two steps accomplished before we got to that one, then we would have a better understanding of which programs were likely to be regarded by the Congress as suitable for authorization and appropriation in terms of meeting the policy objectives they have set.

Mr. DICKINSON. May I interpret that as saying you would suggest, or at least not oppose—if not welcome—a joint committee of the House-Senate Armed Services Committee to be consulted with regard to NATO RSI matters?

Dr. PERRY. It would be presumptuous of me to suggest it, but I do say I would welcome it. If Congress decided to do that, it would certainly make our job of communication much simpler.

Mr. DICKINSON. I don't know what the format should be, but what we are concerned with is how do we get into the loop, how do we have input, and when are we to be consulted in the decisionmaking process, rather than downstream at some point after everything is in place and we are just asked to confirm what someone else has already decided. So, perhaps, as a product of this subcommittee we could come up with

such a recommendation which could be put into being. I would certainly welcome it. The complement of this subcommittee itself is a cross section of the full committee. We have our R. & D. members here.

Mr. ICHORD. I would like to address this question to the gentleman from Alabama. Are you thinking along the same line that I have been thinking on for the last couple of days regarding setting up a process by which Congress can participate in the procedure before the MOU is entered into?

Mr. DICKINSON. Exactly. That is the thrust exactly of what I am trying to accomplish, to see how best this can be done so that we can be considered a full partner rather than a stepchild who is informed after the fact.

My time has expired.

Mr. DAN DANIEL. Mr. Ichord, if you want to yield 80 seconds of your time to Mr. Dickinson, you may.

Mr. ICHORD. I yield the time back to the gentleman.

Mr. DICKINSON. I just want to say in conclusion that I think this is something which this subcommittee should and will discuss. I think we have a number of interests within the committee represented on this special ad hoc committee. I think perhaps the Senate could be induced to go along with us in a joint effort to be apprised and have input in the formulation of policy decisions. I would hope, if nothing else comes from the work of this subcommittee, that we would come up with such a process. If this should be, then the entire effort of the subcommittee will certainly be justified. I thank you for yielding.

Mr. ICHORD. Doctor, I would like to pursue the line of questioning that was taken by our chairman. I have been very concerned about the transfer of critical technology, not only that having connection with the national security interest, but also with the commercial interest connection, particularly in the aerospace and electronics fields. It is still not clear to me just how this decisionmaking process works. Who in DOD makes the determination that certain technology is critical and should not be transferred?

Dr. PERRY. That is really a judgment of the Secretary of Defense. The staff guidance to him on this issue, on the technical and you might say programmatic issues, is given to him by my department; on the military aspect by the Joint Chiefs of Staff; and on the political aspects from the ISA, so it is a collegial process.

Mr. ICHORD. It would be a decision of the Secretary of Defense and it would not stop at your area?

Dr. PERRY. I would not want to suggest that every issue on transfer goes to the Secretary of Defense. He establishes a broad enough policy understanding of what his judgment is that, generally, we and ISA together can come to a decision without referring it back to him. But if it is a major issue or an issue which involves a change of policy, we would certainly take it to the Secretary.

Mr. ICHORD. Can that decision, at whatever level it is made, be overturned by any other element of the executive branch, other than the Commander in Chief?

Dr. PERRY. There is a complicated process here and it depends to a certain extent on what kind of a technology transfer request is involved. Ultimately, the sale of arms, for example—that's one way of transferring technology—that is decided in the State Department.

Defense Department makes its judgment, but the final approval has to be within the State Department.

If the Department of Defense wants to appeal the judgment of the State Department, then it has to take it to the President. There is a complex interagency process here. If we want to stop short of the President, the judgment on the sale of arms is done at the State Department. If it is a commercial item without military implications, then that judgment is made in the Department of Commerce.

But again, the Department of Commerce will come to the Department of Defense to get a judgment as to whether there are any military implications. If the Department of Defense believes Commerce has not taken it adequately into account, they can take it to the President for an override.

Mr. ICHORD. I take it, then, there would be a different process involved if the technology was critical to commercial interest?

Dr. PERRY. If it were a commercial product that were being transferred as opposed to a military product?

Mr. ICHORD. What if it is a military product, something in connection with electronics?

Dr. PERRY. Then it would go through Defense and State.

Mr. ICHORD. Defense and State?

Dr. PERRY. Yes.

Mr. ICHORD. Department of Commerce would have nothing to say about that?

Dr. PERRY. Not unless they wanted to intervene in the process. They are not ordinarily involved in that process.

Mr. ICHORD. I think the witnesses are getting better, I would state, Mr. Chairman, as we go along. [Laughter.]

And I'm not saying that just because Dr. Perry may be more informed in the area, but I'm saying it because the witnesses do have a chance, I think, to read the testimony that has gone on before and they are a little more aware of the questions we will be asking and they are really digging deep into some of the many problems that we have.

Before these hearings first started, I heard a lot of rhetoric about RSI, but I did not hear much deep thinking about how to get there. No one can fault the concept of RSI or the overall objective of improving the capability of the NATO alliance. But it has been rhetoric up until recently anyway. There are a lot of problems in getting there and you are going to have problems after you get there.

For example, let me put this to you. It appears to me that the continental United States represents a mobilization base for NATO. And I ask the question, isn't it militarily impractical to rely on the off-shore procurement of weapon systems for major components when it is the mobilization base for NATO? That is in a hypothetical sense. I can envision the United States engaged in a conflict in some parts of the world where our NATO allies would conceivably deny us the supply of necessary systems to carry out our mission. I recall, for example, the denial of landing rights during the 1973 Mideast war as a somewhat comparable situation. How are we going to guard against such an eventuality? Isn't there a problem involved here?

Dr. PERRY. Yes, there's a problem involved. Essentially any standardization proposal or any common shared production program we

get involved with must take that into account and must accept that as a constraint on the solution. I am prepared to take some risk in that area, but not great risk, and let me give you an example of what I mean by that. I described to you a way of sharing the antitank missiles. I think, first of all, if we were to do one of those missiles and the Europeans the other, that we would still be maintaining an adequate R. & D. base in that field and that, if some totally unexpected disastrous development occurred which made us not want to cooperate further with our allies, we would be able to move very quickly into developing the weapon which we had assigned to them.

Furthermore, when it comes time for production of it, I would myself favor what we call a leader/follower arrangement in production, whereby we would be maintaining some of the production for those missiles in the United States for just the reason you are describing here, for maintaining our production base. The responsibility for assessing our industrial production base, by the way, is in Mr. Church's office. That is a continual assessment to be assured that we have an adequate industrial base. Maybe you would like to make some comment about that, Dale.

Mr. CHURCH. It is obviously a very difficult subject because it gets into some very subjective analysis. It is not easy to just simply guarantee that we have such a base.

But I think, as Dr. Perry has pointed out, we do look each time at technology of any type when it is exported, at what it does to take away from the potential of our base to operate. That is, we create a competitive environment where we can no longer compete and insure that in that process we do guarantee that our base can support any kind of contingency. In addition, we are deeply involved in insuring, in these cooperative program packages, that there is reciprocity of licensing such that we do have the rights on whatever they develop so that we can turn it over to one of our companies to produce and insure that we do not only do not lose any aspect of the technology, but we also insure an industrial base in all of these areas.

Mr. ICHORD. Thank you, Mr. Chairman.

Mr. DAN DANIEL. Mr. Carr.

Mr. CARR. Thank you, Mr. Chairman.

It is a pleasure to see you, Dr. Perry. I want to get to some of the specifics that were not in your statement. As you have pointed out, we are going to take a snapshot of this whole problem with this subcommittee and, as a result, I am a little bit concerned about finding out some deadlines. On page 10, for example, you say, "To this end I will be asking for your support in removing regulatory barriers * * *." When are you going to do that? Are you going to give us a specific recommendation and, if so, by what time?

Dr. PERRY. Let me refer to Mr. Church to answer that question specifically.

Mr. CHURCH. We have two legislative proposals that have been introduced, 95-86 and 95-96, I believe. The first is a bill to allow us to cooperate logistically in joint maneuvers and this sort of thing, which takes away some barriers that do impede our cooperation. We do various kinds of exercises on the battlefield and whatnot in preparation.

The second bill is one that gives us an ability of the Secretary to waive certain of those provisions in the various statutes which impede

our ability to move in the standardization area. That is, they force us to buy all from the United States, or in certain areas some small portion of it has to be from a U.S. production base.

Mr. CARR. Counsel, are those in our committee?

Mr. HAHN. To this subcommittee, in fact, Mr. Carr.

Mr. CARR. On that same page you say that you understand that the President has directed a study under the chairmanship of the Secretary of Commerce. When is that study due?

Dr. PERRY. I don't have that date in my head, Mr. Carr. I believe it is like about 6 months, though. The study has just gotten underway. I can provide the due date for the record.

[The following information was received for the record:]

The tentative target date is July 1979 but it may be possible to complete the study as early as April 1979.

Mr. CARR. I think we would be interested in knowing because our charter runs out, I believe, in December.

Dr. PERRY. Certainly it would be possible to get a status report for you.

Mr. CARR. Then over on page 11 you say that, "Here are some examples of the types of studies which we are sponsoring," and you go on to talk about a Rand Corp. study. When is that due, do you know?

Dr. PERRY. Dr. Garber.

Dr. GARBER. The Rand Corp. study goes on for the rest of the year, but we are trying to get a plenary report this summer because also mentioned is a Defense Science Board summary study on the subject. And so, what we are trying to do is get plenary briefings and accelerate some of these studies, that initially started at a more leisurely pace so that we could have some preliminary input already at the beginning of August. So the beginning of August is the first input. It does go on through the next fiscal year, as I understand it.

Mr. CARR. I am sure you will keep us up to date on where these studies are, what use we might make of them as we deliberate, and what kind of report we would like to have.

Dr. PERRY. The Defense Science Board study will be particularly useful in this regard and it will tend to consolidate or draw from some of these other studies you are talking about. They often are slow in getting their written report in. But at the last day of the study there is always a very comprehensive verbal presentation on the findings, and I would be pleased to have a representative from this committee as my guest to come up with me and hear the verbal reports. I think that 2-week summer study is going to be very, very significant in bringing together industry and—

Mr. CARR. I think we ought to take Dr. Perry up on his invitation and I think our committee ought to get whatever briefings are available from whatever the study groups are as to their particular status.

Mr. DAN DANIEL. Without objection.

Mr. CARR. On page 14 you say that you intend to implement guidelines and develop certain plans. Are we going to be able to have the benefit of those before we have to write our report?

Dr. PERRY. Yes. What I would suggest on that, since those guidelines and plans will be continually evolving, at the time you are actually in the writing process, if you could have your counsel get in

touch with us, we would provide you the status of all the ones at that time.

Mr. CARR. Then I just have two other matters.

One, you point to our need to increase our investment in technology and I note that you are urging a 7-percent real growth increase in R. & D.

Dr. PERRY. I should clarify that. I am talking about our technology base. That is not the R. & D. budget. The R. & D. budget is \$12½ billion and on that we recommend a 3-percent increase. I am talking about within that \$12½ billion there is about \$2½ billion, if my memory is right, that we call technology base. That is the research which leads in later years to new systems. The bulk of that \$12½ billion is for systems development.

Mr. CARR. If there is one thing that concerns me about our country as a whole, it is that recent reports have it that industry itself is declining its investment in technology base and basic research. Except for this last year and 1 year under the Ford administration, the U.S. Government efforts in terms of basic research have been declining in recent years. It would seem to me that part of what we ought to be about—this goes beyond the jurisdiction of this subcommittee and is philosophizing a bit—is to turn that around because it seems as though, in terms of patent indications and a bunch of measures that I have heard, we are declining in terms of technology while our European trading partners are increasing. So that whole balance, I think, concerns us.

Dr. PERRY. May I make a comment on that point?

Mr. CARR. Could you make them after I ask my next question, because my time is about to run out.

The other is, as you say on page 16, that the industrial teams will be looked to for the best technological solution to the systems requirements so technology transfer will take place in both directions and the most competent teams would win. You know it is very easy in our country to square off on General Dynamics and McDonnell Douglas. We have somebody sitting in judgment as to who wins. Who wins in terms of an international competition carrying with it a great deal of national pride and it becomes a good deal harder. I am thinking about this microwave landing system problem we have gone through. Should we even set up the dichotomy of teams competing where national pride gets involved?

Dr. PERRY. That statement should have been very heavily qualified, Mr. Carr. There are only a few instances in which that kind of teaming can lead to that kind of competition described to you. Ordinarily, what you have described more nearly represents the case. Not only are there chosen instruments in the companies in Europe, but some of the companies in Europe are actually owned by their government and the notion of establishing competition in the U.S. sense just does not carry over. It greatly aggravates the problem of teaming and competition. You are exactly right.

I am afraid that the context in which I made that statement was misleading. May I make a comment on two other points, first of all, relative to the technology base, that \$2½ billion portion I was talking about. As nearly as we can compare expenses over the last two decades, our technology base in defense today in real dollars is about one-half of

what it was in the early 1960's. I made that comment to the Secretary of Defense when I was discussing the 7-percent increase because I could relate it back to the days when he was running R. & D. He had effectively twice the technology base that we have today.

Mr. CARR. Is that in real dollars?

Dr. PERRY. That is real dollars. What is happening is that the money has stayed nearly constant and inflation has eroded it down to that level.

The second point is going to the commercial R. & D. The situation is worse than the figures you describe because an increasing percentage of the R. & D. spent by commercial enterprises is spent in what they call defensive R. & D.—not defense, but defensive—that is, R. & D. related to combating with various sorts of environmental regulations. Without debating the value of that program, I'm saying that it does not lead to increased productivity and, therefore, does not lead to increased competitiveness in U.S. industry. So the situation we are describing is bad and it is even worse than the figures suggest.

Mr. DAN DANIEL. The gentleman from Virginia, Mr. Whitehurst, reserved 4 minutes of his time. Does he desire to claim those at this time?

Mr. WHITEHURST. What about a factor we have discussed with other witnesses, and that is, since the European need in defense is almost solely European, and ours is both European and worldwide, how do we compartmentalize our needs, or is it possible to compartmentalize them?

Dr. PERRY. We do try to compartmentalize them. Our strategic programs, for example, we consider independently of our consideration of NATO needs. And we don't really debate or discuss the technology and programs involved there in the NATO environment. It is not always possible to make that simple distinction, and the primary example is the cruise missile which we are developing for strategic applications, but which has some very real tactical applications as well. The Europeans are very interested and very concerned with whether we will be willing to share that technology with them.

Mr. WHITEHURST. I sure hope so. I understand you had a beautiful flight yesterday.

Dr. PERRY. It was a magnificent flight yesterday.

Mr. WHITEHURST. I was going to say something about NATO AWACS, and I guess I will go ahead. What is the status of the agreement now? Have we reached agreement on NATO AWACS? Mr. Dickinson raised the issue before, about us knowing about it later, and maybe we could hear about it now rather than later on.

Dr. PERRY. I will tell you what I believe the status is, which is that we have reached agreement in principle and we have reached agreement with the executive branch of the NATO countries. Several of those countries—the Federal Republic of Germany included still have the problem of getting the approval of their parliaments that is, for the actual funds committed.

Mr. WHITEHURST. Mr. Dickinson just asked if we had agreed on numbers, and let me add to that. We will be talking to some of their people and this issue will come up. What will be required of us in the agreement, that Congress would have to say yea or nay to?

Dr. PERRY. Relative to the AWACS?

Mr. WHITEHURST. Yes.

Dr. PERRY. The main issue will be simply funding our portion of the NATO AWACS, which is the same problem the Bundestag is faced with now. They have to agree to fund what the executive branch in Germany has decided is their fair share of the NATO AWACS program.

Mr. WHITEHURST. Is there a number available to us?

Dr. PERRY. We have numbers but I will have to get them for the record.

[The following information was received for the record:]

A formal program decision more than likely will be reached before the end of this year when approval by participating governments of the comprehensive proposal submitted in March is expected to be completed. The proposal calls for the acquisition of 18 E-3 aircraft in a US-NATO standard configuration, plus modification of the current air defense ground environment and refurbishment of a main operating base in the Federal Republic of Germany.

Research and development activities on the standard configuration have been underway since March when ten nations contributed \$1.9 million to initiate the effort. Development was begun before a final program decision was reached because the opportunity for standardizing AWACS configuration is time sensitive; and a single configuration would result in significant cost reductions to the NATO program. It was in anticipation that a final program decision will be reached before fall that nations agreed, subject to legislative approval, to contribute another \$8 million to sustain the development effort from July through September. Three nations have already contributed shares and action is underway in three others (including the US) to seek authorization to provide funds.

The cost of the program is estimated by NATO to be [deleted] (in \$ 1977), [deleted] of which is for aircraft acquisition. The 18 E-3 AWACS will be a major component of the Alliance Airborne Early Warning (AEW) Program which also includes 11 NIMROD AEW aircraft that will be provided unilaterally by the United Kingdom as an "in kind" contribution to the program.

The US share for the NATO AWACS package will be approximately [deleted] (in \$ 1977). This represents approximately $\frac{1}{3}$ of the acquisition of the combined AWACS/NIMROD forces. The NATO AWACS package shares for all countries (not including UK costs for NIMROD) is as follows: [Deleted.]

Mr. WHITEHURST. I think you have probably contributed more toward progress on this goal than any witness who has been up here. You are highly credible, you enjoy a great esteem with this subcommittee, and you have done a great job today.

Dr. PERRY. Thank you.

Mr. DAN DANIEL. Does the gentleman from Arizona, Mr. Stump, have any questions at this time?

Mr. STUMP. No.

Mr. DAN DANIEL. Mr. Whitehurst, it is your turn again if you have any additional questions.

Mr. WHITEHURST. I do not.

Mr. DAN DANIEL. Mr. Dickinson, do you have any additional questions?

Mr. DICKINSON. A couple of observations, if I may, Mr. Chairman.

I was reassured in your statement, Dr. Perry, that the trend we seem to be taking in dealing with our NATO allies is that, if they go an independent route to develop their R. & D. in a specific weapons systems or a part of the family of weapons, then we would have the option then of either purchasing off the shelf from them or manufacturing—you didn't say this, but I assume under license by them—

Dr. PERRY. Yes.

Mr. DICKINSON. That obviates the problem we might have in riding herd on our cost control, and we don't have to worry about a repay-

ment, I suppose, of a portion of their R. & D. efforts that we normally charge. How is this handled? If we figure the units are too expensive that we buy from them, then we can make them ourselves under license.

Dr. PERRY. If we make an agreement on a single program like the Roland program, for example, then we agree at the time on some sort of license or royalty payments. If, however, we can come to an agreement on what we have called program packages where the agreement embraces several programs, then the offsets are in effect built into the programs themselves. We don't charge them R. & D. and they don't charge us R. & D.

Mr. DICKINSON. I see.

Dr. PERRY. One of the great advantages of that approach is the simplicity of administering it. We simply sidestep many of those issues.

Mr. DICKINSON. This is, I suppose, a very simplistic question and maybe you can give me a very simple answer. It concerns one of the biggest problems we have in dealing with our NATO allies and you alluded to it when you mentioned the costs just in the translation of the drawings and diagrams and so forth. In Roland, I think it is \$75 million just in paperwork. With regard to our system of inches in production as opposed to the metric system used by most European countries, are we working toward a commonality and standardization here and are we starting with a small base to grow this? I know this is one of the big things that is a stumbling block in our standardization and perhaps interoperability. Can you tell us what we are doing here? Are we trying to start small and grow big?

Dr. PERRY. Our Government is working toward the conversion to the metric system. It is moving, I would say, slowly, painfully slowly. I would also say that the Defense Department is probably spearheading this move. And the factor which is causing us to spearhead it are these commonality programs with our allies, so we are simply moving to the metric system.

In a program like Roland, for example, we operate in the metric system. As more and more of our programs are done jointly this way, then more of our industry will have programs which are in the metric system. And once they have one it will facilitate their moving more rapidly. So I think a careful observation of what is going on in the Government today would indicate that the Defense Department is miles ahead in this move toward the metric system.

Mr. DICKINSON. That's what I meant by starting small and growing big. I think if we are ever to arrive there that is the only way we are going to do it. You can't do it in one fell swoop. It is an educational and evolutionary process. I would assume that this is a part of what we have and that it is ongoing. It is just a psychological problem. I still have a hard time thinking in the metric system and I think everybody in our generation probably has that problem.

One final question, if I may. We were told by another witness that while we have an agreement to be able to look over the shoulders of our allies taking on R. & D. projects which we in part fund, GAO does not have the right to go in and verify, check, or report back to us on a joint effort with the British or the Germans, or whoever, in the manner they would if we did it within this country with our own contractors. What degree of oversight do we have and are you comfortable with this?

Dr. PERRY. I would like to pass that on to Mr. Church to answer. First of all, I would comment that it is enough of a problem and enough of an impediment to progress so we try to structure the programs in such a way that they put on a minimum requirement. The program packages I described to you minimize the requirement for that sort of oversight, because any individual program is not a joint program.

Let me pass this to Mr. Church for a more detailed answer.

Mr. CHURCH. The GAO question itself gets into the issue of sovereignty and as we deal with these countries, they obviously feel quite strongly about the preservation of their own sovereignty and our Government coming and have complete access in that sense.

However, as we look at their programs and as we develop these agreements what we do is government-to-government, we insure that in fact we do have that access through their government. It is not necessarily through the GAO having an open license to go in there, but it is guaranteed that we do have that kind of reciprocity and if we request that we be allowed to go in and look, in fact we do so through the Defense Department, through the executive anyway. And, certainly, if the Congress so requested that we made such an investigation and provide them the information, we would be most willing to do so.

Mr. DICKINSON. In these R. & D. projects in which we, in effect, form our mutual agreement, are they usually or always done on a 50-50 basis? What is the relationship there between the money we put up to do our R. & D. in the areas in which we are interested?

Dr. PERRY. There have not been many examples actually, but the ones we have embarked upon have been 50-50. They have been bilateral agreements. But even in the ones where we have bilateral 50-50 agreements, we are trying to extend those agreements to include other countries in which case the share of each country would go down. If we could get three or four countries involved, then we could reduce our percentage share.

Mr. DICKINSON. Thank you, Mr. Chairman. I yield back.

Mr. DAN DANIEL. The gentleman from Missouri, Mr. Ichord?

But before you commence, will the gentleman from Arizona take the chair?

Mr. ICHORD. Thank you, Mr. Chairman.

I have been rolling around in my mind the same thing as Mr. Dickinson in regard to MOU's and getting the Congress into the act earlier like we attempted to do in A-109. I am going to ask some questions on that.

I have been thinking about the necessity of having an economic impact statement—I hate to add to the bureaucracy—on some of the transfer of technology. But I just haven't been satisfied how the various agencies are going to get together with a viable decisionmaking process in the case of the transfer of military technology which will have a commercial fallout. I just read some report the other day that indicated that on a per capita income basis this Nation was now third. And in the next study that comes out it wouldn't surprise me a bit that we would be lower down the ladder. Much of that has been due, I think, our bureaucrats have been listening too much to the ecologists who have taken the word "logical" out of the word "ecological."

Another report indicated to me that Federal regulation has increased the cost of automobiles \$660, directly attributable to Federal regulatory requirements. And the price of a home has been increased \$2,500. I just got a briefing from people in the lead industry about a proposal. I am not a technologist, but they made a pretty good case to me DOD, or EPA rather, is going to try to bring the lead industry down from 5 micrograms per cubic foot of lead in the air to 1.5 which they contend is not necessary, cannot be met, is going to increase their cost of doing business, and is going to make them less competitive in the export-import world.

I see unions in this country talking about going from a 5-day workweek to a 4-day workweek. And I've also heard of a 3-day workweek. It is a matter of common sense to me that if you work 6 days you are going to have more of the material things in life, and if you work 5 days, you will have more than if you work 4. I just wonder where we are going to end up as a world power, because much of our exports are attributable to the American farmer and to our technological advantage. This is why I'm concerned about technology transfer.

With great gratitude to the American farmer, I must also observe that I don't think that raw material producers maintain their strength as a world power very long. And this is why, Dr. Perry, I am concerned that the transfer of military technology will impact upon our commercial interests. The airline industry was mainly established in this country as a spinoff of military technology, was it not?

Dr. PERRY. Correct.

Mr. ICHORD. To a certain extent that is true of our electronic industry.

Dr. PERRY. It was a decade and a half ago. It is not true today.

Mr. ICHORD. Let me echo the sentiments of Mr. Whitehurst and then proceed to pick at one of your statements in your presentation. I thought Mr. Carr was going to get into this. On page 5 of your statement you say that the airlines teach us that one way to solve the RSI problem in NATO is to establish an entity that defines an agreed upon set of functional specifications. And you specifically cite IACO. Mr. Carr brought up the microwave landing system issue. Given the inability of ICAO to solve this issue, I must question your optimism for this form of solution.

Dr. PERRY. We have a somewhat similar forum in NATO which is called CNAD, the Council of National Armament Directors, which has made a fair amount of progress in these matters and I think can make even more in the future. But they are operating within the guidelines of their governments and sometimes powerful economic considerations will cause that group to be ineffective in arriving at a conclusion, just like in the case of the microwave landing system where the standardization issues were not the factors driving the problem, but the economic issues. If you have to solve the problem on a single program like the microwave landing system where one country wins everything and another country loses everything, it is very, very difficult to try to work out a solution. That is why we are trying to broaden the consideration.

Mr. ICHORD. Dr. Perry, I asked Dr. Mann this question yesterday and I think it was one he suggested you address yourself to, and I

would hope that you would address the question in detail. You have testified at length before the R. & D. subcommittee, which I have the responsibility for chairing, about the A-109. I can see a lot of conflicts between A-109 and the ways you are going about achieving the RSI objectives. How do you envision the implementation of our acquisition strategy under A-109 interfacing with the implementation of RSI objectives?

Dr. PERRY. I don't see it as a conflict in the main thrust that we are trying to move ahead on, the thrust of getting program packages where Europe takes complete responsibility for one system and we take complete responsibility for another. The systems on which we have the responsibility we will simply proceed as we have always proceeded. If it is a program that comes under A-109, we will follow it.

Mr. ICHORD. A-109 is to increase competition.

Dr. PERRY. Yes.

Mr. ICHORD. When we get into these joint efforts, cooperative efforts, where we are dealing with other entities that are not organized like ours, the company may be, as you said previously, Government owned. And it appears to me that you are going to have considerable trouble implementing A-109.

Dr. PERRY. We would have considerable trouble if we tried to structure the cooperation along those lines. That is the principle reason I am going to try to avoid structuring it that way, not simply because of the existence of A-109, but because our whole system works on competition. It works in a different way from the European system. That is a basic incompatibility of trying to get joint competitive programs put together. So I guess the way we solve that problem is by trying to avoid it, by not getting ourselves structured into programs where that will be an issue.

Do you have anything to add to that, Dale?

Mr. CHURCH. Indeed as we develop what we call the Mission Elements Need Statement (MENS) we want to make sure that we don't constrain the solution to the problem and that we state it in such a way that all the available alternatives are in fact considered.

In a sense what we do here is that we bring in, which is a requirement of our directives of implementation, the NATO standardization issues. In fact, in these cooperative agreements what we do is to insure that all NATO requirements are considered as well, which, in effect, really kind of opens up the number of alternatives and does consider the broadest base of need. I think A-109 is not inconsistent here. In fact, its directive moves us in the direction that we should otherwise want to in the standardization area as well as the cooperative area.

Dr. PERRY. I would like to comment on an earlier point made by Mr. Ichord.

Mr. STUMP. Certainly.

Dr. PERRY. This is relative to the consideration of an economic impact statement. I agree wholeheartedly on your concern with this problem of declining technical proficiency and productivity of our industry. It is an important problem which we have to deal with. I believe, however, that the technology transfer programs which have been done in defense so far and which we are contemplating for the future have been a net benefit to the companies involved in them. I

think we can offer data to back that contention up, that benefit has been achieved by companies like General Electric which not only work in defense but which have a very significant commercial involvement.

I believe that, if we were to require an economic impact statement, this would introduce another bureaucratic step in a process which is already riddled with bureaucratic steps. And the net effect would be to strangle the progress that we are trying to make. Now that's the negative side of it. The positive response to your question is, though I understand and am very sympathetic to your concern on this point, that the programs we are embarked on will be a net benefit to the economy. I would only suggest that we find some different mechanism for reaching that assurance. Possibly that mechanism would be through the formation of some sort of an overview committee, but, in any event, a mechanism whereby we have continuing and detailed dialog, not on the generalities of what we are doing, but on the specifics of it. I would hope for that kind of solution to the problem rather than a requirement for an economic impact statement.

Mr. DAN DANIEL. Mr. Breckinridge?

Mr. BRECKINRIDGE. Thank you, Mr. Chairman.

Mr. Secretary, I want to join my colleagues in thanking you and your associates today for a very open, very enlightening and very helpful statement. I would like to go further and say that the panelists we have heard this week from the armed services have been outstanding. I was particularly impressed by the prose of Dr. LaBerge yesterday. As a matter of fact, it sounded like poetry to my ears. I think he said so simply and so beautifully in so many places what the situation has been over the last 20-odd years, how it is today and our prospects for the future. I think it was a classic.

I have two things that I want to discuss with you. On the first one I won't be starting an argument because the argument is already started. I just want to state it on the record and raise a flag. The second one has been gone into in some detail already and I just want to refine it a little.

In Dr. LaBerge's statement yesterday, if I recall correctly, he also made the point that we have two options, one of them was to refine our technological edge, draw on our national and our allies' resources and thereby minimize, not reduce, but minimize further demands on our budget.

I just want to state and not argue with you that, from the little reading I have done in the area of basic and applied research and technological development, I am persuaded, rightly or wrongly, that we are losing our cutting edge. That we are reducing significantly both our public and our private investment and that that edge which we did have, as you pointed out in your remarks, is being equalized by an aggressive concentration on the side of the Soviets. Then you added to that, quite properly, a recognition of the ominous nature of the momentum which they have built up over the years. And then you said something that gratified me considerably when you indicated a 3-percent increase per annum in our R. & D. budget in the years ahead. I would have hoped that you could have said more, but I know the constraints which you are under.

You observed that the Soviets are investing some 40 percent more in their defense budget than we are and that for us to contemplate

such an increase is perhaps not a political reality. I remember a former Secretary of State to whom such an attitude was attributed and who made his policy on that basis, which I think was an arrogation of the function of Congress by the Executive.

I don't intend to complain or belabor the point, but yesterday the gentleman from Missouri reported on a poll which he conducted amongst his constituents. I don't want to be the author of a misstatement, but I think he indicated that 90 percent of those responding felt we were not spending enough on national defense and then he made what I think was a mistake in saying that his district differed from others.

I think his district is like the rest of the people of the United States. And I would express my concern this way: The administration has to, as does the politician running for office on the legislative side, relate to the fiscal realities of public opinion. But I have a feeling, based on my short experience on this Earth, that the people are generally ahead of us politicians, whether we are in the executive or legislative branch, and they presently have a deep uneasiness, unrest and disquiet about the condition of our national defense structure. A recent poll, which I will insert in the record, because I am bound to misstate it—my recollection is that it is to the effect that some 70 percent, when asked whether or not they wanted a larger investment, said yes. And a significant percentage of that percentage put a dollar figure line \$10 or \$15 billion on it. I don't recall what it was. I think today it would be even more.

I am concerned about a philosophy that allows the decisionmaking process as to investments in national security to be determined at some other than the congressional level. I have direct reference to the Office of Management and Budget which considers social and foreign needs philosophically.

Just to quickly reiterate, the services sent up \$136 billion. The Secretary recommended \$131 billion. We have \$126 billion in defense. I think the people would have been happy with \$150 billion. If we took your 40-percent increase at \$126 billion, we would only add \$50.4 billion to our national outlay, which is 10 percent of the half trillion dollar budget we have.

We all have different sources, but my understanding is that the Soviet investment is closer to 250 or 300 of our billions than it would be to 176. I hope that in the fiscal year 1979 budget process, Mr. Secretary, those within the services will discharge their responsibility to both the executive and the legislative and, thereby, the people by determining what the risks are, the time frames in which the risk both short and long term, must be met, put a price tag on that and let us fight about it. And, as has been suggested, they should key us into the decisionmaking process early enough to contribute to the strengthening of their position in demanding those dollars which, in their judgment as responsible military officials, are deemed necessary.

My other point very simply, sir, has to do with a very fine statement you made on page 6 where you say, first of all, we must create a mutual atmosphere of confidence amongst us. I am sure that includes, as you say in the next sentence, the legislative branch, our industry and our allies, intend to improve communications with the Congress. Mr. Dickinson has addressed himself to this as has Mr. Ichord.

One of the problems, very simply, is that we don't trust each other in the executive and legislative and the press trusts neither of us and the people trust none of us, including the press. So your statement is philosophically sound and pragmatically correct. And I think we need to find a way in which, very shortly, by perhaps including everyone in at the earlier stage, we can regain that mutual self-respect and trust that is going to be essential to our survival with the people, because I personally feel that our time frame might not last out your term in office.

So I would hope as we go forward with your announced intention to brief this committee—and I understand, as was testified to by one of the witnesses yesterday that that has to include the Senate Committee on Armed Services. It has to go across the board in the legislative process. In a way you do have a consensus going in, because my observation has been that committee A doesn't necessarily tell committee B if there is an area in which there is a difference of opinion which is as politically sensitive as these amounts of money.

So I guess my question is, would you consider, in structuring this relationship between the Department of Defense and Congress, the development of a programmatic chart which will outline, No. 1, the status, the present status of the undertakings under the LTDP. No. 2, the filling in of that chart as those commitments are made, more specific by the various parliamentary bodies. No. 3, in detail, the contractual undertakings that give us a few of the weapons systems and make this available on an ongoing and continuous basis, in order that not only might we track the generalities that we read about and listen to by way of witnesses' testimony, but also that we might understand the specifics?

I think that would be a significant and major contribution. I have talked up all the time in which you can answer.

Dr. PERRY. The answer to the question is yes.

Mr. ICHORD. Isn't HEW spending more money for R. & D. than DOD is today?

Dr. PERRY. No, they are not, Mr. Ichord, not to my knowledge.

Mr. ICHORD. I thought there was a greater percentage of our R. & D. budget across the agencies of government.

Dr. PERRY. I will get the figures for you, Mr. Ichord, but the last time I saw the figures, my recollection of them is that Defense Department is spending about one-half of the R. & D. in the Federal budget as a whole. In other words, we are the majority spender.

Mr. ICHORD. Would you check it?

Dr. PERRY. I will and get you the figure for the record.

[The following information was received for the record:]

Federal R&D programs have for several years been broadly classified in three major categories—defense, civilian, and space related. Changes in funding for the conduct of R&D under these categories are shown in table below (Source: Budget of the United States Government, Special Analysis of the U.S. Government Budget, 1979; page 306, published by OMB).

CONDUCT OF R. & D. BY MAJOR PROGRAM CATEGORY

Program category	Obligations			Outlays		
	1977 Actual	1978 Estimate	1979 Estimate	1977 Actual	1978 Estimate	1979 Estimate
Conduct of R. & D.:						
Defense ¹	11.8	12.7	13.8	11.1	12.1	13.3
Civilian ²	9.0	10.4	10.7	8.3	9.6	10.3
Space ³	3.0	3.2	3.4	3.1	3.1	3.3
Total.....	23.8	26.3	27.9	22.5	24.9	27.0

¹ Includes military-related programs of the Departments of Defense and Energy.

² Energy R. & D. is the largest component of the civilian category, and health R. & D. the second largest. Other substantial programs include R. & D. related to environment, transportation, agriculture, natural resources, and education. Civilian applications of space technology are also included in this category.

³ Includes NASA programs in planetary exploration and Space Shuttle development but excludes NASA programs in aeronautical research, pollution monitoring, Earth resources observations, and technology utilization, which are categorized as civilian-related R. & D.

Mr. STUMP. Staff has some questions we would like to have answered for the record, if you would, please.

Mr. HAHN. Dr. Perry, yesterday Under Secretary LaBerge made the proposal for an action by the Congress which would express a sense of Congress. You, today, again have made the same proposal. In a little more detail, what is meant by this proposal as to the sense of Congress? And I have to ask this in the context of legislation that was passed in the fiscal year 1977 DOD authorization bill which says it is the policy of the United States to purchase standardized or at least interoperable equipment for our forces in NATO. That is on the books today.

Dr. PERRY. I think the issue that is being raised here is an important and fundamental one which I would rather answer for the record, but I can make a few comments about it now, if you would like.

[The following information was received for the record:]

PROPOSED ADDITION TO PUBLIC LAW 94-361, SECTION 803

(d) It is the sense of the Congress: (1) that more compatibility of doctrine and tactics should be pursued to provide a better basis for arriving at common NATO requirements; (2) that cooperation on the defense equipment programs must begin early in the R&D process before national solutions become firmly established; and (3) that new concepts of defense equipment cooperation should be sought with our Allies with the objectives of improving NATO's military effectiveness, achieving efficient use of US and Ally defense resources, and providing for equitable economic and industrial opportunities for all participants.

5 USC 8301.

effective date applicable to such change made in annuities under chapter 83 of title 5, United States Code.

(3) The provisions of paragraphs (1) and (2) relating to any change in the method of computing the cost-of-living adjustment of the retired pay or retainer pay of members and former members of the Armed Forces shall be applicable to the computation of cost-of-living adjustments of the retired pay of commissioned officers of the National Oceanic and Atmospheric Administration and the retired pay of commissioned officers of the Public Health Service.

Standardized or interoperable equipment.
89 Stat. 540.

SEC. 802. Section 814(a) of the Department of Defense Appropriation Authorization Act, 1976 (89 Stat. 544), is amended to read as follows:

"(a) (1) It is the policy of the United States that equipment procured for the use of personnel of the Armed Forces of the United States stationed in Europe under the terms of the North Atlantic Treaty should be standardized or at least interoperable with equipment of other members of the North Atlantic Treaty Organization. In carrying out such policy the Secretary of Defense shall, to the maximum feasible extent, initiate and carry out procurement procedures that provide for the acquisition of equipment which is standardized or interoperable with equipment of other members of the North Atlantic Treaty Organization whenever such equipment is to be used by personnel of the Armed Forces of the United States stationed in Europe under the terms of the North Atlantic Treaty. Such procedures shall also take into consideration the cost, functions, quality, and availability of the equipment to be procured. In any case in which equipment authorized to be procured under title I of this Act is utilized for the purpose of carrying out the foregoing policy, the Secretary of Defense shall report to Congress the full details of the nature and substance of any and all agreements entered into by the United States with any other member or members of the North Atlantic Treaty Organization providing for the acquisition of equipment manufactured outside the United States in exchange for, or as a part of, any other agreement by such member or members to acquire equipment manufactured in the United States. Such report shall be made by the Secretary within 30 days of the date of enactment of this Act.

Report to Congress.
89 Stat. 531.

"(2) Whenever the Secretary of Defense determines that it is necessary, in order to carry out the policy expressed in paragraph (1) of this subsection, to procure equipment manufactured outside the United States, he is authorized to determine, for the purposes of section 2 of title III of the Act of March 3, 1933 (47 Stat. 1520; 41 U.S.C. 10a), that the acquisition of such equipment manufactured in the United States is inconsistent with the public interest.

Report to Congress.

"(3) In any case in which the Secretary of Defense initiates procurement action on a new major system which is not standard or interoperable with equipment of other members of the North Atlantic Treaty Organization, he shall report that fact to the Congress in the annual report required under section 302(c) of Public Law 93-363, as amended, including a description of the system to be procured and the reasons for that choice."

88 Stat. 402.

NATO members, standardized or interoperable weapons and equipment.

SEC. 803. (a) It is the sense of Congress that weapons systems being developed wholly or primarily for employment in the North Atlantic Treaty Organization theater shall conform to a common North Atlantic Treaty Organization requirement in order to proceed toward joint doctrine and planning and to facilitate maximum feasible standardization and interoperability of equipment. A common North

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Atlantic Treaty Organization requirement shall be understood to include a common definition of the military threat to the North Atlantic Treaty Organization countries. The Secretary of Defense shall, in the reports required by section 302(c) of Public Law 93-263, as amended, identify those programs in research and development for United States forces in Europe and the common North Atlantic Treaty Organization requirements which such programs support. In the absence of such common requirement, the Secretary shall include a discussion of the actions taken within the North Atlantic Alliance in pursuit of a common requirement. The Secretary of Defense shall also report on efforts to establish a regular procedure and mechanism within the North Atlantic Treaty Organization for determining common military requirements.

88 Stat. 402.

(b) It is the sense of the Congress that progress toward the realization of the objectives of standardization and interoperability would be enhanced by expanded inter-Allied procurement of arms and equipment within the North Atlantic Treaty Organization. It is further the sense of the Congress that expanded inter-Allied procurement would be facilitated by greater reliance on licensing and coproduction agreements among the signatories of the North Atlantic Treaty. It is the Congress' considered judgment that such agreements, if properly constructed so as to preserve the efficiencies associated with economies of scale, could not only minimize potential economic hardship to parties to such agreements but also increase the survivability, in time of war, of the Alliance's armaments production base by dispersing manufacturing facilities. Accordingly, the Secretary of Defense, in conjunction with appropriate representatives of other members of the Alliance, shall attempt to the maximum extent feasible (1) to identify areas for such cooperative arrangements and (2) to negotiate such agreements pursuant to these ends. The Secretary of Defense shall include in the report to the Congress required by section 302(c) of Public Law 93-263, as amended, a discussion of the specific assessments made under the above provisions and the results achieved with the North Atlantic Treaty Organization allies.

(c) It is the sense of the Congress that standardization of weapons and equipment within the North Atlantic Alliance on the basis of a "two-way street" concept of cooperation in defense procurement between Europe and North America could only work in a realistic sense if the European nations operated on a united and collective basis. Accordingly, the Congress encourages the governments of Europe to accelerate their present efforts to achieve European armaments collaboration among all European members of the Alliance.

SEC. 804. (a) Section 2 of the Federal Civil Defense Act of 1950 (50 U.S.C. App. 2251) is amended by inserting after the third sentence thereof a new sentence as follows: "The Congress recognizes that the organizational structure established jointly by the Federal Government and the several States and their political subdivisions for civil defense purposes can be effectively utilized, without adversely affecting the basic civil defense objectives of this Act, to provide relief and assistance to people in areas of the United States struck by disasters other than disasters caused by enemy attack."

(b) Section 403 of such Act (50 U.S.C. App. 2260) is amended by striking out the first sentence and inserting in lieu thereof the following: "There are authorized to be appropriated such sums as may be necessary to carry out the provisions of this Act in the fiscal year ending September 30, 1977. No funds may be appropriated for any fiscal

PROPOSED
ADDITION
SECTION
803(d)

90 STAT. 931

Dr. PERRY. Dr. LaBerge indicated, and I would endorse his proposal, that it would be useful, very useful for the executive branch, in pursuing standardization programs, if the Congress were to state that it is their sense that we should endorse efforts for common doctrine, endorse efforts for rationalized requirements, for finding opportunities for arms cooperation and that you would endorse not only a need, but a desire to experiment on novel, innovative ways of meeting these problems.

We are embarked on a program which implicitly assumes congressional support of those points. We could embark on it much more effectively, if we had that explicit endorsement because our position with our allies would be more credible. On the other hand, if the Congress does not support those positions, it would be well for us to know that too, because we would change many of the things we are doing.

Mr. HAHN. It will be important to have you provide that for the record because the vehicle for it in that legislation is actually there and many of those things you have proposed are already on the books.

Dr. PERRY. That is correct.

Mr. HAHN. Another area, you made mention in the family-of-weapons concept of their purchasing from the developing nation or having the data package transferred to the acquiring nation so that could be produced there. That raises the issue of technical data.

The subcommittee has received some cursory information to date on AC-94 and there is an interpretation of the proposals contained in AC-94 which are of significant interest to certain people in industry. For example, AC-94 states that it includes trade secrets and, therefore, we are getting into the issue of proprietary rights. It appears from a certain reading of the document that the participating nations would actually acquire the trade secrets under the category of intellectual property or the intellectual property rights for transfer across the alliance in order to increase cooperation. What is your interpretation of this document how do you see it coalescing with our existing policies and where is its review presently in Department of Defense?

Dr. PERRY. AC-94 was a proposal which was made to the last Council of National Armament Directors of which I am the U.S. representative. At the time that proposal was made, I pointed out, and certain other representatives pointed out, that it had a profound impact on industry and we should not proceed on it without having a careful and deliberate input from industry on it. Therefore, AC-94 has been put in suspense until we can accomplish the feedback from industry. It is coming from several different sources. There is a group known as NIAG, the NATO Industrial Advisory Group, which has taken that under advisement now.

The action within the Defense Department is in my office, in general, and specifically in Mr. Church's office, who is our director for acquisition policy. Maybe Mr. Church would like to comment further.

Mr. CHURCH. Yes. Of course, the statement that was the original AC-94 we consider to be one of principle as opposed to procedure. We felt as though there were a lot of specifics that had to be worked out before we could totally accept and endorse that. Those specifics would have to be worked out in concert with industry. We are in the process of doing that. Just last week I received a rather lengthy statement

endorsing parts of it and taking exception to others and we will certainly take that presentation as well as others that we will be receiving, including the NIAG group Dr. Perry mentioned, into account to assure that, in fact, we have protected, to the necessary degree, those elements of intellectual property which we should and still be consistent with the overall goal here of sharing of technology to the degree that it produces greater military effectiveness.

Obviously, there have to be some compromises and trade-offs in that. And we will be working at those very hard. But there is no intention here to go beyond that goal of insuring that we do not release those in any degree beyond that minimally necessary to effect that cooperation toward military effectiveness.

Mr. HAHN. Another sensitivity that has been raised is the issue that since the Department of Defense will be entertaining proposals from foreign contractors for defense contracts, both development and acquisition, there will be an increased interest of U.S. industry to bid in foreign countries. What will be the role of Department of Defense in presenting the U.S. contractors' products to the foreign ministry of defense?

Dr. PERRY. We will not promote the products of any U.S. contractor to a foreign country in this regard. Our responsibility, as we see it, is to protect U.S. industry and not to promote a particular company's interests.

In particular, one of our companies may well be in competition with another of our companies and this would put us in an untenable position. What we will do, and what we have responsibility to do, is to insure that the reciprocal arrangements, made between the United States and NATO countries are being upheld. If we are providing for fair competition of a European company within the United States as part of the memorandum of understanding we have with them, then we would expect similar treatment of our companies in their country. And we feel a responsibility to see that it is maintained.

Mr. HAHN. Would it be accurate to state that Department of Defense will only be representing those products which are completed products and in the acquisition phase? In this context I am thinking of AWACS, Patriot, and systems such as that.

Dr. PERRY. No. As I indicated, we will represent our industry's interest under the MOU in either R. & D. or procurement production programs or in completed products simply to be sure that they are being treated under the terms of that MOU which we have with the European country. That will go across the board.

In terms of a specific product, yes, I think your statement is correct there.

Mr. HAHN. OK.

I have one last question area. There has been another sensitivity raised with the subcommittee and that is the potential feeling in Europe of participating in coproduction agreements where the foreign contractor would be relegated to the status of subcontractor. In other words, he would not be participating in the R. & D. phase. You brought that up this morning. What do you think is the best way to combat that sensitivity?

Dr. PERRY. I think the program package approach, which I described to you, meets that problem head on and meets it in a way that should be satisfactory to both U.S. and European industry.

Mr. STUMP. Mr. White?

Mr. JUSTUS WHITE. I would like to pursue this program package or family of weapons concept a little bit further, because it seems to imply, to a large extent, that we will be pursuing a cooperative rather than a competitive approach and that there is, to some extent, a danger of losing the benefits of competition as we go to a sort of national specialization in some areas. Presumably one of the benefits of this is being able to eliminate the duplicative R. & D. that has been so rhetorically referred to in many cases.

I would like for you to put that in the context of three concerns. One, if we reach this package agreement and a particular NATO country has the requirement to develop a certain missile that fits into the whole wide spectrum, what happens down the line if that particular national parliament begins to starve the funding because of constraints in its own budget?

The second aspect is what happens if down the line it turns out that they have developed a lemon? We have no fallback because we saved that duplicative R. & D.

The third aspect of it is what happens, for example, if we were to build a particular system? What comes to mind is a couple of years ago, coming out of the MBT-70 tank program the United States plowed ahead with the XM-803 and, after a few years, decided that it was not going to be a cost-effective system terminated it and started over again. Since the United States, or whichever country that would have that specialized area, would it still have that kind of freedom of choice, because it wouldn't be purely a national decision. It would be the entire alliance dependence on that if there were no duplicative R. & D.

Could you address it in the context of those three areas of concern, and are they areas of concern that you share?

Dr. PERRY. Those are reasonable concerns, which I share, and it would be very important that any program would be structured to take them into account.

I would emphasize that if we were to enter into any program package agreements that we would do it in good faith and with the full intention of the U.S. Government to carry them out. Therefore, we would be entering into them with the expectation that they would work out as we hoped and as our allies hoped. The question is what kind of insurance factors do we have if they don't turn out as we all hope, or if there is a change in the international scene which makes that agreement look like a poor agreement, notwithstanding our good intentions? I think we have to protect ourselves against that potential problem, and I think the best way of doing that is to limit the areas in which we make agreements to areas where, if that happens, we will not be left completely in the lurch. The example which I gave to you of the antitank weapons I think meets that criterion. The hole that we are leaving in our development program is not the antitank missiles. It is just one family of antitank missiles. Therefore, if one of these unexpected developments occurs, and it seems like a bad agreement, or if the other side backs away from the agreement, we would be able to pivot rather easily into filling the rather narrow gap that had been left by that change. I think that is the principal protection

we have, which is do not leave gaping holes in our capability, but just small holes which we can pivot over to fill if we need to.

Mr. JUSTUS WHITE. There has been a consistent thread of concern running through these hearings about at what stage Congress should become intimately involved in RSI initiatives that involve agreements. You've outlined some areas in which they can contribute policy statements, the creating of some standing body, and then you referred to the ultimate control, the purse strings. That does not quite get at what the Congress, I think, is expressing a concern about, where they are presented with MOU's after the fact and it is said, "Well, here it is. You're going to mess things up if you don't accept it because we have already put our prestige on the line." But we, nevertheless, do that with these MOU's because there is this little caveat down at the bottom of those which says, in effect, subject to the approval and ratification of our Congress. When it comes to the subject of foreign military sales there is a device or a mechanism that eliminates the need for that caveat. When a foreign military sales agreement is approaching the stage of finalization and a letter of offer is prepared, it is referred to the International Relations Committee and lays there for 30 days. And, barring a congressional resolution, the Administration then has the tacit support of the Congress to go ahead with that. I am wondering what your reaction would be to a similar procedure with MOU's, whereby MOU's are submitted in advance of their actual signing to the key congressional committees and would lie over for 30 days and, barring action, then you would have the tacit support of Congress in moving ahead. Is this a workable kind of compromise to consider?

Dr. PERRY. Assuming that this could be done in a way that protected those MOU's which turn out to be classified, and some of them are, I wouldn't see any insuperable difficulty in that arrangement. My own preference would be for a different arrangement, namely one which emphasizes more the prior discussions with an appropriate body of Congress so that we and the Congress are moving together on a set of policy objectives which we both understand and agree to. We could have frequent checks with the Congress, we are going in this direction in proceeding on these MOU's, and get their endorsement of those approaches rather than the specific approach. However, to repeat again, I don't have any particular problems with that approach. It would slow the process down 30 days, but I don't think that's a fundamental issue.

I might make one other point. The MOU's range from being fairly significant statements, the general MOU between the United States and the United Kingdom, for example, is a broad statement of policy for cooperation and that might be more worthy of the interest and attention of Congress than many of the nuts-and-bolts MOU's that are put together.

Mr. JUSTUS WHITE. I don't think we would be talking about the wide range of these such as data exchange agreements because there are hundreds of those.

Dr. PERRY. Right.

Mr. JUSTUS WHITE. But broad things which involve cooperative weapons and procurement and R. & D., which are going to involve money cooperation, I think would be the defining scope of that.

Last summer Ambassador Komer prepared a draft action program to facilitate RSI and circulated it throughout Department of Defense, to the services and to Secretary Brown.

Now, recognizing that the views were those of Ambassador Komer, Secretary Brown did basically endorse that and say, "I think we have to move to some kind of affirmative action approach." He asked you to take the lead in designing and implementing an action program. Would you tell us what you have done in this regard and also include in that comment one specific reference. Ambassador Komer suggested that one way to stimulate U.S. interest in European systems, and also to demonstrate our bona fides to the Europeans that we were serious, would be to fence a block of funds—I think that was the phrase he used—in DOD, probably controlled by your shop, make it available only for the procurement of European weapons systems and to let the services, in essence, compete for these funds. Was this determined to be a feasible approach and have you done anything like that?

Dr. PERRY. The question you are asking is a very complex one, but let me focus on two major actions that are underway. First of all, what I consider to be the principal action plan in response to the Secretary's charge is putting together this concept we have discussed today of program packages, introducing it to our European counterparts, gaining their support for the concept and working with them to try to reduce it to practice. And that, of course, is still an ongoing action.

Second, relative to fencing money, I did not support that view but proposed an alternative approach, which was putting into our budget items identified as NATO initiatives. We had in the fiscal year 1979 budget submission to the Congress a large number of such items. I am sorry to say that more than one-half of those were deleted in the process of the House authorization budget.

We have reclaimed those, as you are probably aware, and we are hoping that many of those will be restored in the conference process.

Mr. JUSTUS WHITE. I have just one more.

You began this hearing by saying that you wanted to steer away from slogancering, but we do have to live with some of the slogans. The two-way street is a slogan or piece of rhetoric which has undoubtedly stimulated some rising expectations in Europe. As we talked with the services the last couple of days, they really do not have a clear, uniform picture of what the two-way street is, how you measure the traffic along this street and how it interfaces with RSI.

I would like for you to elaborate on that a little bit, particularly on this issue of what constitutes traffic on the street. We have received testimony that, viewed one way, indicates a serious imbalance in our favor in hardware procurement ranging, roughly, in the last few years on the order of 10 to 1 in our favor. Conversely, if you count defense purchases, those things that we buy from European countries out of our defense budget, as compared to what they buy out of their defense budget from us, the balance of that two-way street flips completely over to where it is substantially to our disadvantage and to their advantage. So that the traffic favors them by roughly a balance of \$3 billion to \$1 billion last year. What does count on that two-way street, or is it just a rhetorical device that is not useful even to talk about in the context of RSI?

Dr. PERRY. It is a rhetorical device, but I would not argue that it is not useful to talk about it. I do not try to structure our research and development procurement programs around any specific objective, any two-way street objective. I not only don't do it, but I am very much opposed to doing that because I think it would give the services the wrong emphasis in decisionmaking.

Mr. WHITE. It begins to look like a quota system.

Dr. PERRY. It looks like a quota system and that's exactly what would happen if we started to try to define it and set up goals for each of the services as to what they should do on the two-way street. Their requirement is to come up with programs which make military sense and which are efficient from a cost point of view.

We have, let us say, created a management environment where they are trying very hard to do that within the context of improved cooperation with NATO. In the case of the Army, you heard testimony from Dr. LaBerge yesterday. You are aware of his background and his 2 years in NATO. So he brings to the Army his own perspective of what needs to be done in that area. Far from my instructing Dr. LaBerge in this area, I have learned many things from him and he has helped guide my thinking. But, no, we are not setting up quotas and I don't propose to set up quotas. I think that would be a disastrous action.

We are instead trying to get the services and ourselves to understand objectives we are trying to accomplish so that we are all working toward that same objective. But the underlying criterion has to remain the criterion of improved military effectiveness and reduced cost.

Mr. WHITE. Thank you.

[Supplemental questions and answers were received for the record.]

Mr. DAN DANIEL. On page 5 of your statement, you outline practices within the commercial aviation industry which parallel the military goals of interoperability. Do you see the likelihood of adoption of such practices by NATO?

Dr. PERRY. We believe that our NATO Allies would be very receptive to a form, fit and function (F³) interface standardization concept, particularly for aviation related technology. The approach has been enthusiastically adopted by the European airlines and commercial electronics industries. Today, European airlines fly with many avionics which are functionally interchangeable with those in U.S. commercial aviation, yet most "black boxes" are manufactured by European firms with European-particular technology. This enables the European airlines to purchase U.S. air frames with electronics produced in their own countries. The economies on both sides of the ocean benefit from such an arrangement. The F³ standardization concept could be extended to other electronics equipment such as computers, ground based surveillance systems, and transportation sub-systems.

There are a few reservations to this concept which should be considered before adoption on a wide spread basis for NATO military use. First, it should be recognized that this form of standardization takes somewhat longer than the conventional practice of designating an existing hardware specification for international usage. The iterative process through which F³ characteristic is produced takes about a year and several years of independent development by equipment manufacturers may be entailed. Thus, this is not the approach if we are in a hurry to achieve standardization. The second reservation has to do with the dynamic nature of performance requirements for some military systems. Specifications for mission-particular equipment such as electronic warfare systems and electro optical sensors change much too frequently to establish a stable interface standard for these kinds of equipment. It would appear wiser either to designate an existing systems specification or to exclude such equipment all together from international standardization.

One way to achieve some immediate standardization progress is to adopt some current commercial F³ standard for military transport aircraft use. There are

some commercial systems which currently serve as defacto military standards for wide body aircraft. The inertial navigator now being installed on the C-5A is an example in this area. The list could be expanded for immediate consideration by NATO governments so that joint airlift resources will in the future have greater interoperability. Good equipment candidates in this area include VOR/DME (very high frequency, omnidirectional range, distance measuring equipment), Ground Proximity Warning Systems, radio altimeters and radar beacons.

Mr. DAN DANIEL, Thomas O'Toole in his article entitled "*U.S. Technological Superiority Decline Examined*" which appeared in the June 21 edition of the *Washington Post* stated that industry was concerned and cautious over existing patent policy.

Will there not be a critical conflict between increasing Alliance cooperation and protecting intellectual property (patents, technical data and track secrets)?

What guidelines are being considered to address the issues of intellectual property rights by the Conference of National Armament Directors?

Dr. PERRY. The O'Toole article regarding industry concern over existing patent policy had reference to remarks by Russell Peterson of the Congressional Office of Technology Assessment. Mr. Peterson's quoted comment was that the 17-year period of protection conferred by a patent under the U.S. system may have to be extended. The Department of Defense policy has always been to take the patent system as we find it, and to accommodate our practices with industry to that system. Our practices as regards Alliance cooperation will be no different. If industry is concerned over the U.S. patent system, it is for Congress to determine whether that system needs change. We can perceive no way in which Alliance cooperation is in conflict with the patent system.

A copy of the NATO Guidelines on Intellectual Property Rights is attached. They have been accepted by the CNAD as provisional guidelines, and are now the subject of consultation with industry.

DECLINE IN U.S. TECHNOLOGICAL SUPERIORITY STUDIED

(By Thomas O'Toole)

The United States is losing its competitive edge in technology because American industry is spending less on research and because the federal government withdrew much of its support for industrial research at the ends of the Apollo space program and the Vietnam war.

Those were the conclusions of a two-day meeting on U.S. research held by the American Association for the Advancement of Science.

The AAAS experts also gave other reasons for the decline in U.S. technological superiority. They said American technology is suffering from increased federal regulation that siphons money from research, and from an outdated patent policy that discourages industry from backing research whose products will not win patent protection.

"The patent policy that allows for 17 years of protection may not be enough anymore," Russell W. Peterson, director of the Congressional Office of Technology Assessment, said yesterday at an AAAS press conference. "It now takes so long to bring new products to market that the period of protection may have to be extended."

Still another reason for the decline in U.S. dominance of technology was given by Markley Roberts, research economist with the AFL-CIO, who said that American industry is losing its edge because it is exporting much of the technology it used to keep in the United States.

"Whether it's a Thor-Delta rocket to Japan, an International Harvester tractor factory to Russia or a Piper airplane plant to Brazil," Roberts said, "we are exporting technology to a dangerous degree that also exports production, services and jobs."

In a 120-page report released yesterday, the AAAS pointed out that U.S. industry will spend an estimated \$900 million on basic research in 1978. While this is an increase of \$250 million from 1967, the AAAS said, it represents "a decline" of \$200 million due to inflation in the last 10 years.

At the same time, the AAAS said there has been a 27 percent decrease in federal funds granted to private industry for research and development in the last 10 years.

"This trend is clearly attributable," the AAAS said, "to the passing of the peak years of NASA Apollo and Defense-Vietnam R&D," or research and development.

AAAS Director William D. Carey said that one of his chief concerns is that the decline in U.S. technology may have been brought on in part by an overdose of federal regulation.

"It's the uncertainty factor, triggered by incoherent government policies," he said, "that may have led many companies to hedge on innovation, to table what you might call wild-card innovations that take 10 to 20 years to bring forth."

Carey sounded the single note of optimism heard at the two-day session when he praised President Carter's decision to appoint a 15-member committee to study the problems afflicting U.S. industry. Carey said he was pleased that the committee will cover everything from patent, tax and regulatory policies and how they impact industry's views on research spending.

"But at best, we'll have to wait until 1981 or 1982 when Congress answers whatever the committee's findings are," Carey said. "We're talking about 10 years before you see any changes in policy toward industry research."

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Document AC/259-D/627 and AC/94-D/278

CONFERENCE OF NATIONAL ARMAMENTS DIRECTORS—NATO INTELLECTUAL
PROPERTY GROUP

NATO GUIDELINES OF INTELLECTUAL PROPERTY PRINCIPLES IN THE FIELD OF LICENSING
AND COPRODUCTION FOR THE PURPOSE OF ARMAMENTS STANDARDISATION OR INTER-
OPERABILITY

Note by the Assistant Secretary General for Defense Support

At its meeting on 25th–26th October, 1977, the CNAD considered the interim report represented by the AC/94 Intellectual Property Group on "Intellectual Property problems in the field of licensing and co-production for the purpose of Standardisation and Interoperability" (1).

2. The Conference after having taken note of this report:

"(3) agreed in principle to the approach taken by AC/94 with regard to the principles and practices for the future proposed in paragraphs 8 to 29 of the report;

(4) noted that the AC/94 Group had further areas of study;

(5) deferred consideration of the problems listed in paragraphs 44(b) and 45 of the report;

(6) urged AC/94 to continue its work in consultation with the NADRFs."

3. Following these instructions the AC/94 Group has prepared the attached "NATO Guidelines on Intellectual Property principles in the field of licensing and co-production for the purpose of armaments standardisation or interoperability". The Appendix to these guidelines reproduces the principles and practices for the future set forth in paragraphs 9 to 29 of the interim report.

4. In preparing these guidelines the AC/94 Group has borne in mind the need for early implementation of the principles and practices and has therefore addressed itself to those matters which it believed could and need to be applied at an early date. In the view of the AC/94 Group, early implementation will best be achieved if the guidelines are endorsed by Ministers.

5. The AC/94 Group is giving further consideration to these principles and practices with a view to identifying those which, if any, need to be the subject of further implementing guidelines.

6. The Group is also proceeding with the revision, as necessary, of the existing documentation which was prepared in the past with a view to providing the various national authorities with the necessary means and knowledge which will facilitate exchange of technology.

7. In addition, the Group is considering the improvement of the ways and means available for the protection of Intellectual Property exchange in the framework of armaments co-operation.

8. It is recommended that the Conference:

(1) approve the attached guidelines and forward them to the Council at its next Ministerial meeting for their endorsement;

(2) seek periodic reports of progress made by nations in implementing these guidelines in order that NADs may monitor progress on a continuing basis through AC/94 and, advised by the AC/94 Intellectual Property Group, initiate any necessary redirection in application of the principles;

(3) instruct the AC/94 Intellectual Property Group to continue its efforts in this field with a view to completing the measures necessary for the solving of IPR problems in the field of licensing and co-production for the purpose of armaments standardisation or interoperability.

(Signed) JOHN B. WALSH.

Annex to AC/259-D/627 AC/94-D/278

GUIDELINES ON NATO INTELLECTUAL PROPERTY PRINCIPLES IN THE FIELD OF LICENSING AND CO-PRODUCTION FOR THE PURPOSE OF ARMAMENTS STANDARDISATION OR INTEROPERABILITY

Introduction:

1. NATO standardisation and interoperability of systems and equipment in the armaments field can become a reality only through co-operation in spirit and practice between and among its members in development and production programmes. This co-operation can only flourish in a climate of information and technology generously exchanged.

2. This technology often represents valuable assets in each nation's treasury. Its exchange and use, therefore, must be fostered by mutual trust and confidence which rests on the secure knowledge that terms and conditions of disclosure will be scrupulously observed.

3. Defence authorities within NATO, in the earliest stages of national and international defence programmes, and in all subsequent stages, must think in long range terms and must plan for the possibility of future or extended international co-operation. They must seek ways to make co-operative programmes attractive to industry and to other partners. They must anticipate needs for the transfer of technology in expanded co-operative programmes, and must take deliberate steps to assure the availability of essential technology.

4. NATO has set forth a set of principles (see Appendix) to serve as a foundation for enhancing co-operative programmes.

Purpose:

5. The purpose of these guidelines is to outline ways by which individual nations should adjust their policies and/or practices as may be required to ensure that they can comply with these principles in the field of Intellectual Property in a way that each nation decides is best suited to its situation.

Definitions:

6. The term Intellectual Property (IP) is used in this paper to include inventions, trademarks, industrial designs, copyrights and technical information including software, data, designs, technical know-how, manufacturing information and know-how, techniques, technical data packages, manufacturing data packages and trade secrets.

7. The rights to use or have used IP or termed Intellectual Property Rights (IPR) include rights derived from patents, trademarks, copyrights, industrial designs, contract clauses, disclosure in confidence techniques or other means of control of IP.

Existing policy:

8. It is the existing policy of NATO and its member nations that equipment procured for national forces ought to be standardised or at least interoperable with equipment of other members of the North Atlantic Treaty Organisation. In realising this policy the defence authorities of each member NATO nation should in their development and procurement programmes for both major and minor equipment:

(a) consider NATO Allies' systems, system derivatives, sub-systems and components early in the development cycle, weighing the advantages of standardisation in terms of Alliance combat effectiveness as well as impact on national forces;

(b) seek agreement within NATO on military operational needs, new weapon system requirements and schedules for new weapons development and production, based on agreed NATO doctrine and operational concepts;

(c) employ, when necessary, mutually beneficial licensing agreements with NATO Allies to achieve standardisation or to facilitate interoperability;

(d) support procurement arrangements with NATO countries designed to achieve an equitable and competitively determined flow of defence trade within NATO;

(e) pursue a mutually co-operative and beneficial policy regarding exchange of information with NATO partners to foster an early mutual exchange of technological information leading to development and adoption of standardised or interoperable weapon systems and equipment by NATO countries.

Aim of principles:

9. In particular, these principles (see Appendix) recognise that:

(a) information concerning requirements and research and development programmes must be disclosed among the NATO nations so that appropriate international programmes to further standardisation or interoperability can be identified and negotiated between the NATO nations;

(b) in contractual dealings with their respective national industries, nations must assure that technology and know-how can be transferred to NATO partners for co-operative programmes on appropriate terms;

(c) the nature of use and conditions surrounding this technology must be negotiated by the participating nations on a case-by-case basis and must for each case be clearly set forth in a written arrangement such as a Memorandum of Understanding; and

(d) the availability of IP must be such that all current and future related co-operative industrial activities may be shared among the participating nations;

(e) industry should be kept appropriately and timely informed of plans for co-operative programmes.

Implementation:

10. In order to be in a position to fulfill the principles (see Appendix), each defence authority must, in respect of all IP that is generated as the result of a national defence programme, either:

(a) own the IP; or

(b) ensure that otherwise it is in a legal position to grant or cause to be granted, on fair and reasonable terms, licences that transfer such IP and IPR to NATO governments and/or their designated contractors as may be required under existing or future co-operative agreements in which it participates.

11. Intellectual property in which defence authorities have neither ownership nor licence rights is often required to support national programmes. In order to be in a position to have access to and use of such IP in co-operative programmes, each defence authority must, in contracts pursuant to national programmes, ensure that it is in a legal position to grant or cause to be granted, on fair and reasonable terms, licences that transfer such IP and IPR to NATO governments and/or their designated contractors, as may be required under existing or future co-operative arrangements in which it participates.

12. Participating nations in a co-operative defence programme must make, with appropriate changes, arrangements similar to those in 10 and 11 above.

13. Defence authorities must not alienate their right to grant or cause to be granted, licences that transfer IP and IPR to other NATO nations and/or their designated contractors, unless it is clear that such IP and IPR will not be required for any co-operative programme.

14. Each defence authority must, as a prerequisite to participating in a particular co-operative programme, secure the availability of IP and IPR that are owned by third parties and required to implement its part of the programme. If this prerequisite cannot be achieved, the defence authority should immediately notify its co-operative partners. Such availability is not to apply to commercial off-the-shelf items that will be readily available, at reasonable prices, in one or more participating countries.

15. Each nation participating in a co-operative programme is normally concerned that there will be a sharing of the overall industrial activity which it considers equitable having regard, inter alia, where appropriate to:

(a) the nature of the particular programme and the known restrictions imposed by IPR;

(b) the origin and nature of the technology regardless of whether it is governmentally or industrially owned;

(c) desires for competition; and

(d) work sharing arrangements of other co-operative programmes.

It is important, therefore, that arrangements be made as early as practicable in an endeavour to ensure that IP will not prevent such work sharing as may be agreed between participants for all phases of the co-operative programme including any post production phase. Similar arrangements should be made to facilitate

sales to NATO countries not participating in the programme and to other third parties.

16. In order to promote co-operative programmes, defence authorities and industries must be able to exchange information subject to limitations on disclosure or use. Information thus limited must be clearly marked as such. Defence authorities and industries receiving such information must strictly observe such limitations under adequate procedures and must ensure that others authorised to receive it do likewise. In addition, there must be adequate arrangements for dealing with requests for modification of such limitations.

17. These guidelines will be updated from time to time in the light of experience gained by nations in applying the principles and practices at Appendix. To this end, nations should report to NATO the difficulties and experiences in implementing these guidelines.

Appendix to annex AC/259-D/627, AC/94-D/278

NATO INTELLECTUAL PROPERTY PRINCIPLES IN THE FIELD OF LICENSING AND CO-PRODUCTION FOR THE PURPOSE OF ARMAMENTS STANDARDISATION OR INTEROPERABILITY

1. NATO nations should promote the exchange of information on national requirements and R&D activities to help preclude overlapping effort and enhance the feasibility of future standardisation and interoperability. Exchange of technical information related to R&D activities should be under bilateral or multi-lateral arrangements which define the field of information and the purpose of the exchange, e.g. for evaluation and assessment. The arrangements should provide that the information may not be disclosed or used for any other purpose without the specific consent of the participant which supplied it.

2. Governments should take all steps possible to ensure that technical information made available to them or to their firms by other governments or firms are used only for the purpose for which it is made available and will not otherwise be used or disclosed. This principle extends only to information disclosed under government auspices.

3. Before embarking on a new programme on a national basis, the government should first consider:

(a) whether its requirements can be met in whole or in part by a weapon system or component equipment already in development or production and be prepared to adopt that system or component unless the premium for so doing is excessive; and/or

(b) whether it should make arrangements to participate in an on-going development programme; and/or

(c) whether it is possible to proceed from the outset on a collaborative basis with other member nations.

4. At the earliest stage of a programme and at each subsequent stage, steps should be taken to ensure through appropriate contractual arrangements or options that if other NATO nations later wish to participate in research, development or in production, they will not be prevented from doing so by non-availability of rights to Intellectual Property. This applies whether the programme is carried out on a national or collaborative basis. The arrangements in earlier stages should look forward to the requirements of all later stages.

5. In national contracts with industry relating to research and all programme stages there should at least be provisions for the government to use information generated under the contract to promote international collaboration in any subsequent work under the programme and for the contractor to grant such licenses as may be necessary to fulfill any international collaborative arrangement. Such licenses should be on fair and reasonable terms approved by the governments. To the extent feasible, guidance criteria should be established on the terms and conditions that should apply to NATO programmes in various circumstances.

6. Where a government transfers its own IPR to any person, agency or organisation for exploitation, adequate safeguards should be taken to ensure that the rights will be available to promote standardisation and interoperability of defence equipment on terms no less favourable than those that would otherwise have been granted by the government.

7. Before concluding an MOU for a collaborative programme that will involve the licensing of rights owned by industry, governments should ascertain by consultation with industry, or otherwise, whether there are any known existing obligations or other reasons which would prevent or restrict the required

licensing. Governments should use their best endeavours to overcome any obstacles to such licensing, e.g. by seeking re-negotiation by the parties concerned of existing licenses.

8. Necessary license agreements with or between owners of IPR known to be involved in a collaborative production programme should be signed no later than the relevant intergovernmental MOU. Proposed terms of such license agreements between firms should be notified to the participating governments so that they can determine that the terms are acceptable. The agreements should cover the possible IPR requirements for the whole of the collaborative programme and its post-production phase, including technical data and spares required for repair and maintenance, whether on a national or common logistic support basis. They should not be so restrictive as to limit the ability of governments to invite competitive tenders for work, especially repair and maintenance work, relating to items of equipment covered by the collaborative programme. To the extent feasible, the same principle should apply to collaborative programmes involving research and development.

9. MOUs should be drawn up in clear and precise terms based on NATO guidelines and principles. The drafting and negotiating of MOUs should be guided by personnel who have long-term background and expertise in such work.

10. In the case of a joint or shared research programme in a particular field, each participant should have access to and use for at least the purposes of its own armed forces, all information generated in the course of the programme. This should be without charge unless a significant imbalance of financial, technical or other contributions and benefits does not justify this. Access to and use of background information should be on fair and reasonable terms under cover of an arrangement offering the originator adequate safeguards.

11. In the case of a collaborative development programme, each participating government should arrange that background information available to it and its firms involved in the programme which is required for the development phase of the programme as defined by the parties, will be made available as necessary to the other participants, subject to the rights of third parties. Unless there is a significant imbalance of financial, technical or other contributions or benefits, this should be without charge to avoid, where possible, mutual payment of royalties between participating governments and contractors.

12. Regarding the outcome of a collaborative development programme, the participating government should arrange that each of them obtains user rights covering both foreground and background information. The scope of use of such rights and the terms upon which they will be made available are matters for negotiation on a case-by-case basis.

13. In setting up a collaborative programme the participating governments should aim to obtain an equitable overall arrangement with due regard for all factors. Those factors include both the advantages of standardisation and interoperability and the costs, work sharing and other benefits to those governments.

14. Collaborative arrangements should include provisions which will allow other NATO nations to join on reasonable terms with a view to further enhance standardisation and interoperability. New participants must, however, be prepared to accept an established programme and not expect materially to change its objectives.

15. When a nation sells equipment that it has developed at its own expense, it should be prepared to allow the purchasing country the right, free of charge, to make modifications or improvements and to carry out overhaul or repair. In addition, the right to manufacture spares should be allowed on fair and reasonable terms. There should also be reciprocal rights to make use of modifications and improvements on appropriate terms. In the interests of standardisation and interoperability, there should be close consultation on modifications or improvements and appropriate arrangements made as regards configuration control responsibility.

16. Governments should undertake to keep industry appropriately informed about their plans in the field of armaments with a particular view to co-operation in achieving standardisation and interoperability. Prospective international firm-to-firm agreements relating specifically to defence products or work should be notified to national governments who should use their best endeavours to ensure that the terms of the agreements do not obstruct the achievement of standardisation and interoperability including common logistic support.

17. Governments should take prompt and appropriate action to seek amendments or waivers to their laws, regulations, policies and practices, which prevent or delay the implementation of the principles laid down in this paper.

18. MOU's relating to collaborative programmes should define the scope of user rights in relation to sales to NATO countries. Export sales should be organised by arrangement between the parties. Such arrangements should take into account, inter alia, contributions made by the parties to the total programme and the work sharing arrangements for the participating governments' defence production with a view to ensuring that there is an equitable sharing of the benefits from the programme and that NATO standardisation and interoperability are enhanced. There should normally be no restrictions on sales to NATO countries. It is recognised that sales to non-NATO countries will be subject to political considerations of the individual countries concerned.

19. Where there is competitive international selection of NATO standard equipment¹ from equipments developed nationally, all participants in the competition should be assured that the utmost care will be taken to safeguard their intellectual property during and after the evaluation of offers and, in appropriate cases, that unsuccessful competitors will be compensated usually by licensed production on appropriate terms.

20. Governments should assist other NATO participants in a collaborative programme in negotiations with national firms on the terms for use of IPR, including, if so requested, negotiating on their behalf.

21. Licensing fees or royalties should take account of the value of the contribution made to the programme by the intellectual property involved and the benefits gained by the licensor. In the long term it should be the aim to establish a system of ceilings on licensing fees or other charges. In establishing such a system of ceilings the need for economising defence resources and facilitating international negotiation should be main considerations.

Mr. DAN DANIEL. Witnesses who have appeared before the subcommittee have been least able to comment on the best approach to addressing production.

What do you consider to be the most beneficial and detrimental aspects of direct purchase, licensed production, and licensed coproduction?

Do you presently believe that there is an approach which offers more promise than others?

Dr. PERRY. Direct purchase would tend to be more economical than licensed production. However, for equipment that's needed in large quantities, multiple sources might also be needed for higher confidence in the production base or to deal with political realities.

Licensed coproduction is best suited where production start up costs are high for some items, or where technology transfer is a problem. It should be possible for coproduction to be as efficient for all participants as single nation production; however, this is difficult to achieve in practice. Political/economic/industrial realities, e.g. F-16, may necessitate this approach.

In each of these methods of acquisition, duplicative development is avoided. Therefore, each has useful applications. The preferred approach will depend on the particular circumstances and will be influenced by the relative importance of the factors cited above and others.

Mr. DAN DANIEL. There have been witnesses before the subcommittee who have suggested that before there are significant achievements in the acceptance of standardized equipment there must first be a period of time during which interoperability is maximized.

Do you agree? Is the most feasible route to increased standardization through improvements in interoperability?

If this is true, what areas do you consider most critical?

Dr. PERRY. Interoperability is easier to achieve than complete standardization and can provide most of the same military benefits as standardization. However, standardization can also yield important resource efficiencies.

We should pursue both standardization and interoperability where warranted. For example, we had as an objective achieving a standard tank with the FRG, but when this was not possible we worked toward interoperability of the two tanks. In the field of communication where interoperability is essential our goal must be to ensure this result is obtained rather than place too much stress on complete standardization. Ammunition is another area where interoperability through commonality is very important militarily.

¹ See, for example, the tri-lateral tank gun agreement reached in Detroit in 1975 and the licensing approach taken in 1977 with regard to the test and evaluation of small arms and ammunition (Annex I to document AC/225(Panel III)/139 AC/225(Panel III-CCEE)/D/1).

Mr. DAN DANIEL. What actions and issues do you believe U.S. industry will be most sensitive to regarding increased Alliance cooperation?

Dr. PERRY. Certainly one of the sensitive areas is the protection of proprietary information. The NATO Guidelines on Intellectual Property recognize that, "technology often represents valuable assets in each nation's treasury." Current U.S. acquisition policy allows for the submission to the Government of proprietary technology subject to strict constraints on disclosure and use. In cooperative programs with other NATO governments, we can expect U.S. industry to be extremely apprehensive that proprietary information exchanged between governments might be compromised by unauthorized disclosure, and may be used in commercial competition against the U.S. originator.

Being especially mindful of this concern by industry, the NATO Guidelines on Intellectual Property provide that the exchange and use of such technology "must be fostered by mutual trust and confidence which rests on the secure knowledge that terms and conditions of disclosure will be scrupulously observed."

We are in the process of developing a common Restrictive Legend to be affixed to all information exchanged between NATO governments and firms. In addition, we are planning the development of precise guidelines for the drafting of cooperative agreements so that the protection of information is fully covered.

An industry view frequently expressed is that governments should not dictate the terms of license agreements, but that they should be left alone to work out licenses on a firm-to-firm basis. We feel that firm-to-firm agreements are an excellent means of achieving standardization through coproduction. But industry must recognize that NATO RSI is an objective of government, not private industry. Cooperative programs, therefore, will be initiated by governments and their boundaries and conditions perfected in government-to-government agreements. To some extent, these agreements will affect the terms of the license agreements which implement them.

The best answer to industry's concern is to keep them informed, and to the extent feasible, coordinate our government-to-government agreements with industry.

Mr. DAN DANIEL. How can the Congress and the Defense Department assure industry that one of the best investments is increased expenditures for research and development?

Dr. PERRY. The United States has for many years relied heavily upon its scientific and technological prowess to provide the innovations which permits it to be known as the most technologically advanced nation. Products of our high-technology society are obvious in many areas—rapid transportation systems, communications systems, new materials for routine use, as well as high temperature, stressful environments and many advances in medicine and the life sciences. It is generally recognized that the U.S. investments in science and technology have decreased over the past 10 years. Actions underway to revitalize our research and development community include a recognition by the President of the need to reverse this trend as well as the establishment of a Presidential Council on Industrial Innovation. Industry is aware that strong programs in research and development are necessary to continue our technological superiority and to make available advanced products for the commercial marketplace.

Mr. STUMP. Thank you very much, Doctor, for being with us today and for your very helpful and excellent testimony.

Dr. PERRY. Thank you.

[Whereupon, at 12:35 p.m., the subcommittee adjourned.]

WRITTEN STATEMENT ON
A PLAN FOR THE COOPERATIVE DEVELOPMENT AND PROCUREMENT
OF ARMS IN NATO

BY

THE HONORABLE WILLIAM J. PERRY
UNDER SECRETARY OF DEFENSE FOR
RESEARCH AND ENGINEERING

TO

NATO STANDARDIZATION, INTEROPERABILITY AND
READINESS SUBCOMMITTEE

OF THE

ARMED SERVICES COMMITTEE

OF THE

HOUSE OF REPRESENTATIVES

16 NOVEMBER 1978

Mr. Chairman, Gentlemen:

It was my pleasure to appear before this Special Subcommittee in June of this year to testify on the need for improved cooperation among NATO countries in armaments development and acquisition. As I noted in my earlier testimony, RSI (Rationalization, Standardization, and Interoperability), is not an end in itself, but a means to respond to the reality of Soviet power building. RSI provides improved NATO forces to balance the sustained program of growth in Soviet and Warsaw Pact forces.

In my earlier testimony, I discussed in some detail the problems in NATO today and the need for improved cooperation. I will not repeat this discussion. I will instead focus my attention on the future alliance environment - an environment we can effect by our future actions in research, development, and acquisition. I will address three main subjects:

- o Why is armament cooperation important in this environment?

- o What is our proposed framework to improve armament cooperation?
- o What criteria should be applied as we consider cooperative programs within this framework?

Why Is Armament Cooperation Important?

The future military balance will be determined by the quality and quantity of equipments produced - both are affected by defense expenditures and the efficiency with which the expenditures are applied.

The CIA has compared the dollar costs of Soviet and US Defense activities from 1967-1977. Their comparisons reflect a decline in real US defense spending during this period, while Soviet defense costs have grown at 4-5 percent per year. In 1977, estimated Soviet defense costs exceeded corresponding US costs by about 40 percent. In investment, Soviet expenditures were estimated to be about 75 percent greater.

These additional expenditures are being applied by the Soviet Union to create a significant production advantage. For example, the Soviets are producing new tanks, guns, and aircraft at a rate from two to five times that of the US. This advantage is worrisome in two respects: (1) it indicates that the present numerical imbalance is going to be even worse

in the future, and (2) it raises concerns about maintaining our present qualitative advantage in the face of Soviet production programs often characterized by the fielding of two successive generations of a system while we are fielding one generation.

We have two classes of solution to this problem. One is to increase defense expenditures. The other is to improve efficiency. We could simply match Soviet defense expenditures by increasing our annual defense budget by about 40 percent. Such an increase is, in my opinion, both politically unrealistic and unnecessary. We are working instead to sustain a modest increase in real defense expenditures as indicated by our commitment to the NATO Long-Term Defense Program. We are also improving our own efficiency, applying a defense investment strategy which exploits fundamental US advantages in both commercial technology and our diverse industrial base. But the most significant contribution can be made by improving efficiency on an alliance basis.

In 1977, total defense expenditures of NATO countries exceeded US defense expenditures by about 55 percent. So the expenditures of our NATO allies more than make up the gap between Soviet and US defense expenditures. The challenge is to apply these expenditures efficiently on an alliance-wide basis.

Recognizing the existence of this challenge is not new. Standardization and interoperability have been discussed so long that they have become slogans. The real challenge is the development and implementation of an

improved program of cooperation in development and procurement--a program with the clear objective of improved combat force effectiveness, but a program which is practical in terms of economic and political feasibility.

A Framework for Improved Armament Cooperation

Our proposed framework for improved armament cooperation includes a triad of cooperative actions along with a supporting management structure. The triad includes: General Memoranda of Understanding (MOUs) in reciprocal purchasing; Dual Production in NATO countries; and the Family of Weapons.

The purpose of the general MOUs is to open up the defense market of each country to fair competition by NATO's defense industry. These MOUs waive various "Buy National" restrictions on a reciprocal basis. We have already negotiated such MOUs with the UK, Canada, Germany, Norway, the Netherlands, and Italy. It is too early to forecast the precise benefits which will result from these MOUs. Nevertheless, initial results are encouraging, and I believe that this approach is valid for the whole alliance. We have invited countries who have not yet done so to enter into such agreements with the US.

Dual production is the second leg of the cooperative triad. When one nation has completed development of a system which is useful to the alliance, that nation should make its system available for production by other countries or consortia of countries. This will eliminate unnecessary duplication in R&D while avoiding the trade and labor imbalance

that would result from exclusive development and sales. We are already engaged in such dual production arrangements on the French/German developed ROLAND. We have offered the AIM-9L air-to-air missile, the Copperhead Laser-Guided Artillery Projectile, and the Stinger shoulder-launched surface-to-air missile to European consortia. We will offer others and we will consider the reciprocal offers of other NATO countries to the US. These dual production programs can lead to the near-term introduction of the latest technology in NATO's deployed forces at the lowest practical cost.

The Family of Weapons is the third leg of our cooperative triad. Here the principal objective is to obtain greater efficiency by reducing needless duplication in our development programs. We want the \$12 billion we spend for R&D and the \$4 to \$5 billion the allies spend to yield \$16-\$17 billion worth of combined results. Our approach is to examine the weapons which member nations plan to develop in the next few years and aggregate these weapons by application. When we find two or three that perform similar missions, we will agree to divide the responsibility, with one party developing a long-range version, the other a short-range version, etc. We would anticipate such divisions to be made among the US, Canada, and European consortia. When development is completed, each developer would make available to the other participants a data package for production.

As a result of discussions with our allies and an industrial dialogue

initiated in the recent Defense Science Board Summer Study, we have modified this Family of Weapons proposal somewhat. When the US has the lead, we will designate a portion of the development to be available to European industry. European industry will designate a corresponding portion of their development to the US. The purpose of this modification is to encourage trans-Atlantic industrial teaming to provide the best available technology and to facilitate the information exchange that will be needed for the dual production that will follow. We will select the US prime contractors, subcontractors, and European subcontractors on a competitive basis to insure the best technology and lowest cost in the resulting system. We have not yet negotiated specific Family of Weapons agreements, but are exploring as families: Anti-Tank Guided Missiles, Air-to-Surface Weapons, Ship-to Ship Missiles, and Air-to-Air Missiles.

There are important details to be worked out before we can begin development under the Family of Weapons Concept. However, I believe that the mechanics of how to implement the families concept can be worked out provided all have the desire and determination to do so.

Consider, for example, efforts related to a potential family of air-to-air missiles. There is a joint Air Force and Navy program underway to develop an Advanced Medium-Range Air-to-Air Missile (AMRAAM) which will be a replacement for the AIM-7 Sparrow. The program is currently in source selection to determine which two of five contractors (Ford Aerospace, General Dynamics, Hughes, Northrop, and Raytheon) will proceed into a competitive validation phase.

The operational characteristics of the missile being developed were derived from an Air Force/Navy Joint System Operational Requirements document and a Mission Element Need Statement, both of which include projected NATO requirements. The missile is to be compatible with the F-14, F-15, F-16, and F-18, and the contractors are to consider European requirements in the design of their missile systems. To promote interoperability, we have requested design packages on European aircraft (MRCA and Mirage 2000) so the validation phase contractors will have the data required for this task.

We have proposed to our allies that the US AMRAAM become the NATO standard for the medium-range missile. Our European partners would then develop the next generation short-range missile as the NATO standard. We agreed that it would be desirable to have a portion of the AMRAAM development carried out in Europe and a portion of the short-range missile development in the United States. We have encouraged the AMRAAM contractors to use European subcontractors to bring the best alliance technology to bear on missile development, and we are now trying to determine if there are more positive ways to influence cooperative development. We have initiated action to schedule two technical interchange meetings to discuss the AIMVAL/ACEVAL test, European short-range missile technology, and AMRAAM technology. Present planning allows for coproduction of AMRAAM in Europe to encourage procurement of a large NATO inventory of this advanced weapon. Also, we would plan to produce in the United States our inventory requirements for the European-developed short-range missile.

This triad of cooperative actions can be effective in the long term only if cooperation begins very early in the acquisition process. These actions should begin at the requirements definition stage, recognizing that once programs are started, sponsoring nations are reluctant to terminate them. In recognition of this, we have supported within the NATO CNAD the development of a Periodic Armaments Planning System (PAPS). PAPS is comprised of two basic elements. The first is a procedure which aids the identification of military needs prior to the establishment of national programs, and encourages multi-lateral definition of these needs. The second element provides feedback on NATO programs which will tell us how well the requirements process is working. Information provided by nations on all major systems will be analyzed and published in an annual NATO document called the NATO Armaments Planning Review (NAPR). It will identify opportunities for cooperation as well as potential divergence in national plans. We expect to initiate this system next spring.

Effective long-term application will also require identification and direction of cooperative programs within the DoD. We have taken a number of steps to implement and refine standardization policy and objectives. Basic DoD policy is to "actively seek standardization and interoperability of weapons systems and equipment with NATO on a priority basis in order to conserve resources and increase the combined combat capability of US and NATO forces." The overall DoD weapons system

acquisition process is outlined in two DoD Directives (5000.1 and 5000.2). These documents describe the process in great detail. DoD Directive 2010.6, issued in March 1977, further assigns RSI responsibilities to each DoD component. The essence of these new procedures is to ensure that we maintain a better liaison with our allies on armaments, consider allied solutions to our military needs, and offer our allies suitable participation in our own programs. Key to implementation of our RSI directive is the use of the Defense Systems Acquisition Review Council (DSARC) and the Decision Coordinating Papers (DCP). The Assistant Secretary of Defense for International Security Affairs and the Advisor to the Secretary of Defense on NATO Affairs are now members of the DSARC for programs having RSI implications, and they review related DCPs. For systems with a total or partial application to NATO, RSI is a fundamental part of the acquisition strategy.

Examples of recent actions as a result of DSARC decisions include SOTAS and AHAMS. As a result of the August 1978 DSARC review of the Stand-Off Target Acquisition System (SOTAS) program, the Army was tasked to submit an RSI plan. The plan was to identify specific milestones and describe the efforts to accomplish each milestone. The plan, submitted in October 1978, provided for potential NATO co-production of the SOTAS system.

In a similar action, the Army presented for DSARC principals a comprehensive plan for cooperative development of the next generation of

anti-tank missile systems. I have since approved the plan and requested the Army to pursue an option which will allow a European consortium to develop the follow-on system to TOW, HOT, and Swingfire, with the United States developing a complementary system.

Criteria for Future Cooperative Programs

Having described a framework to improve armament cooperation, I would like to discuss criteria to be applied before implementing future cooperative programs. I believe the following criteria are essential to a program which will improve NATO readiness and force effectiveness, yet address the difficult questions of economic and political feasibility.

o Effectiveness and Efficiency

The ultimate objective of armament cooperation is improved combat force effectiveness. So the first test of a candidate program is whether or not that program will improve the effectiveness of alliance forces. In coalition warfare, improving the effectiveness of US forces alone is not sufficient. We will be dependent upon the combat effectiveness of the forces on our flanks, and the criterion for force effectiveness must reflect this reality. The importance of our allies is underscored by the fact that US forces constitute only 20 to 25 percent of NATO's conventionally armed forces.

A related criterion is efficiency. A cooperative program should not be considered unless we can reasonably expect it to result in improved allocation of alliance defense resources. We have not taken full advantage of the total economic and technological resources of the NATO countries, and we will be looking to future cooperative programs to do so.

Efficiency should not be judged in terms of an individual weapons system or subsystem. Our judgment should be made on the basis of the improvement offered by the combination of programs in a cooperative agreement. If the agreement as a whole will improve efficiency and effectiveness, it should be considered favorably.

o Competition

Competition is vital to maintaining efficiency in armaments development and production. I know of no better mechanism to control costs and stimulate performance advancements. Our proposed framework for cooperative programs is entirely consistent with maintaining a competitive environment in development and production. It is a framework which can actually increase competition.

Our actions to establish General MOUs will open up defense markets to fair competition, removing on a reciprocal basis the many barriers resulting from "Buy National" restrictions. Dual production programs

provide competitive alternatives to national programs which are often constrained to national markets and associated small-scale, inefficient production. Our proposed Family of Weapons includes a mechanism for cross-participation by the partners in development of a family, allowing competition to work in creating the best team. The family approach also provides production data packages, improving the potential for competition in production.

Competition will be a key criterion in our consideration of future cooperative programs. The principle of competition is a central element in our triad of actions to improve armament cooperation, and I will not support proposals which unnecessarily restrict competition.

o Prudent Technology Transfer

Prudent transfer of technology is a key criterion in future cooperative programs. Technology is a precious commodity--precious in both military and commercial applications. In transfer of technology, we must balance the benefits of sharing technology to improve NATO combat effectiveness against protecting our other interests. We will be especially attentive to transfer of technology that could reduce our industrial competitive edge, and would recommend such transfer only if the benefits to our national security outweigh the potential negative effects.

We are also concerned that advanced technology may fall into the hands of our adversaries. Technology transfer is reviewed very carefully in the DoD. All requests are handled on a country-by-country, case-by-case basis under provision of the Arms Export Control Act and the Export Administration Act. We do not always approve or release complete information. We are also mindful of the need to accomplish technology transfer with full industrial cooperation, and without compromising the valuable intellectual properties of our contractors. I might add that NATO Working Group AC-94 is studying this aspect of cooperative acquisition in great depth.

Two examples of cooperative procurement with protection of sensitive technology are the F-16 (air superiority fighter) and AIM-9L (advanced air-to-air missile). We considered the engine of the F-16 to contain sensitive information concerning advanced technology. Therefore, technical information on those components (about 15 percent of the engine) was withheld in the coproduction program. Only the US is building the sensitive components and they will then be shipped to and assembled in Europe.

In the case of the AIM-9L, an allied consortium will produce this system in Europe; however, information on the advanced technology fuse for the AIM-9L will not be released until a later date.

In both cases, sensitive technology has been protected, development

resources conserved, and the best available equipment will be available to both US and allied military forces.

On the other side, I am equally concerned about the impact on our industry and the alliance if we do not share technology. If we hold back US technology, especially in areas where our allies have agreed to defer development of their own equipment, we will see barriers against our industry and our products. The net result could be reduced US sales in Europe and reduced combat effectiveness of NATO forces.

o Jobs

The cooperative programs which we recommend will produce no net loss of jobs for US industry. But, the key question here is loss with respect to what. If the frame of reference is the 1960s in the midst of the "Buy American" program, then there has already been a loss of jobs--not from our efforts to improve cooperation, but from the isolationist "go-it-alone" approach that is beginning to develop in Europe. If, instead, the frame of reference is established by the level of defense activity already underway in Europe, then the programs we recommend will not involve a loss of US jobs.

Europe is no longer content to proceed with one-sided purchases from the US. They are proceeding to successfully develop their defense industry. The inherent disadvantages of small size are

being overcome by formation of consortia and various multi-national corporations. The Europeans will continue this trend toward exclusive dependence on their own defense industry if they are not offered a reasonable opportunity to participate in a cooperative program.

The programs we are pursuing will cause no loss of jobs given these facts of life. At this point, we have but two alternatives. We can participate with our allies in a broad NATO defense market, expecting our fair share. Or we can go it alone, and our allies will increasingly do the same. If we do go it alone, there will be no benefit in US jobs, and there will be incredible duplication of effort and waste. The net result would be reduced effectiveness of our NATO forces, higher defense costs, or both.

Summary

In closing, I wish to leave no doubt that while the DoD acquisition process has been revised to stimulate cooperative efforts with NATO, all programs remain subject to executive and legislative review and approval. Funding is approved within the DoD Five-Year Defense Plan; the annual DoD budget is formulated in accordance with guidance provided by the President and the Office of Management and Budget; and the Congress will continue to authorize DoD programs and provide appropriations. We look

forward to continuing interaction between the DoD and the Congress at the staff level, including briefings, as needed, on key issues. The annual report to the Congress by the Secretary of Defense on Rationalization and Standardization within NATO, as required by law each January, provides for further exchange to identify progress toward our goals.

I wish to direct your attention to steps I believe you can take to accelerate armament cooperation and insure it fulfills the best interests of the US. Test and evaluation of foreign-developed systems offers a very high return to the DoD. We can evaluate foreign systems for a very small fraction of the cost required to develop and test a new system. Moreover, our willingness to consider foreign systems helps overcome "Buy National" pressures in foreign governments. We need congressional support for adequate Foreign Weapons Evaluation funding.

I also ask your support for two pieces of DoD legislation, HR 12837 and HR 11607. HR 11607 is necessary to facilitate the interchange of essential logistical support between national forces either stationed in NATO countries, or deployed in NATO exercises. HR 12837 will facilitate agreements and contracts with friendly foreign governments and international organizations for the purchase of supplies and services in furtherance of RSI. It will also assist in programs for cooperation in development and production of defense materials.

Finally, I believe that a broadly-stated Sense of Congress Resolution

would be highly significant in underwriting our efforts to further strengthen the military effectiveness and cohesion of the North Atlantic Alliance. The bipartisan leadership of the Congress, and both Presidents Ford and Carter have called for greater armaments cooperation with our NATO allies. President Carter, in a broad initiative at the NATO Summit meeting, stressed alliance agreement to improve armaments collaboration. However, there are major obstacles to allied cooperation in armaments development and production. The principal obstacle is the cumulative inertia of 30 years of failure with the many tales of why it will not work. This can be overcome by leadership, commitment, and the proper attention to economic incentives. The framework which I have described in combination with the Long-Term Defense Program (LTDP) provide an example of our commitment.

I have underscored the importance of armaments cooperation, described a triad of actions to achieve it, and discussed criteria for cooperative programs. I urge you, Mr. Chairman, and your subcommittee, to support these programs in authorization and other legislation. I, in turn, pledge our full cooperation and consultation with you as we proceed with implementation.

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SPECIAL SUBCOMMITTEE ON NATO
STANDARDIZATION, INTEROPERABILITY AND READINESS,
Washington, D.C., Thursday, September 21, 1978.

The subcommittee met, pursuant to notice, at 10 a.m., in room 2118, Rayburn House Office Building, Hon. Dan Daniel (chairman of the subcommittee) presiding.

Mr. DAN DANIEL. The subcommittee will come to order.

This morning we are approaching the end of our indepth review of NATO standardization, interoperability, and readiness and I am pleased to welcome today a very appropriate witness to the subcommittee, the Honorable Harold Brown, Secretary of Defense.

The subcommittee has taken testimony from many witnesses on the military threat to Europe, the readiness posture of our forces, the economic and political issues associated with NATO cooperation, and the plans and programs the Department of Defense is considering for increased alliance cooperation.

The issues being considered are very important and, unfortunately, there are many remaining questions. Therefore, I strongly encourage my colleagues only to ask the Secretary those questions directly related to NATO and increased alliance cooperation. We need to ask those many questions which will help us in successfully completing our review and the preparation of our report to the full committee.

I sometimes believe that there are as many viewpoints on this subject as there are those who make statements on issues associated with Europe's defense. So let us concentrate on those issues this morning.

Before you proceed with your statement, Mr. Secretary, I do want to make one observation. It is not one that I am pleased to make, but it must be made.

I am thoroughly confused as to what approach the Department of Defense is attempting to propose for increasing weapons development and procurement cooperation. The testimony and reports received by the subcommittee have consistently been inconsistent and not specific.

To just very briefly demonstrate this consider the Defense Department's 1976 annual report on "Rationalization/Standardization within NATO" which recommended a three-step approach: (1) competitive research and development, (2) common agreement on the best design, and (3) a commonly agreed approach to production.

The 1978 annual report did not add substance to the earlier recommendation but merely stated that:

DOD is continually assessing standardization and interoperability opportunities, including the purchase and/or co-production of allied equipment when a NATO requirement can be met.

Though it might be thought that the problem is limited only to considering a fixed number of alternatives such as codevelopment, competitive development, licensed production, et cetera, that is not true. Both Ambassador Komer and General Haig have proposed to

the subcommittee a very different approach—that being incremental standardization. It has been labeled a “bottoms up” approach where materials, assemblies, and parts would be standardized—not whole weapon systems.

In fact there appears to be a sense of frustration, in the Department of Defense, with all the presently available approaches. This was highlighted by Dr. Frost’s statement that:

Hopefully, the Long-Term Defense Program and the “family of weapons” concept opens up new and creative opportunities to resolve transatlantic tensions on the basis of mutual benefit without limiting ourselves to traditional licensing and co-production arrangements.

If the Department of Defense and Congress are to work effectively toward increasing NATO cooperation we need to choose and be committed to some common approaches. Therefore after you have completed your statement, I would appreciate your addressing this very deep concern of mine.

Mr. Secretary, we are delighted to have you with us this morning. We know your time is limited, but I hope that you will, after you have completed your statement, address what we consider to be contradictions.

You may proceed as you desire, sir.

Secretary BROWN. Thank you very much, Mr. Chairman.

Mr. DAN DANIEL. Mr. Secretary, Mr. Price has arrived.

Mr. Chairman, do you have anything you would like to say at the moment.

The CHAIRMAN. Nothing except to welcome the Secretary.

Secretary BROWN. Thank you.

Mr. DAN DANIEL. Please proceed, Mr. Secretary.

STATEMENT OF HON. HAROLD BROWN, SECRETARY OF DEFENSE

Secretary BROWN. I am happy to be here this morning to summarize U.S. goals in and for NATO, our current efforts to achieve them, and our desire to work with you toward these ends shared by the Executive Branch and the Congress.

We have today an unparalleled alliance of 15 countries, which has preserved world peace for 29 years. The United States is a member of the North Atlantic Alliance for two reasons:

(1) We share with our 14 allies a respect for human rights and political freedom, and a determination to preserve them. Those goals are paired with military self-defense.

(2) By working with our allies, we can maintain collectively a stronger military barrier to aggression than we could by ourselves.

There can be no effective defense of Europe that does not involve the United States, and any viable long-run defense of the United States would be doubtful unless Europe, too, remains free. Separately we could not match the military and geopolitical power of the Warsaw Pact. But together we can do at least that well, if we are willing to work at it.

I believe we all agree on these basic reasons for maintaining our alliance. But there is a major secondary issue: How to share the burden.

That has been a difficult problem for any alliance, and has proved the downfall of many. Certainly it is difficult to compare the alliance contributions of diverse national entities. Examples are Norway—which has only about 4 million people spread over a rugged country 1,500 miles long; the Federal Republic of Germany—which provides about half the combat divisions in the central region, as well as the territory for basing and exercising all alliance forces in that critical area; and Turkey—which has little industry, but maintains a large force under arms on NATO's southern flank.

The United States has over half of the alliance gross national product; we provide well over 60 percent of alliance defense spending. Some part of that, however, goes to maintain national interests and independent capabilities that are not immediately part of our alliance commitment. Moreover, we contribute only about 40 percent of the men under arms.

In the alliance councils, U.S. representatives have pointed out what we are doing to strengthen the alliance and are urging our friends to increase their contributions. But, not surprisingly, many of our allies often see the picture differently since they are more aware of their increased efforts.

Last year we, along with our allies, pledged to seek a real annual increase in defense spending on the order of 3 percent in order to respond at least partially to the annual rate of increase of 4 percent or more maintained by the Soviets for nearly 20 years running. That is a burden proportioned to the past efforts of the participants, and it offers one measure of burden-sharing.

There is also the task of coordinating the individual national contributions. If we do not work together, we risk failure of our efforts to deter attack. Even a 10-percent or 20-percent real increase in resources would fail to be effective if each ally went off in a different direction.

This need for coordinating or rationalizing alliance efforts is sometimes more difficult for the United States to accept than for the other partners. We are bigger and more independent. In the past we have been able to do everything our own way and still succeed. Or at least so it may have seemed. Sometimes we forget the major contributions our allies have made to defense technology through the years—such as the British invention of radar and Chobham armor, German advances in guns, the French development of wireguided antitank weapons, and missiles like the French-German Roland.

Today it is clear that we need a new attitude. There has been a major improvement in Soviet military capability over the past decade. In the light of that fact, NATO's military ability to deter will depend in great part upon the rational design and utilization of all of our national forces under NATO-agreed priorities. How well we will achieve that result depends upon the degree of cooperation attained within NATO in defense matters.

We and our allies no longer can count on having much time to prepare our defenses. The Soviet theater forces have changed most significantly, not only in numbers, but in their ability to wage short, intense, nonnuclear campaigns using large, modernized forces, with relatively little advance preparation. In consequence, a surprise attack by the Warsaw Pact has become more feasible. Our needs have changed ac-

cordingly—toward higher combat-readiness, ability to sustain a defense in high-intensity warfare, improved interoperability with allies, and more long-term mobility for that half of the alliance based in the Western Hemisphere over 3,000 miles away.

We must keep the size of our forces, their modernization, their readiness—including their mobility—and their sustainability in balance—especially when the threat of short-warning attacks has increased. Spending money on spare parts, unit training, and field exercises may not produce headlines; but, considering the investment we already are making in hardware, we now need to make those less glamorous expenditures.

The NATO Long-Term Defense Program (LTDP) endorsed by heads of governments at the May 1978, Washington Summit Meeting represents a significant step forward in coordinating the use of allied resources in critical areas. It includes 10 detailed programs to provide NATO readiness, reinforcement, technological superiority, and coordination. The LTDP has been put in motion, and NATO now is completing arrangements to monitor program performance. I shall provide full details on the initial phase in my annual report to Congress on NATO rationalization and standardization next January.

Key to a successful LTDP is greater alliance cooperation in armaments to increase the collective efficiency of our forces. Standardization and interoperability are not ends in themselves, but rather are means to increase alliance military strength.

The Soviet Union rate of investment on military research and development is perhaps double that of the United States. They are producing two or three times the quantity of major weapon systems that we are, though we think the United States retains a real, though decreasing, edge in quality. There are offsetting factors to their greater rate of expenditure. Within our alliance as a whole, we spend our limited resources on the same types of weapons, usually at higher unit costs. In some cases we field less than the best available equipment.

It is essential that we stop this waste. It will not be easy because we are 15 sovereign states, concerned not only with an adequate defense but also like it or not, with maintaining indigenous research and development capability, industry, and employment. But the challenge is not insurmountable.

Since Dr. Perry already has described our efforts in that direction, I will merely highlight the key points.

First, we are trying to tie alliance efforts closer together by negotiating agreements with individual allies on cooperation in defense procurement and R. & D. that remove certain restrictions on defense trade and cooperation. Under these agreements we will work to open up acquisition processes and share information. Our goals are to maintain and strengthen our own competitive procurement system by allowing our allies to participate and to increase the effectiveness of the alliance as a whole by influencing our allies in turn to open up their own national programs to U.S. participation.

Our second approach is to encourage dual production for weapons and equipment—that is, two production lines, one in Europe and one in North America. This concept will provide the best equipment currently available to all alliance forces, will insure interoperability in the

field, and will eliminate redundant investments in development work.

Mr. DAN DANIEL. Would the Secretary please suspend.

This is a straight quorum call. The Chair does not intend to respond, but for the benefit of those members who wish to, it is a straight quorum.

Please proceed, Mr. Secretary.

Secretary BROWN. That approach will provide lower unit costs for the alliance as a whole through longer production runs. The F-16, Roland, and AIM-9L programs are examples of dual production.

In the long term, we hope to coordinate our alliance efforts by dividing responsibilities within various "families" of mission-related weapons. The United States, for example, could take the lead in developing one type of weapon while the European nations—one or more—could develop a complementary weapon. In this way, unnecessary duplication in alliance development programs could be avoided. We are now discussing with our NATO allies a conceptual framework for weapons families in the next generation of several such families: antiarmor weapons, naval mines, antiship missiles and air-to-ground weapons.

Of course, this "families of weapons" approach will work only if we can agree on military requirements. To meet that prerequisite, an alliance working group has agreed on the outlines of a periodic armaments planning system (PAPS) which will be tried next year, with possible full implementation in 1980. This planning system should result in early agreement on military needs and follow-on cooperation on approaches to the development of key families of weapons within the framework of the main armaments groups of the Conference of National Armaments Directors (CNAD).

To help cooperation between the European and North American parts of the alliance, our Departments of State and Defense have pursued a dialog with the Independent European Program Group, which is seeking to rationalize European development and production for better participation in a "two-way street" with the United States. We don't think the two-way street is in military terms an end in itself, although we recognize it is an important political prerequisite to a number of the European countries. We are trying to remove artificial barriers to rational defense procurement. There are no quotas on the two-way street, but we are convinced that greater cooperation will increase the traffic both ways.

We also have implemented new procedures within the Department of Defense which insure that our planning and acquisition processes have the appropriate NATO perspective. In March of last year, I directed issuance of a comprehensive DOD directive on alliance standardization policy which assigned specific responsibilities within the Department. Those procedures insure that we will maintain a better liaison with our allies on armaments, fairly consider allied solutions to alliance military needs, and offer our allies suitable participation in our own programs.

Thus we have various plans and efforts underway. But we have no chance of achieving closer cooperation with our allies without continuous teamwork between the Department of Defense and the Congress. That is why I am glad to be here today at your invitation. The very existence of this special subcommittee on NATO reflects the importance which the Congress attaches to this subject.

Let me give one example of how our cooperation can be fruitful. I believe that the hearings you have held this year point out the need for the Department of Defense to have greater flexibility in cooperating with our allies than some statutory restrictions at present allow. Given such flexibility, I pledge that the Department of Defense in turn, will work closely with the Congress, and with the chairman and members of this committee, to describe the alliance approaches we are taking and to explain the results for your review. This will take time and effort on both our parts, but in my view a successful long-term alliance defense is not possible any other way.

We shall seek your counsel, and offer ours, on competing systems that will require testing and comparison. Our adoption of the 120-mm tank gun developed by the Federal Republic of Germany was a good example of the sort of effort we must make together to determine the proper direction for our defense. Together we have reached agreement on an action plan which will give us the technical potential to meet the increasing threat, as well as a better chance for alliance standardization and interoperability in the next generation of tank guns.

I hope for the early support, by this subcommittee and by the full Committee on Armed Services, of the two legislative proposals we have submitted for your consideration. One of those would allow our forces to implement or to continue mutual logistics support arrangements with our allies. The other would reduce obstacles to government-to-government equipment cooperation.

Moreover, I urge this committee to continue to work, as you have so effectively in the past, to establish throughout the Congress an awareness of the importance of strengthening cooperation in all phases of our alliance defense efforts.

To sum up, we in the Defense Department do not have all the answers on how best to improve armaments collaboration in the common interest. But we do know that it is a military imperative if NATO is to achieve and maintain credible deterrence and defense in the 1980's at a cost which free societies can afford. Therefore, we are actively seeking better ways to promote interallied collaboration. We hope that you and the rest of the Congress will join us in this endeavor.

Thank you.

Let me, if I may, take a couple of minutes to respond to one or two of the points that you made in your opening statement.

Mr. DAN DANIEL. Before you do Mr. Secretary, let me say to you that we recognize the importance of the legislation which you have requested. We also recognize the importance for more flexibility. But what we need from DOD now is something a little more specific. And I understand that the legislation is being redrawn.

Secretary BROWN. We are proposing to add a paragraph to H.R. 11607, a paragraph expressing the sense of the Congress in lieu of language in the earlier draft.

That is one change of which I am aware. I think it reflects some concerns that have been expressed by members of the committee, Mr. Chairman.

Mr. DAN DANIEL. We would, of course, not be able to get to that legislation this year, but we would like to have it as soon as possible, Mr. Secretary.

Secretary BROWN. Yes, sir, I can give you some examples of how the present situation in the absence of that legislation does inhibit efficiency and cooperation.

Mr. DAN DANIEL. It would be helpful for the committee to have that.

Secretary BROWN. All right.

[The following information was received for the record:]

EXAMPLES OF U.S. LEGAL CONSTRAINTS ON NATO LOGISTICS COOPERATION AND EFFICIENCY*

During Reforger 1977, the Dutch requested reimbursable support from the U.S. of food, petroleum, clothing, pyrotechnics and repair parts for a Dutch battalion operating with the U.S. Army. Due to constraints of the Arms Export Control Act, a foreign military sales case with the attendant delay had to be established before the support could be provided.

At Garlistedt, a new installation to garrison a U.S. brigade, has been constructed at the German Government's expense at a location desired by the U.S. The German Government has further agreed to maintain the installation, on a reimbursable basis, thereby reducing U.S. logistical force requirements. This agreement, however, could only be negotiated by the Germans as an exception, due to mandatory provisions of current U.S. law. The construction and maintenance of future installations for the U.S. by the German Government is imperilled without relief legislation.

A standard NATO agreement (STANAG 2135) provides procedures for the purchase, sale and interchange of supplies and services among NATO forces. The United States, although a signatory, cannot implement this vital agreement under current law. This has impeded the entire functioning of NATO mutual support.

In 1975, the USAF began developing emergency lateral weapon systems agreements with NATO allies. Attention was focused on the F-4, C-130 and H-53/H-1 helicopter weapon systems flown by the USAF, German Air Force and British Royal Air Force. Provisions of these lateral agreements covering loan of items were blocked because under present law only cash sales of defense articles and services are authorized by the Arms Export Control Act.

Secretary BROWN. You pointed out, Mr. Chairman, that in 1976, the Secretary of Defense's Report to Congress on NATO Rationalization/Standardization described the need for comprehensive R&D approach, which would be agreed within NATO and a common-agreed production arrangement. I think those principles still apply. But they need to be examined in the light of the military and political situation.

There is no doubt in my mind that, from a purely technical military point of view, the best thing would be to have a single weapon of each kind for the entire alliance. That way you solve the interoperability problem by making things standard. You have reduced costs by having a production line as long as possible. You can maintain competition early in the process. In other words, treat all countries as if they were one country or one market. The Warsaw Pact does just that. But when you understand why it does that, you realize why the NATO Alliance cannot use that approach.

The Warsaw Pact does that because it is not an alliance of equals—of states or of countries with an equal say in what happens. The Soviet Union imposes its military equipment, along with its military doctrine and political doctrines as well, to a greater or lesser degree on all of its Warsaw Pact partners. NATO is not like that.

The domestic political requirements of each country have to be met adequately so it will voluntarily go along with any arrangement. And those political requirements are not very different from those in our own country. They do worry about the employment in defense industry. They do worry about maintaining a development and production base that will offer them some independence. They do also have mili-

*See Appendix B, p. 1489, for additional information.

tary establishments, each of which has its own doctrines. Those have to be rationalized among the alliance members as well.

What this has shown us in the Defense Department during the year and 8 months that I have been Secretary is that you have to deal with this question on a time-phase basis. Building from the bottom up is feasible, we think, given a great deal of hard work, for systems that are going to be coming into the inventory perhaps 10 or 12 years from now—in some cases, maybe 7 years from now—and on which we, therefore, can start to work from the beginning now.

That is what is behind this “family of weapons” arrangement, which will include competition from the beginning, conducted by the contracting agency, or lead contractor in the lead nation, for a particular design, involving, we hope, competition among various competitors in each of the NATO countries for components of the design, and for a prearrangement between the United States, on the one hand, and the European allies on the other, to divide up areas. Using an antitank weapon as an example, we might develop a medium-range antitank missile, and they might develop a long-range antitank missile, where otherwise each of us would have developed and produced both.

I think that is feasible to do for a weapon system that has not yet been started. On the other hand, if you take something that is already deeply in development or in production, those political factors of which I spoke and of which you are at least as aware as I, become magnified, and make a cooperative arrangement of that sort virtually impossible.

Therefore, in a shorter run, what we are encouraging by means of memorandums of understanding and other supplementary interim arrangements, is that if there are weapon systems or equipment that the Europeans have built, or have developed and are building, that meet our needs, we buy it, rather than start out from the beginning ourselves. And correspondingly, they do the same with us.

There is no doubt in my mind, Mr. Chairman, that the situation of 15 years ago where the Europeans essentially had to buy the great bulk of their equipment from us is not sustainable any longer. They are going to make a larger fraction of their own equipment than they did in the past. That is a political decision that I think is virtually impossible to reverse in democratic countries. And I believe, also, they have the technological capability to do this.

Mr. DAN DANIEL. Mr. Secretary, we recognize the political implications of many of these decisions and Deputy Secretary of State Warren Christopher is scheduled to testify before the subcommittee on those political aspects. But let me ask you specifically, Mr. Secretary, if our conclusion is correct that there are some inconsistencies in the testimony, to what extent are they the result of changed political, economic, and military considerations?

Secretary BROWN. I think there are inconsistencies between what the approach was 2 or 3 years ago and what it is now. I think that if you look at the U.S. Government's position now, I don't believe that there are any major inconsistencies. I believe we have learned more about what the limitations are.

There are changed political circumstances of the sort I was just mentioning. The choices available to us now are not whether the Euro-

peans will buy all their equipment from the United States or whether they will not. The choice available to us now is whether the European-produced equipment, which will be a larger fraction of their acquisition than it was before—although we will still be selling much more to them than we buy—will be interoperable with the equipment we have or whether it will not.

Another question is whether the cost of equipment will be brought down by having fewer varieties of equipment or whether it will stay up. Those are the questions that we need to answer in a way favorable to the alliance. And our program is designed to produce that result.

I believe the changes in the political scene are the ones I have said. The European allies will not simply buy all their equipment from the United States. We have to recognize that as a fact and accept the favorable balance that will continue to our advantage.

Mr. DAN DANIEL. We as politicians, Mr. Secretary, also have to face these same economic questions that arise in such discussions.

Our unemployment rate exceeds most of the nations that we have talked about. When we include Japan which, of course, is not in NATO, it exceeds it by about 2.8 percent.

The most distressing thing is in our balance of trade. We have had in 1 month of this year 2.2 billion negative, and the Big Six, which again includes Japan, was a favorable \$4 billion balance.

So it works both ways. I am sure that you can understand that.

Secretary BROWN. Oh, yes. It is the very same political force operating in our country that we see now operating in other countries. The unfavorable balance is resulting more from manufactured goods than from oil imports to the United States.

But if you look at the rather narrower defense manufactured goods exchange—in other words, if you look at the balance of arms purchases between us and our European allies—that is a very favorable one to us.

Mr. DAN DANIEL. Yes; we recognize that.

Secretary BROWN. It is about 6 to 1, or so. And that, I think, is going to continue to be favorable. I don't think it will remain as favorable because they are going to make independent judgments based on their own political, as well as military, imperatives. I believe, in fact, that if we go this route of interoperability and, ultimately, of a degree of standardization, the balance will remain more favorable to us than if we fail to do that.

If we fail to do it, those same political forces are going to operate in Europe to cause them to produce independently more expensive, incompatible, and by and large, less effective equipment than the alliance will have if we go the route of interoperability and standardization.

Mr. DAN DANIEL. Mr. Secretary, if you desire to add anything additional to that question would you please submit it for the record?

Secretary BROWN. Yes; I will.

[The following information was received for the record:]

DOD APPROACHES TO WEAPONS COOPERATION

The confusion may be between ends and means. Our objective has been and continues to be improved military effectiveness. However, our approach to this goal must be flexible and dynamic. I do not see any inconsistency in pragmatically pursuing different approaches to this end. We are not locked in to any single

inflexible course of action. We will need different ways of handling different weapons depending, for example, on how many allies share a similar military need in a similar time period, the stage of development of the weapons systems, and the nature of the technology. As we have progressed down the very difficult road to RSI, our policy has taken shape. We are incorporating the lessons learned over the past few years. I believe that we are now beginning to make real progress toward improved interoperability and standardization. The annual reports to the Congress by the Secretary of Defense have summarized policy on NATO Rationalization, Standardization, and Interoperability as it has evolved.

Of course we will try to work to increase alliance military effectiveness in every feasible way. This means that we will stress standardization at the lowest levels such as common caliber of ammunition. It means also that we will continue to examine opportunities to improve equipment interoperability, and this effort can result in important short term benefits sometimes at relatively small cost. In fact, high priority has been given to increased NATO interoperability in the areas of command and control communications, cross servicing of aircraft, interchangeable ammunition and fuels, and consumable repair parts and components. While interoperability is our immediate goal, long term standardization on systems is a significant and complementary objective.

As I stated before we don't have all of the answers. There is no unique best way to improve armaments collaboration and military effectiveness. Our approach will have to be tailored to fit the circumstances. The lack of specificity you have noted arises simply from the fact that we are still pioneering in a field in which not too many specific guidelines have yet emerged from experience. We will have to learn as we try.

Mr. DAN DANIEL. Mr. Whitehurst.

Mr. WHITEHURST. Thank you, Mr. Chairman.

Mr. Secretary, it is nice to see you here.

Several of the previous witnesses have declared that it would be helpful if we had a sense of Congress resolution directing the President to begin negotiating with our NATO allies with a view to securing a comprehensive agreement on arms collaboration. I would like to know what your own view on this is, and whether or not you think it will do any good, or just what you think it will accomplish?

Secretary BROWN. Mr. Whitehurst, in general, I think it is a good idea for the following three reasons: First, I think it will be a favorable signal to our allies; second, I think it will help me to apply pressure in this direction within the U.S. Government—the executive branch; and third, I think it will also have an effect within the Congress.

Inevitably, the situation, as you know better than I, Mr. Whitehurst, is that an individual Member of Congress has to pay attention to his own constituents if he is to remain one.

Mr. WHITEHURST. Yes.

Secretary BROWN. And what then happens is that if we look at this trade in defense items where we are ahead by a rather large factor, those organizations, those companies, those regions that are adversely affected, because they are part of the arms production capability that may be substituted for by something that comes from elsewhere, will be very, very unhappy. Those who are helped by our very large sales, think things are all right and keep quiet.

Therefore, the pressure within the Congress and the public is likely to be concentrated in those smaller numbers who are adversely affected, and not helped along much by those much larger numbers who are helped economically.

The whole Congress has to speak out on this matter in order for there to be a favorable outcome. For those who are adversely affected, it is very bad.

Mr. WHITEHURST. Of course. Therefore, let me ask you the follow-up to that.

If there is a likelihood that such a motion would be defeated, and you get a feel for this around here, in some instances it is better not to do anything than to force a vote and risk defeat. If it were perceived that that might be the case, do you think it would be worthwhile to challenge it anyway?

Secretary BROWN. It depends on what the chances are. There have been other cases, some recent ones, in which the possible outcome of legislative or executive action was debated on the basis of whether it would be sustained or not. I think the congressional leadership, which on this matter is very much strongly in the hands of members of this committee, can put through something of this sort if it works hard enough at it. We would certainly be willing to help.

There is no doubt in my mind that a defeat would be very serious because essentially it would say, if we can imply whether or not that was a contention, that the United States isn't interested in cooperation with its allies. That is why I think it would have a good chance of success. It would, I think, be hard for Members of Congress to be against that particular form of virtue.

Mr. WHITEHURST. OK. One point more.

Again it is related to this. In the past few years the Congress has passed the Culver-Nunn amendment declaring the national policy of the United States. The Department of Defense has changed its weapons acquisition procedures, we, as you know, have dropped the specialty metals restrictions, and American contractors are knocking on doors all over Europe trying to develop teaming relationships.

What are the European governments and contractors doing to reciprocate? Why does it always appear the ball is in our court?

Secretary BROWN. We are the biggest partner and they naturally, therefore, look to us. Moreover, our restrictions tend to be rather more explicit and more detailed. I am not saying there are no protectionist impulses in Europe, let alone in Japan. There surely are. And they also apply to defense equipment.

On the other hand, I think few of those take the detailed form that some of ours do, such as requiring other governments to subscribe to all the contractual restrictions that are appropriately imposed on our own domestic contractors. That form, I think, they find particularly galling. I think we could well forgo it.

Mr. WHITEHURST. Let me say for the record I am trying to play a devil's advocate this morning. I think we ought to get out in front in Congress and do something about this.

Secretary BROWN. Your question is a good one. I think we have to be able to answer it.

Mr. DAN DANIEL. There has been a considerable debate on this question, in many forums.

While I recognize what you say is rational, Mr. Secretary, it has been our attempt to build up the economies of other countries of the world, and if we tear down our own in the process, we have actually served no man.

Mr. White.

Mr. WHITE. Mr. Chairman, thank you very much.

I have been looking over Secretary Brown's testimony. I haven't

found anything to quarrel with at this time. I did feel the witnesses you brought before on those two bills needed to give a little more explanation of their purpose, and we are looking forward to further elucidation on that. But as I think in terms of our contributions to NATO, the one factor that really concerns me, that I don't think the Defense Department is addressing very clearly, is our ability to supply men in the second or third week and thereafter, in terms of Reserves. Active and Standby Reserves. I merely suggest—and I am sure the Secretary is well aware and has thought of it often—further emphasis in this area, and even the consideration of means by which we can bolster our Reserve Forces, because they are really getting pretty sad.

Secretary BROWN. I am aware, as you know, Mr. White, both of the problem and of your interest and hard work on it. I would suggest that there is a connection between some of the things we are trying to do on these questions of standardization and interoperability, and of rationalization, and the point that you make.

Let me give you an example. We need a great deal of support for our forces in Europe. For example, we need to be able to resupply in Germany should there be a combat situation there. To a large degree we have in the past relied on our own forces, often Reserve Forces, sometimes, unfortunately, even the Active Forces that are right over there, to drive the trucks that do the resupplying.

The German civilian transportation system is a rather good system. They themselves depend upon the mobilization of that system to resupply their own forces, and they are willing to have it serve the same purpose for our forces in their country. To the extent that we are able to take them up on that, that reduces our needs for support troops, active, and more particularly Reserves which they can be devoted to other more immediate combat aims.

If, as you believe, and I believe too, we do face problems in adequacy of our numbers of personnel for that function, that is a very strong argument for some of these logistics support arrangements that we have made and more that we would like to make with the Germans. Our present legislation makes that pretty difficult.

Mr. WHITE. There is one particular item I would like to mention at this time. I hope more emphasis can be placed on it this year. There was an effort made in the authorization bill to require some kind of registration. We were trying to increase allotment for selective services purposes, but at the present time the general admonitions of the law aren't even being met. And that is in the nature of registration.

I would like to see the Defense Department try to clip off that 2 months that would probably be required to muster the forces, and train them. We think if the Defense Department would come forward and really help us in an effort to try to get some funds to register the personnel in this country, we could make ourselves much more ready to help supply the NATO forces.

Secretary BROWN. I believe we should reduce that leadtime, Mr. White. I agree with you. And I would have liked to see that funding made available. So I favor what you have in mind.

The Department has perhaps not been assiduous enough in helping you to get it. In practical political terms, I would point out it is going to be harder to reinstitute registration than it would have been to keep it before it was dropped in the last administration.

Mr. WHITE. We don't know. Maybe and maybe not. That is the point. We are not making an effort, we are making an assumption.

Secretary BROWN. I am not saying it is impossible. I am just saying it is going to be harder to get back than it would have been to keep. That is not a reason not to try to get it back.

Mr. WHITE. I think we have to start before the first shot.

Secretary BROWN. I agree with you.

Mr. WHITE. Thank you very much.

Mr. DAN DANIEL. Since Mr. White raised the question of personnel, there is a lot of concern among the Members of Congress that our personnel in Europe are perhaps not living as well as their counterparts. I hope that some very serious consideration is being given to their plight, particularly of the lower echelon personnel in Europe—I am sure it is—but I wanted to make the point here this morning while you are present because there is an awful lot of concern about this.

Secretary BROWN. I agree with you, Mr. Chairman. We have included in this year's budget some things to try to ease that, but that doesn't solve the problem. We are going to have to do more.

Mr. DAN DANIEL. Mr. Price.

The CHAIRMAN. I have no questions.

Mr. DAN DANIEL. Mr. Ichord.

Mr. ICHORD. Thank you, Mr. Chairman.

Mr. Secretary, of course, we are all aware of how difficult it is to achieve RSI. Everyone recognizes that it is a very laudable goal.

I have had several conversations with many European parliamentarians, and I know one of their primary concerns is economics, which is natural. And I don't particularly fault them for that. But in the case of Germany, for example, we have adopted the Roland, that is a joint German and French program.

We have adopted the 120-mm tank gun. We have arranged for the purchase of several German administrative vehicles. In that regard, I would like to ask you one question in regard to AWACS that should be placed on the record today. Even though we have bought the Roland, and the 120-mm tank gun, and the administrative vehicles, I understand that they continue to procrastinate on NATO-AWACS. It appears to me we might be pushed into buying parts, for example. Exactly what is the story on NATO-AWACS, and when can we expect some kind of formal agreement? I think it is high time that the United States of America get an answer to this.

Secretary BROWN. Mr. Ichord, the German Government has made a commitment in principle to AWACS. The problem now is to get the funding from their parliament. Getting funding from parliaments, as you know, can often be a difficult and time consuming process.

I believe that the German Ministry of Defense intends to seek Bundestag approval next month. We have been working very, very hard with them to work out the details, of an internal offset, because we don't make general offsets. We want to have the contractor work out with them just how much of manufacturing can be done in Germany. We have worked out with them the arrangement for a main operating base of the E-3A in Germany. We have made a number of arrangements of the kind that you indicate. We have not

adopted Gepard, and my own judgment is it is likely to be too expensive for us to be able to buy them.

I have been involved myself in a number of these negotiations, and the one you have not mentioned is the one having to do with the European telephone system. Like all negotiations they involve give and take on both sides.

One thing that the Germans keep reminding us of is that the ratio of U.S. foreign military sales and commercial sales to Germany to U.S. military procurement from Germany has been running 20- or 30-fold. So that even all of these several additional things we are doing are not going to reduce that to anything like an equal ratio, nor should it. It is still going to be 15 times as many purchases by them as from them.

Mr. ICHORD. It appears to me if we are really serious on standardization and interoperability we ought to be resolving this AWACS as quickly as possible.

Secretary BROWN. I agree with you.

Mr. ICHORD. Are our hands clean on the thing? Have we given them up-to-date pricing figures on it?

Secretary BROWN. I can't answer you specifically as to when we gave them the most recent pricing terms. In my view that is not the real reason for delay. I think we are, in the next month or two, coming to the point at which a decision is going to have to be made. And if it is not, I think further steps on our part are not going to be feasible.

Mr. ICHORD. It appears to me we might be paying a pretty good price for standardization.

Take the 105-mm gun for example. We are going to the 120-mm gun. The 105-mm gun is over 90 percent common in NATO today. When we go from a 105-mm gun to a 120-mm gun then we are going to lower the commonality to less than 60 percent. It is going to take us to the year 2000 to get back up to even 75 percent in commonality.

Just what do we expect to gain, militarily, by the introduction of a gun which degrades rather than enhances commonality and interoperability?

Secretary BROWN. Well, my answer to that, Mr. Ichord, is that to have, say in 1990, a common 105-mm gun, which is common in the ammunition it uses and spare parts and also common in not being able to penetrate the Soviet tank, would not be a good outcome.

In other words, I think you have made a correct point. And that is, that once you standardize on something, whenever you introduce a new generation of an item, for a period you reduce the commonality and interoperability. I think that is going to be true no matter who makes the new item.

What we are trying to do is to make sure that the next generation will be as common as this one. And in order to do that, I think we did the right thing by standardizing for the future on the FRG 120-mm gun. The British, because the timing of their tank is different, have started a new tank of their own. And they, so far, have concluded they will go on with their own rifled 120-mm. That does not help commonality. Although I understand why they are doing it, I think that creates difficulties because that is never going to become common.

Mr. ICHORD. The more I listen to the testimony the more convinced I am we are probably spending too much time on standardization

and not enough time on interoperability because of all of the problems involved in standardization. I think interoperability is something that is readily achievable. Standardization, on the other hand, can be kind of like chasing a will-o'-the-wisp.

Secretary BROWN. I think interoperability will come sooner, and I think it will come as you say, much more easily. If we are talking about things that are farther off, like the families of weapons concept, then I think standardization will be feasible. There is, of course, difficulty in standardization even within a single country, as we often have seen. And once you get something that is standardized, there begin to be changes made in different countries, or in different services, in different places. So that although I would not characterize standardization as a will-o'-the-wisp, I would say definitely that it will take time and in the shorter term we will concentrate on interoperability. For the longer term we should go to the family of weapons arrangement and as much standardization as that will buy us, and I think that is considerable.

Mr. ICHORD. Thank you, Mr. Chairman.

Mr. DAN DANIEL. We are pleased to have with us this morning, the Honorable Geoffrey Pattie, a Member of the British Parliament. We are pleased to have you with us.

Will you stand and be recognized.

[Applause.]

Mr. DAN DANIEL. Earlier this year we had a very interesting and productive session with Dr. Gilbert, your Minister of State for Defense. We are pleased to have you with us.

Mr. Carr.

Mr. CARR. Thank you, Mr. Chairman.

Mr. Secretary, I have a couple of questions that I am just going to submit to you for the record. But let me read them off here and you may have a general comment you might want to make to them.

You made reference in your statement to the alliance commitment to a 3-percent real annual increase in defense budgets and to the significance of the Long-Term Defense Program. These items seem to have become symbols of alliance solidarity and no one really quarrels with that. But our problem from the standpoint of the subcommittee is that we have difficulty separating the symbolism from the substance. And we don't really know how these two symbols translate into tangible increases in defense capability. Some of us are having real trouble separating the rhetoric from the substance. Perhaps some of the psychological and attitudinal frameworks are important but we want to see if there is anything behind that as well.

We would like to know specifically how the formula of the 3-percent goal was established. What went into the calculations that came up with 3 percent as opposed to some other figure?

Why did we use the past level of effort as the base point for measuring these 3-percent annual increases instead of making some effort to assess the appropriate burden share for each NATO country, recognizing how difficult politically that might have been.

The way the formula seems to be set up is that we are going to spend \$2 additional for every dollar spent by all the NATO allies combined. No matter how you index it there is no way you can tell the American

people that they should logically conclude that Europe's fair share of the cost is one-third of the bill.

Next, what do we get for the 3 percent? Where does it go? Does it go into pay raises? Does it go into hardware?

This subcommittee has ample evidence, for example, that the Europeans are reluctant to tell us what they have invested in war reserve stocks of ammunition and equipment, so obviously they have not invested that much in them in the past.

What specific commitments have we gotten in the Long-Term Defense Program, country by country, and year by year, item by item of equipment that our allies have obligated themselves to buy?

Again, this isn't by way of criticism so much as it is by way of trying to get more technical and more detailed information about the bases that created the policy decision of 3 percent.

Secretary BROWN. To answer briefly—and we will see what more we can supply for the record, Mr. Carr—the 3 percent was a compromise between what most of us thought was needed and what we thought was politically feasible.

Defense capability, of course, is not money. It is equipment, people, training, organization, and when we ask, do we have enough to meet our defense obligations—by “we” I mean the NATO Alliance—the comparisons we make are not between dollars and rubles, but between tanks, aircraft, personnel, training, war reserve, state of readiness, doctrine, all those other things. It is that comparison that convinces me and has finally begun to convince people, political leaders in Europe as well, that an increased effort is required.

When you look around for a way to decide what that increase should be, the past Soviet and current Soviet increases in effort, which are most easily measured in a single number, by expenditures, provide a reasonable first approximation. That number is probably more like 4 or 5 percent a year from them. Therefore, a 3 percent a year increase by itself won't match it. We have to get better efficiencies in order to match what they are doing, let alone to catch up with what they have been doing over the past 15 years or so.

But those efficiencies are, I think, attainable, and they are most particularly attainable in improving the efficiency of the alliance. So instead of having 14 separate procurement systems, 14 separate doctrines, 14 completely separate logistic lines, we can rationalize them and make them more cooperative. We can get quite a lot more efficiency.

Why not rely entirely on that, one might say?

I think the answer is that when you need to make improvements you don't select out one thing or another thing and say we will just improve that. You spend more and you spend it more efficiently—both.

With respect to fair shares, in NATO, as in the United States, in an economic sense, you have what in nonpolitical circumstances I would have regarded as something very strange indeed. Everybody is being treated unfairly relative to everybody else.

Each NATO country, some with more reason than others, although which nations have more reason would be a very subjective matter, think it is being asked to carry too much of the burden. In the past, when European countries were spending a smaller fraction—as they still are—than the United States, they pointed to the fact that the United States had a larger per capita GNP, which turns out not to be the case for some of them anymore.

So now they point to the other responsibilities of the United States as the reason why the U.S. percentage is higher. Although when you look at those other responsibilities, almost all of them affect NATO. Certainly our strategic capabilities are very, very important to NATO.

The United States, on the other hand, has said that the NATO countries, as you, I believe, have said, too, are on the spot. Certainly their security can't be less important to them than it is to us. If it is, then they and we are both in very grave difficulty.

But the NATO countries—various NATO countries, and we ourselves—calculate these things differently. We have got some items we call national defense that they probably don't. They have a very extensive logistics system in place that is not attributed to their defense budgets but which obviously contributes in a way our domestic logistic system does not contribute to the way a NATO war would be fought.

I am sure many of them could come up with statistics—statistics being what they are—that will show, in fact, they are making a bigger effort than we are. I think there are some that are clear laggards, but I won't identify them.

Once you start working that problem, ab initio, from the beginning, you can spend years trying to work it out and never get to the question of how the countries involved increase their efforts.

In other words, interesting as it is to speculate on how much better we might be able to create the world if we were given a chance to start over again, whether that world be the world of NATO or of the Federal Government in its executive branch or the organization of Congress, for example, we nevertheless have to start from where we are. That is what we tried to do.

On the Long-Term Defense Program, there is elaborate detail, some of which I think is probably worth providing for the record as to what they have committed themselves to in general terms, and what they have committed themselves to in specific terms, and the same for us.

There are some things that have already been done as part of the Long-Term Defense Program, the first slice of it. As you get out into the future, commitments become less and less binding, for us as well as for them. But we are, in the Long-Term Defense Program, trying very hard to do just what you said. I think it is very important to say exactly what we are going to do, when, and in what terms, in such matters, for example, as war reserve materiel.

You are quite right that our European allies have stocks that would last not nearly so long as ours. We have been trying to get more information on that. It is hard to do because logistics is a national responsibility in NATO. We think the Long-Term Defense Program is a good way to get more information on it and to use that information as a way of encouraging both them and ourselves to improve our short-term sustainability.

I will give you more for the record.

[The following information was received for the record:]

DEFENSE SPENDING GOALS

The three percent goal was adopted in May 1977 by NATO Defense Ministers after long discussions as a way to respond at least partially to the military buildup the Soviets have achieved through an annual increase in real defense spending of four percent or more over the past twenty years. It represented a

compromise between security needs and political realities, as do most things in an Alliance of sovereign democracies. The NATO allies believe this spending increase will provide a much needed boost to modernization and improvement of the armed forces of the alliance.

With respect to the baseline for measuring these increases, over the years NATO collectively has found past level of effort the only realistically acceptable base point for a 15-nation alliance of sovereign states. It is extremely difficult to quantify the comparative wealth, contributions, and burdens of allied nations. All in all, however, three percent increase in country defense outlays—a burden proportioned to past allied efforts—is a valid measure of burden sharing. In any case, it will not result in the US spending two added dollars for every one the allies add. While the United States provides over 60% of total allies defense spending, this is highly misleading, since the US budgets to meet global responsibilities, while allied outlays are mostly for European defense. We also have more than half of the alliance's gross national product, and higher per capita GNP than the European allied average. Moreover, a part of our defense spending goes to support nuclear and force projection capabilities which our allies do not have to provide.

One must also look at outputs as well as inputs. For example, we contribute only about 40% of the men under arms. The high cost of an all-volunteer force further inflates US defense spending, whereas the continental allies still have conscription. A West German could also point to the important role played by the FRG's territorial forces—not reflected in FRG defense outlays—in Bonn's defense planning and, in some cases, for support of US troops in the field. By such planning, the FRG maintains 12 combat divisions in its active forces compared to our own in both manpower and armament. For a fuller explanation of the complexities of attempting to assess burden sharing, see Ambassador Komer's prior testimony before the Daniel Subcommittee on 14 June 1978 and MGEN. Bowman's statement on 15 June 1978.

You also asked about whether the three percent increase goes for pay raises or purchase of hardware. Since all NATO countries currently are troubled with inflation, some pay raises are inevitable. But they would only eat into the pledged 3% real increase if they outstripped the rate of inflation. Thus, we would expect most of the 3% increment to be available for force improvement.

Specific country procurement plans for five or more years are available in national procurement plans which are reported to NATO in the annual DPQ. Some others have been spelled out in the LTDP and can be made available in classified form on request. As all national inputs to some Long-Term Defense Program (LTDP) have not yet been fully worked out, however, it is not possible to lay out total procurement plans by country, year by year. The LTDP was only agreed to in May 1978 by Ministers and approved at the NATO Summit, and implementing plans are being developed. The LTDP involves planning and procurement over a 10-15 year period, but there can be no doubt that major procurement programs will be agreed in a number of the major program areas.

European as well as US investment in war reserve stocks is a highly sensitive military question. We too do not release all of our WRM data to our allies. Relevant country data are reported to the alliance and compiled in a Top Secret document available to the NATO military authorities.

Mr. DAN DANIEL. As I understand it, Mr. Secretary, you are going to give us a comprehensive analysis of this Long-Term Defense Plan in your posture statement at the end of the year, is that correct?

Secretary BROWN. Yes, but we can give you some things about the Long-Term Defense Plan in the interim.

[The following information was received for the record:]

NATO LONG-TERM DEFENSE PROGRAM

NATO nations except for France and Greece, who do not participate in the integrated defense activities of NATO, approved at the May 1978 Ministerial and Summit meetings the establishment of a Long-Term Defense Program with agreed objectives, timings, and assignment of responsibilities in ten program action fields.

By subsequent action at NATO Headquarters, specific instructions were issued for getting these programs under way. A first status report will be submitted to Ministers at their December meeting this year.

The Long-Term Defense Program currently includes fully agreed measures ready for implementation at the timeframes indicated, measures agreed in principle but where additional refinement of program measures is required before implementation, and areas where further study is required to permit agreement on measures.

The program areas are described as follows:

Readiness.—The ability of Warsaw Pact forces to attack with less preparation than in the past challenges NATO forces to be ready to respond rapidly with the maximum possible combat capability. NATO forces thus require improvements to a wide range of defense capabilities, especially anti-armour units, modern air-to-surface weapons and defense against chemical warfare. In-place forces must be ready within the minimum warning time. Arrangements for maximum support from the civil sector are essential. Programmes include increases in the national holdings of tanks, anti-armour weapons and missiles and armed helicopters. It has also been agreed to pursue co-operative or co-ordinated development of the next-generation anti-armour weapons. A programme for substantially increasing national holdings of modern air-to-surface weapons will also be introduced, along with the pursuit of a common family of these types of weapons. Protective equipment against chemical warfare will be provided to meet NATO standards. The ability of combat forces to upload ammunition at short notice will be increased. In addition, a number of nations have agreed to increase the degree of commitment of their forces to NATO, which will enhance readiness in time of crisis. Multilateral discussions to shorten the reaction time of the 1st Netherlands Corps are continuing.

Reinforcement.—The imbalance of conventional forces in Europe is such that, in periods of rising tension or crisis, deterrence could be put at risk without a capability for rapid and effective reinforcement of Allied Command Europe as a whole. Improvements are now necessary to enhance the Alliance capabilities for rapid reinforcement. This involves the commitment of civil air, sea, land and national infrastructure resources to the reinforcement task and the establishment of effective arrangements to co-ordinate the flow of reinforcements. An essential element is the use of existing European facilities, with improvements where necessary, to receive and move forward external reinforcements with minimum delay. In addition measures will be taken to accelerate the movement of significant fighting units to the forward areas in the critical early phase. A major feature is the prepositioning by the United States of the heavy equipment for three additional US divisions in the Central Region by 1982, recognizing the need for European allies to provide the necessary support and other facilities. For some allies modifications to civil aircraft are proposed to carry equipment which cannot be prepositioned. The amphibious lift for the United Kingdom/Netherlands Marine Force is to be improved.

Reserve mobilization.—Since reservists comprise a significant proportion of NATO's total ground forces, timely deployment of reserve units is critical, especially in Allied Command Europe. It is therefore necessary to take additional measures to ensure that reservists and reserve formations are properly equipped, trained and capable of being rapidly deployed to locations where they are required. Programmes are designed to bring national reserve forces up to NATO standards and to seek to upgrade and improve the operational readiness of certain reserve units. In addition a number of European countries will consider providing additional reserve brigades over the longer term. This would increase the effective use of individual reservists and make available additional combat units for initial reinforcement.

Maritime posture.—A number of maritime programmes have been agreed upon to provide for greatly increased capabilities in maritime command, control and communications and for air defense of naval units. The programmes also include measures to achieve improved anti-submarine capabilities, better anti-missile surface defense and greater mine warfare capabilities. Co-operative or co-ordinated development of key weapon systems will be pursued. It has been recognized that the most serious deficiency lies in shortages in the number of ships, submarines and aircraft and that specific remedies for these shortfalls should be sought under established NATO planning procedures.

Air defense.—Agreement has been reached on a basic alliancewide co-operative programme to improve air defense capabilities recognizing the need for subsequent detailed planning and refinement. It includes measures designed to improve the identification of hostile aircraft and to enhance the control of NATO's own combat aircraft. Provision is to be made for improvements to fighter aircraft,

acquisition of improved surface-to-air weaponry, to provide the alliance with a significantly enhanced capability for engaging Warsaw Pact aircraft penetrating at all levels.

Communications, command and control.—A number of co-operative efforts were agreed to which will make important contributions to the overall capabilities of the alliance for communications, command and control which are essential to political consultation in times of crisis and for the political direction of forces and which will also achieve a high level of interoperability in the area of tactical communications. These include the implementation of the second phase of the NATO Integrated Communications System and co-operation and co-ordinated efforts in the fields of maritime communications, tactical trunk network, single-channel radio access, NATO/national area interconnection, strategic automatic data processing and war headquarters improvements.

Electronic warfare.—All NATO nations have agreed that urgent action is required to cope with this important dimension of modern conflict. Programmes provide for important improvements in NATO's capability to counter the sophisticated electronic warfare threat posed by the Warsaw Pact. They cover land, air and maritime forces, together with improvements in NATO's organization and procedures in this field, including closer co-operation in research and development.

Rationalization.—The objective is to achieve economic savings and enhanced military efficiency through increased standardization and interoperability. Programmes include development of new procedures for systematic long-range armaments planning, new procedures for the improved formulation and utilization of Standardization Agreements, and continuation of the work being undertaken by the Conference of National Armaments Directors in the field of intellectual property rights. In the development and acquisition of the equipment recommended in the Long-Term Defense Programme, co-operative programmes will be pursued to the greatest extent possible. Nations have also endorsed the need for the transfer of technology between member countries where such transfers contribute to the furtherance of standardization/interoperability of NATO defense equipment.

Logistics.—Policy and organizational improvements have been agreed to harmonize and co-ordinate arrangements in the rear areas and thereby improve the logistic support of combat forces. The logistics support responsibilities between NATO Commanders and member nations will be more clearly defined, and improved logistics structures provided within NATO military commands. A logistics master planning system is to be developed to provide for better planning and management of NATO logistics functions. There are also to be increased war reserve stocks and ways are being sought to improve flexibility in the use of ammunition stocks in war and to build up stocks of primary fuels with improved storage facilities.

Theatre nuclear modernization.—Measures are being developed to ensure that NATO's theatre nuclear forces continue to play their essential role in NATO's deterrence and defense posture.

Mr. DAN DANIEL. Mr. Lloyd.

Mr. LLOYD. Thank you very much, Mr. Chairman.

Mr. Secretary, welcome once again, and as I said the other day, certainly I am sure we understand one another.

I had a very exciting experience this morning. Mr. Price and I had the opportunity of going down to the White House and listening to a presentation on energy by Mr. Schlesinger, Mr. Strauss, and of course, Mr. Miller. But while we were there, we heard some rather disquieting news which is not really news, but is very evident in our financial pages. And that is the soundness of the American dollar in the international markets is falling at a prodigious rate.

You have a percentage factor in here which my colleague, Mr. Carr, referred to, 3 percent, and as we talk here, if there is a continuance of the degradation of the dollar, it would appear our percentage factor is falling, and the deutsche mark, or the Germans' share is rising. Why aren't the Germans mentioning this? And I presume that they are not.

All in all, it would seem that we are working with quicksilver in a situation in which we need some silver in it rather than quicksilver.

In the light of today's energy requirements, in the light of today's economic situation internationally, and in the light of today's thrust of defense requirements for the United States, how would you equate all of this? I realize it may require a total study, because I have covered a tremendous amount, but I think the time has come for us to address ourselves to these realities of life.

Secretary BROWN. I think the factors that you mentioned, although they are many and varied, can perhaps be simplified in defense terms by saying that the 3 percent is supposed to be after inflation. To that extent it is supposed to take care of the inflation question. It does not, of course, take care of the exchange ratio question. Three percent more in constant dollars, in domestic terms, won't necessarily buy us 3 percent more of German goods or subsistence on the German economy for our military people if the deutsche mark is appreciating with respect to the U.S. dollar. It does mean, however, that 3 percent more German expenditures will, if some of it is used to buy equipment from the United States, buy more than the 3-percent real increase for the Germans.

Even though this is averaged out over time and over the various countries' purchases, it does not take account of the very serious political effect of the decline of the U.S. dollar.

So that I don't purport or represent that the Long-Term Defense Program or the 3 percent a year real growth takes care of that problem. That is a severe economic problem. As a result, it becomes a political problem and a military problem. And it reminds us once again that our national security is not simply a matter of the number of tanks and guns and aircraft that we have, but also a consequence of our economic strength or weakness.

Mr. LLOYD. If as I postulated, that we are being hurt by the very people we are supposed to be working with, and I think that is the correct evaluation at the present time, then maybe there is required some remedial action in the NATO environment. That remedial action if we are to stabilize the dollar is one which is debilitating to our effort in the NATO arena. Yet that is where the administration and yourself, Mr. Secretary, have said that is where we must put emphasis. And yet the very emphasis that you are putting is the very thing which is debilitating us economically. I mean we are in trouble, if indeed what I postulated is correct.

Secretary BROWN. I challenge the postulate.

I doubt very strongly—

Mr. LLOYD. If you challenge it that is fine with me. I hope you are right. But would you convey that to Mr. Strauss and Mr. Miller?

Secretary BROWN. Let me say what I challenge and why I challenge it, Mr. Lloyd.

I am not of the belief that our military expenditure in NATO is the reason for the fall of the dollar. I believe it is a combination of the inflation rate in the United States, of our very substantial imports, growing oil imports, and of our increasingly noncompetitive position in manufactures, which, however, does not apply to defense manufacturers—that is one thing that we do reasonably well and reasonably efficiently, at least in many areas of defense production.

There is a general disquiet about the international scene, politically. That is where I think it comes from. I think inflation does not have simple causes. The balance of payments does not have a single cause, but it does have, among others, the causes that I mentioned. And our oil imports remain a very important part of that balance-of-payments problem.

Mr. LLOYD. I would appreciate it if the Secretary would give me some of the facts and figures to back that up. I hope you are right, for the simple reason that I think that we must address today politically, economically, and militarily the economic impact of the decline of the dollar. I think that ought to be a thing which is very important to you, and I think it is. As a result, I would appreciate it if I could have some sort of a briefing on that, or if you feel it would be applicable to this specific area, to include that in the record.

I thank the Secretary for his appearing this morning.

Thank you, Mr. Chairman.

Mr. DAN DANIEL. Mr. Beard.

Mr. BEARD. Thank you, Mr. Chairman.

I also have some questions I would like to submit for the record. We probably will bring the Department of Defense to a halt for at least a 2-month period. I feel sorry for the people who have to go and try to answer these things. [See p. 1284.]

Secretary BROWN. I also have to read them before they come up.

Mr. BEARD. I understand that.

Secretary BROWN. So that they take a certain amount of my time too. I am sure they take some of yours.

Mr. BEARD. Let me also reemphasize quickly what Mr. White asked as to the Department of Defense's backing and stronger support with regard to the Selective Service System. I think the political environment is a little more susceptible to this area of concern now than it used to be. I think we can demonstrate the need just by showing the Army's figures on the shortage in manpower after an outbreak of hostilities in the NATO scenario. Within a 60-day period the Army itself said it would be over 500,000 men short.

I strongly feel that we do need to look at the Selective Service System, which could also possibly help recruiting also.

Secretary BROWN. As I said, Mr. Beard, I believe we should shorten the lead time for production of personnel through a draft system in case of a war.

Mr. BEARD. I understand. I was very pleased to hear that.

Let me also state, talking about the dollars versus rubles, the way that it is really looked at is the number of tanks versus number of tanks, quality of tanks versus quality of tanks, war reserve stocks, aircraft, chemical warfare, or whatever the capabilities are.

I find, when I am out in the field talking to the different individuals, maybe we are too hung-up on the efficiency aspect to the point that we are not getting equipment into the field.

I know this could turn into a lengthy colloquy of the whole procurement system. The people who are sitting there in research and development say, "Wait a minute, I have come up with a better way to make it a little more sophisticated." But the point is we need to come up with a system out in the field. We can no longer sit back and brag on our

technological brilliance or sophistication, because they have rapidly narrowed that gap in every area.

I would like now to get back to the standardization and interoperability which is the purpose for your being here.

One of the most persistent obstacles to arms collaboration seems to be the conflict between the United States and European attitudes about third-country sales outside of NATO. The Europeans see these third-country sales as being very important to the survival of their defense industry. Do we not, in fact, exercise a veto on such arms sales by virtue of the President's policy of May 1977 on foreign military sales and of the provisions of the Arms Export and Control Act which require that congressional approval for the sale of a European weapons system to a third country if we make a part or component of that weapons system in this country?

If that is the case, what steps do we have to take to make it a little bit more workable atmosphere? They aren't going to buy that, are they, if we hold that veto power?

Secretary BROWN. The third country sales issue is a very important one, Mr. Beard, as you say, especially for some of our allies whose production runs would otherwise be so short that the unit cost would be very high.

The administration policy is that, in licensing production of U.S. military equipment by NATO allies, we would intend to authorize sales by them to those countries that are exempt from the dollar ceilings in the Presidential decision, which means other NATO countries, for example, but also Australia, New Zealand, and Japan, and in some cases other countries as well. The criterion we would use for the "other countries" I think, would be if we would sell it, then they should be allowed to sell it.

Mr. BEARD. For example, like our \$5 billion Mideast arms package?

Secretary BROWN. If we sold a certain level of technology or would sell a certain level of technology, then it would be reasonable for the allies to whom we license production to do the same thing.

That is the way I am thinking of it.

Mr. BEARD. Wouldn't they be a little bit uncomfortable with the whims of Congress?

Secretary BROWN. We are uncomfortable but have learned to live with it, and I suppose they have also.

Mr. BEARD. Have you gotten any type of initial reaction to this? Have we gone to the point of sitting down at the table with them and discussing this and they said, "OK, we can live with it?"

Secretary BROWN. We are trying to negotiate agreements of this kind with a couple of our NATO partners right now.

All I would say is I have some hopes for this.

Mr. BEARD. Thank you.

Mr. DAN DANIEL. Mr. Secretary, we have several other areas we wanted to cover but we understand you are under a time restraint.

Secretary BROWN. Yes, sir.

Mr. DAN DANIEL. We have a vote coming up and I know you want us to respond to because it has to do with the budget.

So what we are going to do is to simply leave these questions with you and ask you to repond for the record.

The subcommittee will stand adjourned subject to the call of the Chair.

Thank you for your appearance.

Secretary BROWN. Thank you, Mr. Chairman.

STANDARDIZATION AND ALLIANCE GOALS

Chairman DANIEL. One of the basic justifications for arms collaboration, in particular weapon standardization, is that more defense capability will be achieved without having to exceed realistic defense budgets. However, most experience to date seems to indicate that arms collaboration stretches out development programs; results in system performance compromises; increases unit cost; and delays fielding of hardware.

Standardization is a popular concept, but do you think it is safe to highlight standardization as a goal the alliance can achieve and depend on to address current deficiencies?

If it is not, what do you prioritize as intermediate goals?

ANSWER. Our goal for the alliance is improved military readiness and greater collective effectiveness through a series of specific actions, many of them highlighted in the Long Term Defense Program (LTDP) endorsed by the Heads of State at the NATO Summit in Washington. Armaments collaboration, standardization, and interoperability are merely means to these ends. Greater armaments collaboration is justified primarily on these sheer military grounds, that it will improve the ability of allied forces to fight alongside each other more effectively. While arms collaboration can cause some delays and compromises, this need not be the case if we structure it right and all of us work at it harder. Moreover, even if total costs are somewhat higher, individual costs to member nations are lower. Increased interoperability also results. I know of no military commander who does not support the urgent need for increased interoperability, or even standardization of equipment for NATO forces where feasible and cost-effective. Moreover, I believe that our standardization/interoperability objectives as well as LTDP goals, are attainable. But neither we nor our allies are setting up any arbitrary goal of total standardization across the board. In each case, our approach is pragmatic. For example, in many cases, the halfway house of interoperability will suffice.

MILITARY READINESS

Chairman DANIEL. How would you prioritize the immediate problems that the alliance faces today in terms of military readiness?

ANSWER. We identified six serious deficiencies in readiness in the LTDP this past spring to enhance military effectiveness of the alliance. These include armor/antiarmor capability, defense against chemical warfare, ammunition uploading, malstationing and malpositioning, air-to-surface munitions, and re-categorization of forces and improvements to the NATO Alert System. Other areas of immediate concern are the prompt and efficient uploading and forward storage of ammunition because we expect the rate of fire to be much higher than now planned on account of the build-up of Warsaw Pact forces and their increased capability. Readiness also requires pre-positioning of equipment which was included in the reinforcement report of the LTDP. It is essential that we continue annual Reforger/Crested Cap-type field training and deployment exercises with emphasis on multinational participation—particularly, but not limited to, the ability to receive and equip reinforcing units. We must place continued emphasis on interoperability among the NATO forces during these and all other types of FTX/CPX exercises. Continued exercising on the flanks is also important to demonstrate our commitment and practice our reinforcement capability. Improvements in command, control and communications are equally essential. Finally, we must continue to stress interoperability between forces at all levels and in all areas to increase the combat effectiveness of all NATO forces.

REVIEW OF ARMS COOPERATION AGREEMENTS

Chairman DANIEL. All of the witnesses, whether government or outside, have proposed or assumed that in the future there would be an increase in the number of agreements between the United States and our Allies. Some have been con-

cerned that in all likelihood these agreements would not be distributed for comment before they took effect.

Have you been concerned that in order to gain strong endorsement a wider range of input would have to be received before the agreements are entered into?

Do you have any proposals on how this could be done?

ANSWER. We have in the past advised the Congress of our plans during hearings and in the annual Secretary of Defense Report to the Congress "Rationalization and Standardization Within NATO." We will consult more closely with the Congress on key MOUs. For example, earlier this month, the staffs of the HAC and SAC and the HASC and SASC were briefed on the draft MOU for the Army Multiple Launch Rocket System (MLRS) now under development.

It is incumbent on us to have Congressional support for agreements we may enter, since Congress, through its control of appropriations, has the final say on whether the agreements can be implemented. I might add that to the extent to which formulation of any agreement may require the technical expertise of industry, we are not hesitant to obtain it.

EVALUATING NEAR-TERM ACHIEVEMENT

Chairman DANIEL. Realizing that NATO's problems are complex with many initiatives being proposed, what are your measures for success in evaluating essential near-term achievement?

ANSWER. The primary measure of success in evaluating near-term achievement is whether the objective of the initiative is achieved. However, before a final judgment can be made as to the favorable near-term results of an initiative, it must also be evaluated within the context of our overall goals for NATO. For example: Does it cost-effectively strengthen NATO's capability to deter or defend against Warsaw Pact attack? Does it enhance or weaken NATO's political solidarity?

BENEFITS OF STANDARDIZATION

Chairman DANIEL. In testimony before the subcommittee, it has been implied that weapons produced by two or more nations have proved to be quite effective. Yet in many instances, once these weapons have been selected, each nation has modified them to meet their own particular requirements, and in short order the system is no longer a "standardized" weapon. Let me cite some examples which have come to my attention:

The French/German Roland Missile system has been modified for U.S. use; Modification of the F-16 to meet unique requirements of the four European nations which will use them will add to the cost of the planes that are built;

The British/French Jaguar cost nearly the same as the U.S. Phantom F-4, which can fly further and faster with a heavier payload; in addition, because of modifications by the separate nations, the planes cannot be fully serviced at each nation's bases.

Of course, there have been instances where standardization has worked.

In light of the fact that standardized weapons often cost more, take longer to develop, are less than the best available, and end up not "standardized," what are the benefits that justify this approach to strengthen the defense posture of Europe?

ANSWER. Complete standardization is not always attainable or cost-effective, particularly where standardization has not been built into the program at the outset at the mission-needs stage. Arms collaboration in the broad sense is already saving the U.S. money. We are engaged in cooperative development projects with our allies in which we pay only a part of the cost of developing items which we need. As a result of these allied contributions, our R&D expenditures are reduced. As an example, dual production is not as efficient as a single production line, but it is far less expensive than developing two new and different systems.

The cases you have cited are in fact excellent examples of highly interoperable systems that will make a major contribution to improved NATO combat readiness. For example, French and German missiles have been successfully test fired from the US ROLAND and the two missile systems are about 90 percent interchangeable. The U.S. and European Program Group (EPG) F-16s are 100 percent interoperable and will be fully certified for cross-servicing. Indeed, with only very

minor exceptions the two aircraft are identical. As for Jaguar even the fact that two major Allies co-developed a single aircraft is a step in the right direction. Inability to service each other's aircraft fully at each other's bases is a problem extending far beyond Jaguar. But it is being actively addressed by NATO as a high priority matter. It is a strong argument for interoperability if not standardization of munitions.

You also raised the problem of subsequent configuration control to prevent loss of interoperability or standardization which had been previously achieved. This problem is fully recognized.

It has been addressed in STANAGS, and in the LTDP. Specific configuration control procedures have been adopted by agreement for systems like the F-16, AIM-9L, and Seasparrow.

DOD STANDARDIZATION POLICIES

Chairman DANIEL. For some months now representatives of the Department of Defense and other interested witnesses have come before the subcommittee, variously endorsing increased traffic on a "two-way street" and the "family-of-weapons" as an approach to standardization. Earlier this week it was suggested that co-development and co-production was the best approach. Today we hear that dual production is the answer.

In each instance, it has been urged that the subcommittee and, ultimately, the Congress, do something to facilitate this or that approach.

In order to do something, it is going to be necessary that we know just how the Defense Department intends to proceed, and also that we know specifically what your Department believes Congress should do to aid in solving the problem.

Has the Defense Department developed a schedule for reviewing and endorsing specific approaches that will be briefed in detail to the Congress for implementing alliance cooperative standardization programs? If so, what is that schedule?

ANSWER. All of the approaches you have described are simply different means of achieving the same end, or in some cases merely different ways of describing the same approach. For example, the family of weapons approach could involve co-production and co-development. Dual production is just another type of co-production. All such approaches are compatible with the two way street. To clarify matters, Dr. Perry and I have described three broad methods of improving armaments cooperation: bilateral agreements for cooperation; dual production; and families of weapons. Dual production involves complete and independent production in two countries as in the case of the current ROLAND program, while co-production could involve only partial production in two or more countries as in the case of the F-16. We intend to use all these tools flexibly as appropriate in particular cases.

The Defense Department also will continue to keep the Congress informed about our approaches to NATO standardization. As the approaches we are pursuing continue to develop (e.g., families of weapons, dual production, MOUs), we will brief Congressional committees at your request, informally brief committee members or the committee staffs. Additionally, as we identify areas where we believe we need congressional action, we will come forward with specific requests and cooperate fully with Congress to ensure understanding of how the specific requests fit into our overall approach. We are convinced that our attempts to improve both arms cooperation and NATO's military effectiveness are inseparably linked aspects of one objective—the need to maintain an alliance strong enough to assure Western security.

COORDINATION OF ADMINISTRATION PROGRAMS

Chairman DANIEL. The subject of Europe's defense has received a great deal of attention by the Administration during the last two years. President Carter for example, has participated in two Summit Conferences.

Since one goal of the program is increased armaments production cooperation, and that cooperation involves issues not totally the responsibility of the Defense Department, has a mechanism for coordinating the Administration's program been proposed and/or accepted?

ANSWER. Interagency consultation on the transfer of military technology takes place in several forums and at several levels. For example, on policy questions, there is a State/DoD Ad Hoc Working Group on NATO RSI that discusses multi-

lateral and bilateral negotiations on armaments cooperation. The Arms Export Control Board (AECB) advises the Secretary of State on important policy issues concerning sales, co-production abroad of US equipment and technology transfer. Formal members of that Board include Defense, State, the NSC, Treasury, Commerce, CIA, OMB, and ACDA. The Policy Planning Working Group routinely includes OSD/ISA, DOD/DSAA, OJCS, NSC, OMB, State and ACDA and others, as appropriate. Licenses for the export of US equipment technology on the Munitions List are administered by the Department of State through the International Traffic in Arms Regulations (ITAR) as authorized by section 38 of the Arms Export Control Act (AECA). They are reviewed as a matter of course by Defense and as appropriate to each case by other agencies (such as ACDA, NASA, Commerce, CIA). Additionally, there is a National Disclosure Policy Committee made up of representatives of Defense, State, CIA, Energy and NASA that deal with the level of classified information both generally and for specific military equipment that may be transferred to foreign governments. International agreements on these subjects are authorized by the Secretary of State under the State Department's Circular 175 Procedure.

I should add that it is DoD policy not normally to enter into compensatory-type offset agreements. An exception may be made when there is no feasible alternative to ensure the successful completion of transactions considered to be of significant importance to United States national security interests (e.g., key rationalization measures to improve the military effectiveness of NATO). We want to stress cooperative trade agreements. The purpose of these cooperative trade agreements with NATO allies is to enhance standardization/interoperability through reducing or abolishing non-tariff barriers to defense trade on both sides of the Atlantic. The primary form of cooperative trade arrangement between the US and our NATO allies are Memoranda of Understanding (MOUs) negotiated by Defense and approved by State, and submitted to Congress for a 30 day review.

ALLIED SUPPORT FOR ARMS COOPERATION

Chairman DANIEL. On page 4 of your prepared testimony, Mr. Secretary, you state that: "In some cases we field less than the best available equipment" and go on to say that "It is essential that we stop this waste . . ."

Since we are out-numbered in so many weapon categories, such as tanks and aircraft, I must concur with you that it is essential for the alliance to field the best equipment available. Is there disagreement with that principle by any of our NATO allies? If so, what is the basis and source of the disagreement?

ANSWER. That part of my statement was: "Within our alliance as a whole, we spend our limited resources on the same type of weapons, usually at higher unit costs. In some cases, we field less than the best available equipment. It is essential that we stop this waste." The "we" in this case referred to all NATO allies, not to the US, since lack of cooperation results in collective waste of resources and in less capable weapons deployed across the NATO front.

There is no disagreement among our allies with the principle that the alliance must field the most effective equipment it can. That principle guides our efforts in armaments collaboration. However, you are already familiar with the many practical obstacles to reaching agreements concerning cooperation on specific weapon systems.

For one thing, we need a management system in NATO to review armaments planning. Second, we must agree on the collective military requirement or mission need that the system must satisfy. Third, the equipment replacement schedules for nations must be reconciled. Lastly, domestic political or economic considerations may override military need or even cost considerations.

NATO has initiated two proposals which should help alleviate these problems. One is the Periodic Armaments Planning System (PAPS) which is under development. The other is the NATO Armaments Planning Review (NAPR) which is being tested. PAPS will be a framework for early agreement on military needs and procedures to develop cooperation to meet these needs within the NATO Conference of National Armament Directors (CNAD) structure. NAPR is a review process for ongoing armaments programs which will be the feedback system highlighting opportunities for standardization/interoperability (S/I). Information is provided by nations on all major systems and is published in a single NATO document. NAPR will provide better information and PAPS will provide a framework for NATO review of acquisition alternatives for the al-

liance. This will assist us as well as our allies in attaining more effective armaments collaboration.

FOSTERING COOPERATION

Chairman DANIEL. On page 5 of your prepared testimony, Mr. Secretary, you state that one of our goals is to tie the Alliance efforts together through agreements on cooperation in R&D and procurement that "remove restrictions of all sorts on defense trade and cooperation."

Is the goal to foster competition across national boundaries at the system and/or sub-system level? How have our allies cooperated in achieving the goal? In the press releases on the Long-Term Defense Program, progress is linked to the need for the transfer of technology between member countries which obviously could be frustrated by differences in national goals and rights to intellectual property (patents, manufacturing processes, trade secrets, etc.) How is the dichotomy between a competitive free enterprise system and governmentally directed cooperation being addressed?

ANSWER. Again, our overall goal is increased military effectiveness. In the process of seeking that effectiveness we intend to foster competition, wherever possible, as a means of ensuring the acquisition of the most cost effective solutions to our military needs. We are seeking an effective role for competition through the Transatlantic Dialogue with the IEPG, with our Periodic Armaments Planning System, in our general and reciprocal MOUs, and in our discussions regarding implementation of the weapons family concept. The end result of these efforts will be to reduce restrictions on defense trade and cooperation throughout the alliance. We expect that within the evolving framework of armaments cooperation with our NATO allies that there will be an increased reliance on competition.

DEFENSE SCIENCE BOARD RECOMMENDATION

Chairman DANIEL. On page 5 of your statement, you support the concept of dual production lines—one on each side of the Atlantic.

This seems to conflict with the recommendations of the Defense Science Board (DSB) Mr. Boileau proposed on Tuesday to the subcommittee. What is your position on the DSB recommendations?

ANSWER. I have not yet received the report of the 1978 Defense Science Board Summer Study. I understand that it will be forwarded to me in the near future. But my informal understanding from the Summer Study is that the DSB endorsed the concept of dual production as one means to promote increased equipment standardization in the alliance, particularly where that is necessary to preserve essential mobilization base. Hence, I do not believe there is any conflict between Mr. Boileau's testimony and mine on the subject of dual production.

NATIONAL DEFENSE EXPENDITURE DIFFERENCES

Chairman DANIEL. Our defense budget is twice that of all our NATO allies combined and in the investment area the disparity is even greater. In R&D we outspend Europe 4-1 and in procurement of hardware the ratio is about 6-1. What is of concern is that it is the investment accounts which provide the visible measures of deterrence.

Unless there are dramatic changes in their level of effort—far beyond 3-percent a year—is not the alliance ignoring solutions to its present deficiencies by thinking that arms collaboration is going to make that much of a difference? What difference does it make if we all shoot the same bullets if our allies can't buy enough of them?

ANSWER. By no means all of our defense budget goes for the defense of NATO Europe, so it is difficult to compare it to the European NATO budgets. Nor could I agree with the ratios you cite for R&D and particularly for procurement spending by the US and our European allies. The ratios are more like 3-1 for R&D and much less than 2-1 in procurement. In addition, the 2-1 ratio in overall budgets tends to understate the Allied effort, because they have lower manpower costs and fewer interests outside of the NATO area.

The goal for 1979-83 of increasing NATO country defense expenditures by three percent in real terms was adopted by NATO as Ministerial Guidance in May 1977 as a way to offset at least in part the steady Soviet military buildup over the

past 20 years. Moreover, during the 1970s allied defense budgets have increased on the average much more than ours in real terms.

In any event, increasing the efficiency of allocation of what resources we do collectively spend is just as important as increasing those expenditures. Both are necessary, and both are important, especially since unlike the Soviet Union, the NATO democracies have political constraints on the amounts they spend on armaments in peacetime. Hence, there is a greater premium on doing better with available forces and equipment. It is in this context that our efforts to enhance interoperability and standardization through increased armaments collaboration assume their proper place. However, we are not arguing that such collaboration would by itself solve all our problems. It is simply one of many important things we must do.

March 1978 SUPERLOG Conference .

S-1 Mr. Beard. Mr. Secretary, the March 1978 SUPERLOG Conference, held at Ramstein Air Force Base, Germany, consisted of over 180 personnel, including 35 general officers, representing most army agencies and commands. This conference concluded that USAREUR's rear combat zone evacuation and hospitalization systems are completely inadequate to meet the projected requirements in a short warning, high intensity conflict, and could not support the requirements of a short warning scenario.

Mr. Secretary, what are we doing to correct this problem, particularly shortages that exist in:

1. officers and enlisted medical personnel
2. air and ground evacuation assets
3. hospital beds
4. prepositioned war reserve materials?

Answer.

1. Officers and enlisted medical personnel.

In order to obtain the most efficient utilization of the existing health services system, meet contingency requirements short of mobilization and assure an orderly transition to a mobilization posture, the Army should have 5,273 active duty physicians. Our Fiscal Year 1978 end strength is 4063 physicians.

We are aiming for 4,539 in the early 1980's. In the meantime, we are faced not only with a total number shortage but also with a shortage of certain specialties. More specialists are needed to support our wartime needs and to preserve our commitments to our soldiers and their families. While there are shortages of other health professional disciplines the primary active duty problem is this shortage of physicians. The Army Staff and The Surgeon General are taking a variety of management actions to deal with the physician shortage that can be grouped into four convenient categories.

- I. Procurement related initiatives:
 - a. An expanded procurement force
 - b. Direct involvement by the Army and all Medical

Commanders in identifying physician volunteer leads from the civilian communities.

- c. Streamlined processing procedures and administrative actions.

- d. Graduate Medical Education (GME) opportunities have been significantly increased to permit volunteers to participate. This results in service obligated physicians.

With these initiatives underway, the Army Medical Department has just this month been tasked to manage the recruitment of health professionals less Army Nurse Corps in the reserve components. Centralization of recruiting programs will enable The Surgeon General to bring into focus specific procurement objectives and seek resources for a well organized procurement system to meet reserve components needs.

Best use of available physician resources: The priority for distribution of military physicians places prime importance on continuity of care to active duty members; secondly, assuring adequate teaching faculty to GME programs; and thirdly, to

fill other authorizations. The GME priority is necessary because it is our principal source for meeting our medical specialty requirements. Current assignments optimize the distribution within and between specialties and tri-Service conferences have coordinated distribution when appropriate.

II. Supplements to military physician force:

- a. Increased the number of direct hire civilian physicians.
- b. Increased contracting for services to partially offset shortages of military physicians.
- c. Greater utilization of health care extenders.

III. Maximizing retention efforts:

- a. Improved career management.
- b. Policy changes implemented to permit exceptions to mandatory retirement.
- c. Assistance in developing and supporting a legislative proposal for improved physician special pays.

These and related management actions have been supplemented by an aggressive schedule of visits and various communications with the physicians in the Army Medical Corps wherever they are stationed throughout the world.

IV. The Army Chief of Staff has created an Army Health Care Services Review Group composed of principals from the Army Staff to explore and develop viable management initiatives which can assist in improvement of health care for eligible beneficiaries. Individual actions are tasked directly to the staff element which is appropriate for action. The Surgeon General is responsible for a majority of these initiatives.

The review group conducts monthly in process reviews to measure progress on all initiatives. In the area of procurement, the Army has made significant progress in increasing our health professional procurement force.

Nonetheless, the Army is convinced that improvements in the retention area will require a new special pay bill for physicians during the next session of Congress.

In terms of our peacetime requirements for enlisted personnel, the Army Medical Department has an acceptable balance between actual and authorized strength, with the exception of the clinical specialist (MOS 91C) and the social work/psychology (MOS 91G) specialist. To counteract shortages of clinical specialists, the Army Medical Department has increased service school quotas. This specialty is expected to be at 100% fill by July 1979. The social work/psychology specialists experienced a shortfall that was due to involuntary reclassification into nonmedical specialties dating back to 1976, and because of some high service school attrition. Involuntary reclassification of these specialists has been terminated. Service school attrition has been considerably reduced as the result of training improvements and raised prerequisite aptitude scores for entry into specialty training. We expect that social work/psychology specialists will reach 100% strength in Europe by the end of calendar year 1978.

2. Air and ground evacuation assets.

The Army has programmed an increase of 102 manpower authorizations in FY 80 to raise the authorized level of organization (ALO) of air and surface evacuation units. Additional assets will be readdressed during the next PPBS cycle.

3. Hospital beds.

An initiative to preposition the equipment for ~~DELETED~~ in Europe has been approved as an unfunded requirement. Prepositioning equipment for these hospitals will conserve strategic lift and allow earlier operation of essential medical treatment facilities required to treat combat casualties.

4. Prepositioned war reserve materiel.

Prepositioned War Reserve Materiel (PWRM) shortages will be reduced by \$3.6 million through current procurement using FY 78 dollars. A request contained in FY 79 budget should provide for the procurement of the remainder of existing shortfall. An initiative to reorganize the current single medical depot into three Medical Supply, Optical and Maintenance (MEDSOM) units, reconfigured to doctrinal support alignment, should facilitate more efficient transition during mobilization and subsequent wartime support. Current POMCUS shortfalls should be satisfied ~~DELETED~~

F SIDES

USAREUR M-Day Filler Personnel Requirements

S-2. Mr. Beard. Mr. Secretary, I believe our medical corps is manned at between 10 and 50% of authorized levels, and that some filler personnel are required to bring USAREUR's M-Day force to ALO-1 status. How soon could we realistically get those personnel to Europe, given our limited lift capability, and the requirement to get combat troops and their support equipment to Europe.

Answer. At the present time, the USAREUR Medical Corps Officer strength is 86% of peacetime authorizations, 56% of minimum peacetime requirements, and ~~DELETED~~ of the M-Day requirements. The need to bring the USAREUR M-Day force to ALO-1 fill is recognized, approximately ~~DELETED~~ total personnel would be required. This figure includes personnel requirements for all types of units. Recent analyses of total passenger (all services) wartime movement requirements to Europe indicate ~~deleted~~

From the point a decision is made to provide ALO-1 filler personnel to USAREUR, ~~DELETED~~ days would be required to identify, alert, prepare for overseas movement, assemble at the airports of embarkation, and transport the personnel to Europe.

Medical Unit Transportation Trade Offs

S-3 Mr. Beard: Mr. Secretary, the SUPERLOG conference reported that as a result of our medical shortfalls, an additional casualty personnel would have to be evacuated to CONUS between D-day and D+20; ~~fewer~~ fewer would return to duty in the combat zone from D-day to D+30; and ~~fewer~~ fewer would return to duty between D-day and D+60. What trade offs would be required against other USAREUR wartime requirements, if we were to transport the necessary medical personnel and supplies to meet USAREUR's wartime requirements?

Answer. Current wartime plans use all available-for-deployment medical units and personnel. In some cases conscious decisions have resulted in delayed deployments in favor of increased combat power and deterrent forces. Acceleration of medical deployments into earlier time frames would require trade offs of some magnitude. Definitive answers cannot be provided on the specific trade offs required because of the myriad options for selection of medical units to replace specific type units from 50-60 other functional areas and the wide time range to be considered. Following are selected medical units compared to other type units as examples of some trade offs which might be considered. (Comparisons are based on strategic lift consumption factors of personnel and equipment).

1. Combat Support Hospital - One Field Artillery Battalion, one Infantry Battalion, or one-half Mechanized Battalion.
2. Ambulance Company - One Military Intelligence Battalion, one Tank Company, or one Engineer Platoon.
3. Field Hospital - Two Combat Support Companies, or one-half of a Signal Corps Battalion.

It is recognized that conservation of manpower in wartime dictates the need to provide continuous medical support to combat forces. In order to achieve early closure of units to provide this support, Active medical units are in the REFORGER and Medical Augmentation POMCUS forces with additional active medical units given priority for deployment following the POMCUS units. To further improve the early medical capability, additional units are programed for POMCUS in the ~~time frame~~ time frame.

Estimates for Combat Zone Evacuation

S-4. Mr. Beard. What is the current range of estimates for USAREUR's combat zone evacuation requirements in a short warning, high intensity European conflict?

Answer. For programming purposes the Army utilizes Total Army Analysis (TAA). These evacuation estimates are based upon a short warning, high intensity, European conflict using the approved JCS Evacuation Policy as depicted in Total Army Analysis '84. The current range of patient evacuation requirements from the theater combat zone (Division and Corps) is estimated to be from a peak of ~~DELETED~~

Casualty Estimate

S-5 Mr. Beard: What levels of casualties do we anticipate incurring in a high intensity European conflict between D-day and D+60, and how are these casualty estimates calculated?

Answer. Current casualty estimates vary significantly as a function of scenario assumptions and force levels. The most recent estimate developed by USAREUR for the period D to D+60 is approximately ~~50,000~~ Included in the determination of this figure were reviews of -

- FM 101-10-1 (Staff Officers Field Manual)
- Results of Computer Simulations (OMNIBUS Analysis)
- Data from the 1973 Arab-Israeli War
- Seiman's Loss Study
- Information from the German Army
- Forces and Terrain Analyses to Include
 - Opposing Forces
 - Initial GDP Locations
 - Weapon's Technology
 - Current Tactics
 - Air Parity
- Replacement Doctrine
- Logistics Sustaining Capability
- Interdiction Capability

USAREUR & CONUS Requirements

S-6.1 Mr. Beard. What are present and wartime USAREUR and CONUS requirements in:

- a) officer and enlisted medical personnel
- b) air and ground evacuation assets
- c) hospital beds
- d) prepositioned war materials?

.2 At what levels are we presently meeting the above requirements?

Answer. Present and wartime requirements:

- a. Officer and enlisted medical requirements are as follows:

USAREUR

PRESENT

D+30

OFF 4695
ENL 14894

[DELETED]

CONUS

OFF 15262
ENL 34639

[DELETED]

- b. Air and ground evacuation asset requirements:

Air Asset Requirements - USAREUR

PRESENT

D+30

1 Air Ambulance Company
4 Helicopter Ambulance
Detachments

[DELETED]

Ground Asset Requirements - USAREUR

4 Ambulance Companies

[DELETED]

CONUS Air and Ground Evacuation Asset Requirements

CONUS air and ground evacuation asset requirements cannot be stated in terms of TOE units because it varies from location to location based on workload.

c. Bed requirements are as follows:

	<u>USAREUR</u>	<u>CONUS</u>
Present	1370	7685
D+30 -	[DELETED]	[DELETED]

d. Prepositioned war materials.

Because prepositioned war materials are stored solely for a wartime contingency, present and wartime requirement are synonymous. Current PWRMR for Europe are shown below (thousands of dollars):

<u>Required</u>	<u>OH Serv Assets</u>	<u>OH Unserv Assets</u>	<u>Due-In</u>	<u>Net Requirement Deficiency</u>
[DELETED]				

CONUS stored portion of PWRMR for Europe (thousands of dollars):

<u>Required</u>	<u>OH Serv Assets</u>	<u>OH Unserv Assets</u>	<u>Due-In</u>	<u>Net Requirement Deficiency</u>
[DELETED]				

S-6.2 At what levels are we presently meeting the above requirements?

a. Officer and enlisted.

<u>USAREUR</u>	<u>CONUS</u>
OFF 1919 as of end Aug 78	13,072
ENL 8473 as of end Aug 78	28,231

b. Air and ground ambulance assets.

Air Ambulance Assets - USAREUR

<u>PRESENT</u>	<u>D+30</u>
1 Air Ambulance Company	[DELETED]
4 Helicopter Ambulance	
Detachments	

Ground Ambulance Assets - USAREUR

<u>PRESENT</u>	<u>D+30</u>
4 Ambulance Companies	[DELETED]

CONUS Air and Ground Ambulance Assets

CONUS ambulance assets are adequate to meet requirements when augmented by buses converted to ambulance buses.

c. The present and wartime bed capability is as follows:

	<u>USAREUR</u>	<u>CONUS</u>
Present -	1365*	6858*
D+30 -	14500	16174

* Operating Beds. An operating bed is a bed that is currently set up and ready in all respects for the care of a patient. It must include supporting space, equipment and staff to operate under normal conditions. Excluded are transient patients' beds, incubators, bassinets, labor beds and recovery beds.

JCS Approved Theater Evacuation Policies

S-7. Mr. Beard. What are present JCS Approved Theater Evacuation Policies for casualties, and what are USAREUR Theater Command approved policies?

Answer. The present JCS approved Theater Evacuation Policy is as follows:

D-Day to D+30
D+31 to D+60 - [DELETED]
D+61 and thereafter -

USAREUR will comply with this policy to the extent that their capabilities permit.

Impact of Shortages

S-8. Mr. Beard. What impact will the shortage in medical personnel, evacuation assets, and support materials have on the Theater Approved Evacuation Policies for casualties?

Answer. The impact of the shortage in medical assets means that the Army Medical Department theater hospitalization system is capable of supporting only

The net result will be premature evacuation of patients, increased morbidity and mortality, and fewer returns to duty.

Combat Zone Evacuation

S-9 Mr. Beard. What vehicles would be used in USAREUR for combat zone evacuation, and what other missions would these vehicles normally be used for?

Answer. Combat zone evacuation will be accomplished principally by field (track and wheel vehicle) and air (helicopter) ambulances to the extent possible. Field ambulances are organic to all tank and infantry battalions. Some additional field and air ambulances are available at higher levels. While the ambulance is the preferred means of casualty evacuation, fiscal and manpower constraints make it impractical to guarantee an adequate number at all places on the battlefield at all times. The paucity of medical evacuation assets, both ground and air, in Europe will require the use of whatever vehicles are available for the evacuation of patients. Under such emergency conditions it would be expected that 2-1/2 ton and 5 ton trucks and nonmedical helicopters transporting ammunition, spare parts, and general cargo forward will be used for the transportation of wounded, sick, and injured soldiers back to a medical facility. Such emergency measures will likely increase morbidity and mortality because of the lack of medical attention enroute, the fact that these vehicles are ill-suited for the movement of the wounded and injured, and because the drivers and pilots would probably not be familiar with the location of the closest medical facility.

Helicopter Combat Zone Evacuation Assets

S-10. Mr. Beard. Regarding helicopter combat zone evacuation assets, under what weather conditions are these vehicles grounded, and what are the average number of days per year, and hours per day, that these systems are grounded?

Answer. During the recent REFORGER 78 Exercise, USAREUR established the following visual flight minimums for Army aircraft.

Daytime: Clear of clouds and 1/2 statute mile visibility.

Night: 500 foot ceiling and 1 statute mile visibility.

An estimate of the days/times per year when the prevailing weather is less than the above minimums provided by the 7th USAF Weather Squadron, Heidelberg are as follows:

Daytime: 35 days 1/2 mile or less; 2-3 hours per day.

Night: 57 days 500 foot and one mile or less; 4-6 hours per day.

When the weather conditions are less than those listed above, all medical evacuation helicopters are grounded. However, in a combat environment, minimums could be lowered to take into consideration the individual aviator's capability to fly instruments. Of course an instrument let down system is required at the pick up site for instrument approaches. The only limiting factor for instrument flying by Medical Evacuation helicopters is icing conditions. Army helicopters are not equipped to fly in ice.

This factor should be eliminated with the introduction of the new "Black Hawk" helicopter into the Army inventory. This helicopter will have a "de-icing" capability. It is very seldom that weather conditions in Germany prevent helicopter flying for more than 48 hours.

USAREUR Theater to CONUS Evacuation Policies

S-11. Mr. Beard. What are USAREUR theater to CONUS evacuation policies and plans?

Answer. USAREUR will attempt to fulfill JCS Approved Evacuation Policies. Because current assets do not provide this capability the emphasis during the early stages of war will be on austere hospitalization, short evacuation policies, and rapid off-continent evacuation. The evacuation vehicle of choice within the combat zone is the US Army air ambulance. This capability will be supplemented, where practical, by the ground ambulance. USAF tactical aeromedical evacuation is the primary means of moving patients from the combat zone to the communications zone (COMMZ) hospital system. ~~Deleted~~ USAF strategic airlift will provide aeromedical evacuation from the European Theater to the Continental United States.

Host Nation Support Actions

S-12 Mr. Beard. Given the serious shortfalls in USAREUR medical personnel and evacuation assets, what actions are being taken to correct these problems through possible host nation support activities?

Answer. In August 1977, USAREUR submitted to the Federal Republic of Germany (FRG) a request for additional Host Nation Support (HNS) which included medical support.

Subsequent discussions resulted in the formation of a General Officer Board at SHAPE to coordinate HNS efforts. The Board's first task was to review HNS to US Army in-country, REFORGER and 2+10 forces and Air Force in-place and rapid reinforcement.

Medical HNS for US Forces included hospital care of US casualties, and evacuation of US casualties from division clearing stations to identified hospitals.

As a result of the Board's review, it was determined that the

The US, therefore, withdrew its request for hospital care.

The FRG determined that by *1978*

USAREUR Combat Forces Emphasis/Host Nation Support

S-13 Mr. Beard. The policy to maximize USAREUR combat effectiveness and readiness has resulted in a required USAREUR emphasis on combat forces rather than supply forces--the so-called "tooth to tail" ratio. In what

areas does this policy pose potential problems for a war-time condition, and how could host nation support alleviate some of these problems, and contribute to better USAREUR readiness and combat effectiveness?

Answer. The rapid reinforcement of NATO has resulted in a requirement for a significant level of support forces in the early phase of a war. Criteria constraining forward deployment and limited availability of aircraft capable of transporting Army equipment results in a shortfall of support force capability. Areas where this creates problems are: maintenance, ammunition handling, transportation, POL distribution, engineer, supply and services, and medical.

Many Host Nation Support (HNS) agreements currently exist with our NATO allies to meet shortfall in rear (noncombat) areas. Examples are transportation, engineer, military police, and POL distribution.

In August 1977, USAREUR submitted to the Federal Republic of Germany (FRG) a request for additional HNS. Subsequent discussions resulted in the formation of a General Officer Board at SHAPE to coordinate HNS efforts. Its first task has been to review HNS to US Army in-country, REFORGER, and 2+10 forces and Air Force in-place and rapid reinforcement.

Categories of support which the Board favorably considered are transportation, expendable supplies, and wartime stationing. Categories which require additional [deleted]

Categories for which [deleted]

USAREUR MAL-STATIONING

S-14 Mr. Beard. NATO's so-called "forward edge" strategy has many potential pitfalls and imposes significant demands on combat readiness and adequate force deployments. Since USAREUR's peace-time stationing and deployment of forces is the result of the allied occupation of Germany after World War II, a better deployment--through repositioning of forces--could significantly contribute to USAREUR readiness and support NATO's "forward edge" strategy in a cost-effective way. What considerations are being given to such a redeployment of USAREUR forces?

Answer. The problem of mal-deployment is recognized and several actions are on-going to reposition forces to better support the "forward edge" strategy. Prime among these initiatives is the movement of a brigade (referred to as Brigade 75) of the 2d Armored Division from Central Army Group (CENTAG) to Garlstadt in the Northern Army Group (NORTHAG) area. Restationing is scheduled to commence in October of this year with completion programmed for early 1979. [deleted]

Real estate restrictions resulting from urban growth patterns in the FRG make prohibitive the cost of restationing whole units to the east (SACEUR estimates a cost of \$30M per battalion). In light of other pressing resource requirements it is unlikely that such mal-positioning corrections would be undertaken.

S-15 Congressman Beard. U.S. Army commanders are having — to devote increasing amounts of time to the social welfare problems of their troops and families. Overseas, and particularly in Europe, this problem is compounded with the many responsibilities associated with facility maintenance in foreign countries. These responsibilities, because they are extremely time consuming, undermine the Commanders primary responsibility--namely to ensure the readiness of U.S. forces in time of war. The German Bundeswehr seems to have solved this problem through a separate maintenance organization known as the Standard Ort Verwaltung, the so-called STOV.

What consideration has been given to the U.S. adopting such an approach for its USAREUR forces, and have the many potential benefits associated with such an approach been assessed?

Secretary Brown. In April, 1977 the Army undertook the development of an approach such as you describe, entitled "USAREUR - An Army Deployed" (UAD). UAD is a long range conceptual plan for freeing US Army, Europe commanders in the Federal Republic of Germany (FRG) from their responsibilities for base operations and community life support activities, thereby enabling them to concentrate exclusively upon USAREUR's primary mission -- combat readiness.

Although this concept has not yet been formally broached with the FRG, it applies the principles of host nation support to USAREUR's peacetime readiness, as well as, to its wartime capabilities.

The conceptual plan consists of four main elements:

a. Convert USAREUR's facility maintenance and community life support work force to contract, e.g., kitchen police, security guards, plumbers, and electricians, etc. This conversion could involve the Standard Ort Verwaltung (STOV) or some other contractor with similar service contract experience.

b. Rehabilitate and modernize facilities, e.g., utilities distribution systems, storage, maintenance, hospital and administrative facilities. Facilities which were not previously covered by US-FRG OFFSET Cost Agreements.

c. Transfer day to day real property management responsibilities to the FRG retaining those rights which we require. The STOV offers a preferred alternative for accomplishing this function because of its experience in support of the Bundeswehr.

d. Obtain additional facilities as needed to accept new missions, correct malpositioning and replace obsolete plant. It is not believed that new legislation to accommodate military construction under UAD will be necessary. Requests for Congressional authorization and appropriation for military construction for UAD initiatives would be processed under current procedures.

The requests would identify that part to be funded by the FRG, provided that a cost-sharing arrangement with the FRG is reached.

The UAD conceptual plan is undergoing detailed analysis and development. It is still too early in the development process to determine an assessment of potential benefits. The UAD concept does however contain sufficient merit to pursue exploratory talks with various ministries of the Federal Republic of Germany. The next milestone in the development process will be to determine what the US position should be in formal exploratory talks.

[Whereupon, the subcommittee was adjourned at 11:22 a.m., subject to the call of the Chair.]

STATEMENT OF
AMBASSADOR R. W. KOMER
ADVISOR TO THE SECRETARY OF DEFENSE ON NATO AFFAIRS
BEFORE THE
COMMITTEE ON ARMED SERVICES
SPECIAL SUBCOMMITTEE ON NATO
STANDARDIZATION, INTEROPERABILITY AND READINESS
UNITED STATES HOUSE OF REPRESENTATIVES
JUNE 14, 1978

Introduction

Mr Chairman

I greatly appreciate the opportunity to appear before this new Subcommittee. You are performing a major service by thoroughly examining both the state of our readiness and what we in DoD call Rationalization/Standardization/Interoperability or R/S/I for short. These are, or ought to be, military issues first, and economic or political issues only second, because the military need is overriding. Therefore it is good that the expertise of an Armed Services subcommittee is being devoted to them.

My testimony will cover briefly over a dozen matters which we believe important to your inquiry. In particular I want to outline the growing military need for both greater readiness and more R/S/I in NATO, what we and our Allies are doing to try and meet these needs, and how you could help us do so. All this is a highly complex problem area--one in which NATO has done rather poorly in the past and has to do much better in the future.

For this reason both readiness and R/S/I have been major objectives of the NATO initiatives which the Carter Administration and the NATO Allies have undertaken, and which we in DoD are seeking to carry out efficiently.

They have been stressed in the Administration's defense budgets, in the NATO short term initiatives, and in the Long Term Defense Program (LTDP) just approved by the NATO Summit. I will touch on how all these are being used to promote R/S/I, and also on how best to revamp future weapons development and production within NATO to this end. Since this is directly related to the underlying issue of equitable burdensharing in the Alliance, a subject on which I believe there are many misconceptions, I would like to address this too.

My apologies for having to appear so late before you, because of Summit preparations. Hence you have already heard from the Departments of Commerce and State, from General Haig wearing his CINCEUR hat, from the Office of the Joint Chiefs of Staff, and from the Military Services. I hope you won't mind if I repeat, or even give a different slant, on some subjects which have already been discussed or will be discussed by other witnesses.

Administration Emphasis on NATO

A good point of departure is the Carter Administration's reordering of our national security back towards improving NATO's deterrent posture--traditionally one of America's top priority national security objectives. I say "back

towards" because we let our capabilities to help defend Western Europe run down badly during a decade of primary focus on Southeast Asia. Throughout this time a steady Warsaw Pact buildup continued. So we have some catching up to do.

To remedy this neglect the US has vigorously renewed its commitment to NATO's strategy of deterring aggression by maintaining three kinds of military capability: strategic nuclear, theater nuclear, and conventional. If deterrence fails, forward defense will be carried out under a strategy of flexible response. For example, in August 1977, President Carter told the Atlantic Treaty Association Conference in Reykjavik:

"...The United States remains categorically committed to NATO's strategy of forward defense and flexible response. This is my own firm conviction, and it will remain the policy of the United States as long as I am President. Since this is also the firm conviction of the Congress and the American people, there is absolutely no doubt that my successors in Office will continue this commitment."

The Carter Administration did not confine itself to rhetorical reassurances. It simultaneously launched not only substantial improvements in our own NATO oriented

capabilities, funded by sizable budget increases, but called on our Allies to join us in a mutual effort. In May 1977 at the NATO Summit the President called upon our Allies to: (1) join in a series of short term measures designed to enhance readiness in particular; (2) design a far-reaching long term program to preserve credible deterrence/defense on into the 1990s; and (3) collaborate more effectively in the development and production of defense equipment for this purpose. In all three cases these US initiatives were designed to achieve substantial collective defense improvements, involving the whole NATO Alliance and not just the US.

Overall, the Allied response has been highly reassuring. In December 1977 all Allies accepted most of the short term measures proposed by the NATO commanders, and are now carrying them out. With Allied agreement numerous NATO task forces also worked over a year to produce an innovative Long Term Defense Program (LTDP), which was just approved by all concerned at a second NATO Summit here in Washington on 30-31 May. Its accent is on an unprecedented degree of Alliance cooperation (NATO's term for rationalization), because only in this way can we Allies collectively overcome the deficiencies which prevent us from achieving high confidence deterrence/defense at

a cost which is politically acceptable to our free societies.

The reason I stress these collective Alliance initiatives is two-fold: first, because they stress heavily readiness, standardization and interoperability issues of concern to this committee; and second, because they demonstrate that we are not being asked to defend Europe alone. Our efforts are being matched by those of our Allies, who have joined fully in the initiatives just described.

Burdensharing in the Alliance

Indeed, this is a good time to try and cast some light on the perennial issue of whether the Allies are carrying their fair share of the load. Unfortunately, it is very difficult to define equity in this matter. A measure commonly used is percentage of GNP or Gross Domestic Product, (GDP), which closely resembles GNP and is preferred by NATO because it excludes income earned overseas. Using NATO's common definition of GDP as a baseline, the US did spend about 5.5 percent of GDP for defense in 1977, higher than almost any other Ally. But we are wealthier than our Allies--average per capita GDP for the rest of NATO is only 70 percent of US per capita GDP. Since the rest of NATO spends about 3.4 percent of GDP on defense, which is 62 percent of our 5.5 percent level, an argument can be made that the burden of spending is about equal in proportion

to wealth.

Moreover, size of defense budget alone doesn't tell the whole story. How each country spends its aggregate resources is at least equally important. As you know, well over half of our DoD budget goes for "people costs." Since the continental European Allies still have conscription, their per capita manpower costs are still significantly lower than ours. If Allied personnel costs were computed at US pay rates, their total spending would be 33% higher than their budget totals show (I might add that this is also a major reason why the USSR seems to be able to buy so much more equipment than we; even leaving aside their higher rate of increase in defense spending, they spend far less per man on people than even most NATO Allies). At any rate, when we look at output rather than input, the Allies do provide over 90% of peacetime NATO ground forces and 75% of the aircraft on European soil in peacetime.

Let us further remember that, as a global power, the US must program to meet a far broader range of defense needs than any other NATO Ally. To take the most obvious example, we prefer to provide by ourselves the vast bulk of the strategic and theater nuclear resources of the Alliance. This takes on the order of 15% of our budget. Our nuclear guarantees to our Allies are the cornerstone of our non-proliferation policy.

Furthermore, we Americans buy General Purpose Forces against a wide range of global contingencies, which our Allies for the most part do not. Hence it is well nigh impossible to calculate with any precision which portions of our flexible multi-purpose forces are most properly attributable to NATO, and which are not. This dilemma is most obvious with respect to our highly flexible naval and air forces.

Another differential in relative US and Allied defense spending is that the US rightly pursues a force projection strategy. We seek to defend vital US interests as far away from our own shores as possible. Therefore, we pay a lot for so-called strategic mobility and for long range naval and air force projection capabilities. Again this is a charge on our defense budget which our Allies do not require for the most part. On the other hand, the Allies provide us free of charge a lot of real estate and facilities which are really an added charge on them.

The comparative trend in US and Allied spending is also instructive. Between 1970/71 and 1976/77 real spending by the Allies increased by around 13 percent, while US spending declined about 20 percent. Of course part of this was the tapering off in SEA. But even excluding this US real spending dropped about 4% over the period. Belgium in contrast exceeded 3% annual growth over the last 5 years.

Now let's look at the future instead of the past and use as our test the Alliance goal of around 3% real growth per annum in defense budgets mutually agreed in May 1977 for the period beginning in 1979. It is very encouraging to note that most Alliance members, including all the biggest ones, intend to achieve this goal. This includes Italy and the Netherlands. Only Denmark, Turkey, and Portugal--among countries participating in the LTDP--are unable to pledge this goal at present, the latter two because of understandable special circumstances. France, though not an LTDP participant, plans a rate of defense budget growth well above 3% in real terms. Hence by this measurement too, our Allies are at least keeping up with us.

This 3% pledge is all the more significant because the US rate of growth in GNP has been well above the European average. As Dr. Cox of the Department of Commerce already pointed out, the real growth rate in the United States averaged 5.5 percent from 1975 to 1977 while our NATO Allies averaged less than 3.8 percent. Commerce estimates our real growth rate in 1978 at 4.5 percent and hopes for a continuation of about that rate for the following year. This is still higher than our major Allies are likely to reach.

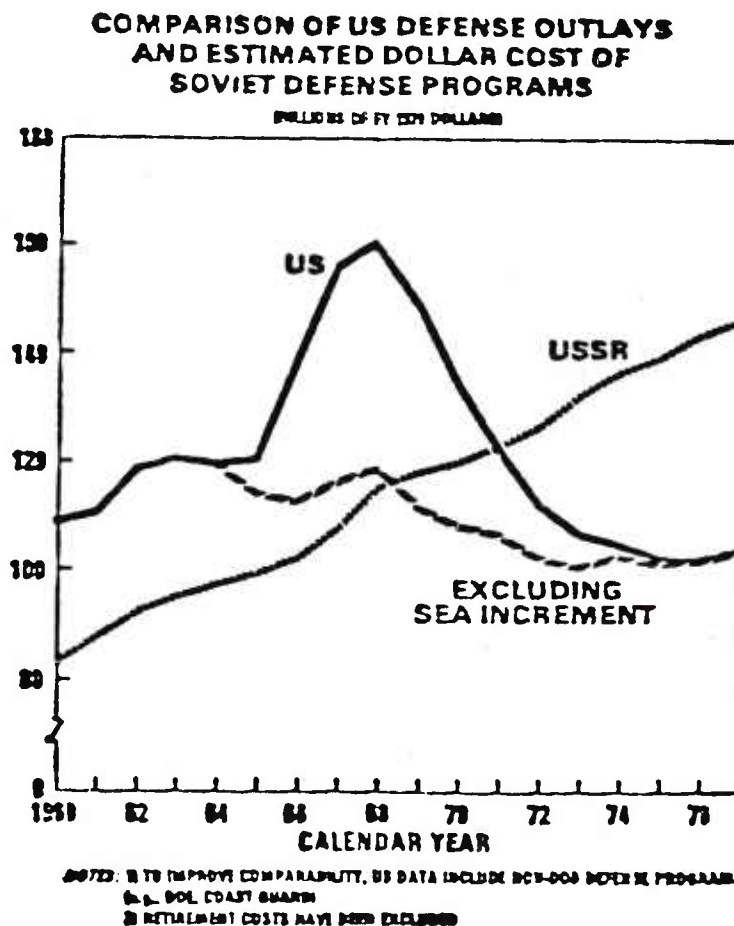
Thus the European Allies are pledging very nearly to match their growth in defense expenditures to their real growth rate. This is something that the United States has not achieved or even attempted in the last decade. In fact, our defense spending as a percent of GNP has declined by nearly 40% (from 9 percent in fiscal years 1962 and 1968 to just over 5 percent for fiscal year 1978). In contrast, our major European Allies have generally maintained or increased defense spending as a percent of their Gross Domestic Product during the 1970s. Indeed real growth in defense spending by NATO Europe in the 1970s has increased on the average from 2 percent to 3 percent per year. Only in the last two years have we begun to match the European rate of increase.

Looking at these trends it is difficult to justify the assumptions underlying the often heard question "Why should we Americans do more to defend Europe if European nations are not doing more to defend their own territory?" The answer is that Europe has, in the 70s, been spending more in real terms and as its rate of growth permits; while the US has been spending less and less of its total resources on defense. Except for the last two or three years we have actually reduced our total defense effort when the effects of inflation are considered.

Therefore our recent increases in real defense spending in FY 1977, 1978 and hopefully in FY 1979 are primarily efforts to overcome the serious backlog of requirements for our General Purpose Forces (GPF) as a result of the Vietnam War. In looking at our defense outlays during 1965-73 one is struck by the enormous amount which was expended in Vietnam. It is an oft-neglected fact that during a decade the US spent on the order of \$150 billion for only the incremental costs of the Vietnam war. Many years worth of force modernization was instead diverted to Vietnam. Hence the bulk of the proposed 3% real growth in our fiscal year 1979 budget is for delayed GPF modernization--for a catch-up effort.

Also, overall spending figures before and during the Vietnam War include personnel costs based on paying draftees, whereas the figures for the later period reflect the costs of an all volunteer force. Yet even with this large increase in personnel costs we continued to show a real decrease in defense spending until 1976. In short, after Vietnam we absorbed large increased in personnel costs for the all-volunteer force within a declining overall budget in real terms.

This helps explain why the USSR caught up so fast in relative capabilities, and why the US has so large a backlog of force modernization and maintenance of ships, planes, tanks and guns. In a real sense we Americans are playing catch-up ball. The following chart from p.35 of Secretary Brown's posture statement shows this graphically. It is quite relevant to our need for renewed emphasis on NATO, and for modernization of our GPF.



In modernizing our General Purpose Forces we are emphasizing new equipment designed primarily for high intensity defensive warfare against the Warsaw Pact. We are also giving priority to modernization of forward deployed forces, which are mostly in Europe. These forces would bear the initial brunt of any attack. But, even though the bulk of our GPF would be committed to Europe in a NATO/WP war, many of them would be useful in other contingencies as well. Flexibility is the key to the capabilities of our GPF. Even some "heavy" divisions have alternative missions. The same is true of airlift or sea-lift, which is sized largely for NATO requirements but is equally useful in other contingencies as well. Perhaps the fundamental point is that the USSR is also a global power with steadily increasing force projection capabilities. By improving our ability to defend against an attack in Western Europe, we also enhance our ability to deter or defend against Soviet pressures elsewhere.

In sum, who can contend that our Allies are not bearing their fair share of the common defense burden? We are richer than they are, our rate of economic growth

is higher, we pay our soldiers more than most of them. Besides, we posture for a far wider range of global needs whereas they posture mostly for NATO defense. Lastly, we seem to be spending a steadily declining percentage of our GNP for defense, while theirs has been steady if not increasing on the average.

Adequate Readiness is Imperative.

Let me turn now to the main interest of this committee, and offer a DoD viewpoint on why greater readiness and R/S/I are so important. You have already heard numerous military witnesses on why we need greater readiness to meet growing Warsaw Pact capabilities for short warning attack. They have described how the next major European conflict might be a "come as you are" war, with no time for extended mobilization in the classic American pattern.

Therefore, Secretary Brown has put great stress on increased peacetime readiness, especially of forward deployed forces and initial reinforcements which would have to bear the brunt of any short warning attack. Moreover, higher readiness also contributes greatly to deterrence of any such attack, which is after all the first purpose of our defense.

We hope that the committee will focus particularly on the key elements necessary to adequate readiness, such

as adequate peacetime strength, superb training which can be such a great force multiplier, and sufficient Operation and Maintenance (O&M) funding to keep the operating forces up to scratch. All too often both the Executive and Legislative branches have tended to underfund O&M in favor of new acquisitions. If we have to fight, however, it will be with equipment on hand initially. And if too much of our inventory is deadlined for repair, or out of order for lack of repair parts or inadequate maintenance money, we could be at a critical disadvantage. Consequently, we appeal to this committee for balanced funding which does not mortgage present readiness to future modernization.

Since you are hearing many other witnesses on readiness, let me confine my further remarks to an aspect of this problem which is all too often ignored--the readiness of NATO's Allies to fight effectively together in coalition war. Though coalition war--alliance fighting alliance--is more the norm than the exception in large scale conflict, even for the US, it is surprising how little attention has been paid to this problem. Having written and lectured myself on this subject, and researched the literature, I can attest that it is little indeed.

Whatever the reasons, the NATO Allies cannot today fight optimally together as a coalition. This wouldn't be so bad if our potential adversary were in the same fix. Unfortunately this is not the case. While the Warsaw Pact forces often use more than one standard weapon, overall they are more standardized than we. Soviet domination of the WP has led to a far higher degree of common doctrine, tactics, equipment and procedure than is the case in NATO. During the period of clear US nuclear superiority perhaps this was not so serious a problem. But it certainly is today. The proof of this is the far greater attention being paid to R/S/I by NATO civil and military authorities. The emphasis on R/S/I in the initiatives of the NATO commanders and the response of nations in endorsing a Long Term Defense Program which seeks to provide it in many key areas show that the need is finally being appreciated.

The Military Rationale for R/S/I.

The case for R/S/I rests primarily on straight military grounds. Indeed the impetus for it has come largely from the NATO military authorities. Until recently, however, their military requirements have largely been given lip service.

True, in some areas progress has been made within NATO, particularly where this was possible without major changes in established ways. In fact, "standardization" has been NATO policy for years. But despite numerous changes in NATO organizational structure in an attempt to promote standardization/interoperability under whatever title, there has been only limited real progress.

Detailed "flexibility" studies recently undertaken by NATO commanders have examined in great depth and in great detail the Central Region and the Northern and Southern flanks and UK air defense as well as the maritime situation. SACEURs first report defined flexibility as the capacity to employ NATOs forces quickly and selectively in areas of greatest need. He identified constraints inhibiting flexibility as inadequate C³, delay in warning, insufficient troops in position early, combat units' reliance on inflexible national logistics, and lack of standardization in doctrine, organization and equipment which hurt inter-unit cooperation in all areas. The recommendations of the flexibility reports are being pursued both by individual Allies and through NATO organizations. Many of them have been projected forward and encompassed in the Long Term Defense Program.

General Haig, the Service witnesses, and General Braswell have stressed the increasing complexity and interdependence of the elements that are brought to bear in a modern battlefield, particularly in defending against a Warsaw Pact blitzkrieg attack. I trust you have gotten the impression, as I have, that our outnumbered NATO defenders must maximize the effectiveness of our smaller forces. NATO air and ground assets must be fully flexible to be able to concentrate firepower where it is needed and be equipped to identify not only friendly versus enemy forces, but to make maximum use of fire control and target designation, whatever its source. NATO must be able to integrate maritime operations, the land battle, air defense, Electronic Warfare (EW), suppression of enemy air defense and ground support missions so that whatever Allied assets are at hand can be brought to bear with maximum effectiveness. Logistics systems must be able to support the high expenditure rates we would expect in the early days of such a war across national sector boundaries and must make maximum use of Host Nation Support, civilian and military, so that we can allocate a maximum number of personnel to combat units.

Allied units attached to other Allied corps or even divisions must be sure of receiving full and effective

supply support. In the past the Alliance has organized its forces in peacetime within national Corps that would be commanded and controlled by NATO Commanders but provided national support. This concept has been convenient in peace but is impractical for war. National commands have, in the past, largely ignored requirements for tactical flexibility to respond to the Warsaw Pact's offensive strategy.

Effective defense will require moving forces quickly on the battlefield to contain Pact penetrations or to counter-attack to restore Alliance positions or strike enemy vulnerabilities. NATO commanders will not be afforded the luxury of organizing forces solely along national lines. Rather, it is probable that multinational corps and divisions will have to be organized at times because of tactical necessity. A German panzer brigade may well find itself attached to a US division counterattacking into a Belgian corps sector supported by host nation combat support and British close air support--because the tactical situation may require the Army Group or corps commander to mass whatever forces are available to influence the battle.

Hence interoperability will be absolutely essential. Communications must accommodate multinational command relationships and supplies from one national support

structure must be consumable by other forces, to include food, fuel and ammunition. The constantly changing, dynamic tactical situation will make national support very difficult at best. We must prepare to fight a coalition war in which Allied efforts are much more interdependent than they have been in the past.

Indeed we Americans, precisely because current plans call for our forces to reinforce theater-wide in practically all NATO forward areas, would benefit greatly from being able to plug into compatible Allied C³ and logistics support systems, instead of having to bring a long support tail with us, as in World Wars I and II. In fact this may no longer be practicable, at least initially, in event of a short warning attack.

Highest Priority S/I Needs

Responding to the concerns of the military, new analysis techniques have been applied to attempt to determine where the highest payoff from R/S/I might be. One limitation of these studies is that it is very difficult, even with the most sophisticated computer programs, to model accurately a situation with as many interacting variables as the complex battle scenarios which have been described to you and the even more complicated situations likely to occur in a

NATO/WP conflict. However, recent studies of the Army's Concepts Analysis Agency demonstrate the great importance of interchangeable ammunition in ensuring adequate ammunition supplies in a combat situation requiring rapid reinforcement of one ally by another. Standardized NATO weapons, such as artillery and antitank guided missiles, were also found to make an important contribution to increased force performance. Similarly an Air Force study on Stage B Cross Servicing at airbases in Europe indicates that significantly improved effectiveness will result from our capability to arm and fuel US aircraft at Allied airbases, and vice versa.

The JCS recently assessed the highest priority needs for S/I. They concluded that these are: (1) compatible C³; (2) aircraft cross-servicing; (3) interchangeable ammunition; (4) compatible battlefield surveillance/target designation/acquisition systems; and (5) standardization/interoperability of components and spare parts. The NATO military authorities have reached similar judgments.

Thus growing evidence supported by military judgment indicates it is not enough to have each NATO nation improve its own defense capabilities in response to the continuing Warsaw Pact buildup. To achieve maximum benefit, these national efforts must be coordinated through common interoperability, standardization and rationalization measures, so that they complement each other in a planned NATO effort.

Standardization or Interoperability?

But, full standardization--however theoretically desirable--is neither militarily necessary nor politically or economically feasible in an alliance of sovereign states. Hence it is essential to clarify what we're really talking about. The escalating rhetoric about standardization and the two-way street has spawned a lot of simplistic and often misleading mythology. To oversimplify, it is that "standardization" alone will solve most of NATO problems.

But standardization is not a panacea. It is not the solution to all of NATO's defense problems. It is only an aspect of the much broader process of achieving an optimized coalition posture which requires far more than standardization and interoperability in equipment. We also need greater harmonization of doctrine, tactics and procedures, more commonality in logistic support systems, more joint training and schooling, more combined planning and programming of resource allocation, and the like. While standardization of major systems is getting all the publicity because of their high visibility, interoperability of C³, high consumption munitions and fuel may have greater military payoff and be much easier to achieve, especially in the

short-term. Indeed, achieving these things is more likely to lead to later weapons harmonization than vice versa, because in general they are probably easier to achieve initially.

Moreover, in many cases early standardization is a contradiction in terms. It can't be achieved at any early date. We can't get it with systems far along in development, since these represent sunk costs which nations are reluctant to cross off. For instance, NATO will have to tie Allied tactical trunk communications networks together with interface devices in the short term. It would be unrealistic to expect the US or our Allies to abandon deployed systems or ongoing development in view of the very large investment in these systems. For the mid-term we will gain enhanced interoperability through the use of common equipment subsystems or components. In the long term, however, we plan to cooperate in the development of new systems according to NATO commonly agreed upon requirements and mission needs.

In some instances such cooperative development from the outset is crucial. For instance, it is highly desirable for tactical unit radio nets of one ally to be able to tie into not only their own tactical trunk communications network but also those of other allies to gain flexibility of force

employment. Unless the Single Channel Radio Access points which would achieve this tie-in are cooperatively developed, the practical problems in designing interoperability into multiple national systems are so enormous as to make this impracticable. Thus, in this instance we have to aim for something very close to standardization of a system in the first instance in order to gain the operational flexibility we need between other systems.

In practice standardization/interoperability is a continuum. What appears as interoperability at one level may result from standardization at another level. We may achieve adequate interoperability of equipments precisely because some vital component, procedure, piece of software, or specification has been standardized.

Therefore we are taking a new look at standardization from the bottom up, rather than standardizing only at the system level and then finding that such systems cannot be produced by more than one or two nations. We are focussing on components like parts, assemblies, and materials so that weapon systems can be more readily coproduced and so that interoperability will be improved.

However, there have been a number of areas where standardization even at the systems level has been the

appropriate approach. For example, the principal mid-range surface-to-air weapon of NATO Navies is a US missile. Since it is interoperable with a number of missile launchers, we can resupply and support each other even in this highly sophisticated area.

The NATO Integrated Communications System (NICS) provides basic strategic level communications for NATO. It was designed and developed for common use by a NATO agency. This has proved a practical approach. One of the major recommendations of the Long Term Defense Program is that NICS Phase II be implemented to provide more secure, more Electronic Counter Measure (ECM) resistant and more ADP-capable communications, again as a commonly designed, procured, and funded system. NATO Air Defense Ground Environment (NADGE) and now AWACS are other examples of commonly funded standardized Alliance-wide systems.

A benefit we and our Allies obtain from the large sale of F-16 aircraft is more effective logistics support when we deploy our aircraft to Allied bases and vice versa. Use of Allied operating bases is critical to our ability to reinforce. We will collocate on such Allied bases to reduce the vulnerability of follow-on aircraft when we augment in times of crisis or war.

There would be real benefits in just reducing the number of systems fielded by NATO. The number of different Anti-Tank Guided Missile (ATGM) systems employed by NATO armies wastes Allied resources, seriously complicates wartime supply problems and deprives us of the flexibility to have combat units use one another's equipment, if necessary.

Consequently, it may be better to state our aim as that of equipment harmonization rather than attempting to set standardization or interoperability apart from each other as distinct goals, which they are not. We must strive for that degree of S/I necessary for military effectiveness, though in many cases this can be only a long term goal. In some instances standardization may not be required, feasible or particularly effective.

Carefully planned interoperability may represent a satisfactory solution even in the longer term. In other cases neither may be required.

The Economics of R/S/I and the Two-Way Street

So far I have talked about R/S/I primarily in terms of the military need. There is also a powerful case for the economic benefits to the Alliance, though these will be far harder to achieve.

One key reason why NATO does not seem to generate the same level of capabilities as the WP, though it collectively spends about as much money, is the wasteful overlap and duplication in fourteen different and widely disparate Allied national defense efforts. We could all get more for our dollars, deutschmarks, pounds, and francs if we collaborated more efficiently.

The area where the savings might theoretically be greatest is in the development and production of new equipment. Yet it is precisely here where parochial national interests pose the greatest obstacles, both in the US and increasingly in NATO Europe too. Standardization/interoperability of equipment has been a continuing problem, largely because of national concerns for their own defense industries and technological base. In the early days of NATO much standardization was achieved because Allied nations basically bought or were given the same (often US) equipments. For instance, NATO once shared common tactical radio communications equipment provided by US aid. However, when new national systems were introduced by acquisition of radios from national electronics industries, the US monopoly gradually disappeared.

Hence it is probably unrealistic to expect great savings in the short or mid-term. What would save the most--compet-

titive design, single country development, and single source procurement allowing long production runs--is precisely the least likely to be acceptable in most cases. But the military need for S/I is so great that it must be achieved if necessary by less efficient means such as joint development, consortium production, or co-production. In any case it is likely that some of these techniques might be less expensive than going it alone.

To achieve the military as well as economic benefits of greater armaments collaboration, however, will require enlightened policies on both sides of the Atlantic. We must avoid restrictive, protectionist, or narrowly self-interested measures on both sides. Frankly, it has not been easy to convince our Allies to acquire costly but vitally needed systems such as NATO AWACs in the face of a 10 to 1 overall weapons trade ratio in favor of the United States in recent years.* Recent US decisions on the 120mm tank gun and procurement of administrative vehicles have helped our case. On the other hand the continuance of or reimposition of restrictive measures such as the specialty metals provision are particularly unproductive. They merely strengthen our Allies' tendencies to greet with suspicion our professed desire to establish a more productive two-way street in defense trade.

*This ratio and those used on the subsequent page reflect the best data currently available to DoD, but do not reflect purchases by US contractors of European subcomponents since this data is not yet available.

One-Way Street or Two

One need only look at our trade with NATO Europe in military equipment to understand Allied complaints. Our combined foreign military sales and commercial sales of military equipment for 1974-1977 were on the order of 9 or 10 times greater than US procurement from our Allies. These overall high ratios disguise even more striking figures for individual nations. While our sales ratio with the UK has ranged from about 1 to 1 to 4 to 1, our ratio with the FRG has ranged from over 100 to 1 to on the order of 25 to 1. No wonder the Germans are complaining. These ratios are necessarily imprecise because we do not have enough comparable data. But they make clear what the Allies are squawking about when they look at their defense industries versus ours.

It is also clear that our weapons exports to NATO countries of approximately \$1 billion a year are costing them far more profits and jobs than their exports to the US are costing us. The lesson is clear too. If they refuse to buy from us for this reason, it is US industry which will suffer most. Thus, more of a two-way street in armaments procurement can be seen as sheer export protection.

Gentlemen, the handwriting is on the wall. If we want Europe to keep buying US systems, we will have to buy more from them. They have put us clearly on notice.

We must keep in mind the deep European suspicion, amply fortified by experience, that S/I really means "buy American." Most major NATO cooperative programs in which the US has participated have involved sale or coproduction of US hardware. Even in the NATO Air Defense Ground Environment (NADGE) and in the NATO Integrated Communications System (NICS), which were NATO common funded developments, our equipment dominated. In turn, most European cooperative projects (MRCA, JAGUAR, MILAN, HOT, FH-70) were without US participation. Even when the US actually entered into cooperative development programs like MALLARD or MBT-70, it pulled out later.

When we do adopt a foreign system, we often insist on producing it in the US at added cost. ROLAND is a case in point, even though adopting it still saved dollars and time. So it is hardly surprising that the Europeans feel as they do. The US has not been "believable" in its approach to Europeans on standardization. We have to prove our bona fides. We must face up to the two-way street.

Even so, the term two-way street can be misleading. In some minds a two-way street means equal traffic in both directions. This is just not in the cards. Because of larger US outlays and a more advanced US technology base, we will continue to dominate. Nor do Europeans really expect equal traffic both ways. But they can--and do--expect something better than the present one-sided traffic.

Otherwise our Allies will increasingly collaborate among themselves at our expense. The Independent European Program Group was formed recently to promote rationalization of European defense industry--an objective we fully endorse. But it could easily become an instrument for excluding the US from the European defense market, at great cost to NATO-wide R/S/I.

Thus we have a political choice between two roads. We can adopt an isolationist or protectionist attitude, deny our military technology to Europe, protect specific US companies against European competition, provide minimal initiatives to increase readiness and satisfy short term domestic political concerns. By this course we discourage NATO S/I and, by failing to lead the Alliance towards a more effective collective defense, we run a substantial risk of encouraging European proponents of the status quo.

If the United States; as the leader of the Alliance, fails to take effective measures against a threat which

it is in the best position to evaluate, then European leaders can be excused for not diverting resources from other government programs to defense. Furthermore, should we turn our backs on Alliance cooperation we not only make it very difficult to achieve S/I in practice because we are a major contributor and a major consumer in the Alliance weapons market, but we encourage others to feel less impelled to weigh their own defense programs in terms of their overall enhancement of NATO effectiveness.

Conversely, if the United States takes the lead in NATO rationalization, we can generate real political pressure on NATO to follow suit. This is the tack that the Carter Administration has taken. We can point to Allied acceptance of the Long Term Defense Program at the Summit this May as evidence of some success in this approach.

But to continue in this direction we need close collaboration with the Congress, not only to establish forward looking policy and legislation in our dealings with NATO but to approve the wherewithal for US participation in NATO programs. This is important to combatting the all too prevalent Allied perception, expressed to me many times, that even if the Administration genuinely wants to strengthen armaments collaboration, the Congress won't let it do so.

In sum, we appeal to Congress to join us in promoting more of a two-way street as vital to more effective NATO armaments collaboration. This in turn is critical to greater R/S/I, which is militarily needed for adequate collective defense. It is sound economics too.

We Can't Use Balance of Payments as an Objection.

Nor can we credibly hide behind the balance of payments argument. In overall economic terms, which are those that really count, our BOP vis-a-vis Europe is emphatically in our favor. Our balance of merchandise trade with the European NATO members had a surplus of \$8.9 billion in calendar 1976 and of \$6.2 billion in 1977, according to the Department of Commerce's Survey of Current Business, March 1978. Our overall balance of trade with NATO Europe had a \$6 billion surplus in 1976 and a \$1.3 billion surplus in 1977, again reflecting our more rapid economic recovery. In any case the military equipment portion of our trade is but a minor part of the total.

Given an overall trade surplus with NATO Europe it becomes increasingly difficult to argue that our defense expenditures in Europe must be offset by the Europeans. In any case this approach has been flatly rejected by the Federal Republic of Germany, where we maintain the largest part of our overseas military establishment, as smacking of the outmoded concept of occupation costs.

In fact, ever since the Nixon Administration determined that it was more in our interest to have Europe increase its own defense efforts instead of compensating the US, our focus on burdensharing by the Allies has wisely shifted to encouraging Allied force improvements. This has been demonstrably successful.

We are also encouraging them to join us in making all our budgets go farther by such cooperative measures as the LTDP initiatives, commonly financed weapons systems (such as the AWACS), and host nation support (such as the facilities provided by the FRG for our brigade to be stationed in the Northern Army Group area at Garlstedt).

What the US is doing about R/S/I

I would now like to discuss briefly what steps we have taken and need to take to achieve adequate R/S/I.

In May 1977 the President identified the means by which the United States believes it can be advanced, including:

-- US willingness to "promote a genuine two-way transatlantic trade in defense equipment," which would include an intensified US search for cost-effective European materiel.

-- US support for increased cooperation among our European Allies in rationalizing defense industries.

-- A North American (US and Canada) - European examination of ways to improve transatlantic cooperation in the research, development, production and procurement of defense equipment.

Since then the Department of Defense has made a concerted effort to identify candidate European systems which are cost effective for us to procure. As in most procurement matters, in many cases these are systems which we had had under consideration for some time. Since this subcommittee is familiar with the systems we have procured or have under consideration, I will not go into detail here.

As you are well aware we have changed our approach to acquisition within the Department of Defense. DoD Directive 2010.6 (March 1977) which sets forth DoD policy on S/I, basically enlarges the scope of our weapons acquisition policy to include consideration of Standardization/ Interoperability. Today a program manager also explains relevant programs in a NATO context to include candidate systems which may in part or in whole include Allied systems.

Throughout the defense system acquisition or DSARC process NATO standardization/interoperability is one of the factors given weight.

Furthermore, Secretary Brown and the Service Secretaries have designated key personnel as having responsibility for NATO standardization/interoperability. We have exercised this organizational structure just recently, and it was effective in our efforts in supporting and helping to develop the Long Term Defense Program.

How the LTDP promotes R/S/I.

The Long Term Defense Program (LTDP) is a powerful vehicle for promoting R/S/I, if it is vigorously followed through. This is because it represents prior Allied agreement to cooperate in carrying out specific priority measures in ten critical fields, rather than attempt to cover all measures needed over the period. NATO task forces prepared subprograms in the key areas of Readiness; Reinforcement; Reserve Mobilization; Maritime Forces; Air Defense; Command/Control/Communications; Electronic Warfare; Rationalization of Armaments Production; Consumer Logistics and Theater Nuclear Force Modernization (this last is still underway). Moreover, the LTDP looks out

10-15 years, farther than NATO ever has before, thus allowing plenty of time for R/S/I measures to be carefully worked out and executed over the extended period which will undoubtedly be needed in many cases.

As approved this May, the LTDP provides an agreed blueprint for national and NATO programming in these areas over the mid and long-term, so that national actions taken will be complementary. Because of its significance for NATO, I have appended a copy of the Summit LTDP release to my statement. The stress is on greater Alliance Cooperation, including greater standardization and interoperability and on devising better machinery for carrying out common programs to this end. This reflects the widespread Allied recognition that increased Alliance-wide coordination of national planning is now imperative to strengthen NATO's defense capabilities.

It was agreed that in the development and acquisition of the equipment recommended in the LTDP, cooperative programs will be pursued to the greatest extent possible. In this context cooperative programs may mean any appropriate division of effort ranging from joint development programs to coordination of development programs. In addition, the specific action programs identified in each

of the annexes to the LTDP include 15 major programs which will be cooperatively developed. They are:

COMMON FAMILY OF NEW ANTI-ARMOR WEAPONS

COMMON FAMILY OF NEW AIR TO SURFACE WEAPONS

NATO COMMON MESSAGE LANGUAGE FOR MARITIME

TACTICAL DATA LINKS

LIGHTWEIGHT TORPEDO DEVELOPMENT PROGRAM

ADVANCED ACOUSTIC SENSOR SYSTEM

FAMILY OF ADVANCED MINES

ADVANCED AIR TO SURFACE MISSILE COOPERATIVE
EFFORT

NEXT GENERATION IFF

SEVEN C³ PROGRAMS - AGREE IN PRINCIPLE EACH OF
THE SEVEN FOLLOWING COOPERATIVE PROGRAMMES:

1. THE NATO INTEGRATED COMMUNICATIONS
SYSTEM PHASE II
2. THE MARITIME COMMUNICATIONS PROGRAMME
3. THE TACTICAL TRUNK NETWORK PROGRAMME
4. THE SINGLE CHANNEL RADIO ACCESS PROGRAMME
5. THE NATO/NATIONAL AREA INTERCONNECTION
PROGRAMME.
6. THE STRATEGIC ADP PROGRAMME
7. THE WAR HEADQUARTERS IMPROVEMENT PROGRAMME

In addition the LTDP sets out specific collaborative procedures that are agreed in principle. I would recommend your study of these measures. Briefly the approach is to identify NATO and national requirements at the earliest possible point, when mission needs are defined. To achieve this NATO will develop a framework for harmonizing tactical concepts and for identifying and analyzing Alliance mission needs. Furthermore, it is the intent, through systematizing procedures on the part of NATO and nations, to cooperate from that point on. A NATO Armaments Planning Review (NAPR) is being devised to review major programs with S/I implications. Moreover, the NATO Military Authorities will establish S/I priorities from an operational point of view. The quality and effectiveness of NATO Standardization Agreements (STANAGS) also would be upgraded through the Military Agency for Standardization.

Nations would undertake to modify their acquisition processes to include NATO interoperability requirements in their own requirements and to comply with NATO STANAGs where appropriate. Finally, NATO will attempt to resolve remaining issues so as to harmonize the treatment of intellectual property rights affecting licensing and coproduction. We in DoD are determined to push hard to bring all these

promising steps to fruition. But we urgently need the cooperation of the Congress in what must be a joint endeavor.

The Concept of Weapons Families

The new DoD team is also advocating another highly promising step toward more efficient NATO armaments collaboration-- the shared development of "families" or "packages" of related next generation systems, with one country taking the lead in developing each element of a package. Dr. Perry is its most enthusiastic proponent and will testify about this concept. But I would like to mention it as well since I was the initiator of this approach.

Often the biggest hurdle to standardized design is that once nations are well along in the project development or production cycle, they are extremely reluctant to cancel these projects in favor of some other design. As the Congress knows, once sizable sunk costs are incurred, the tendency is to proceed with the cycle--for obvious reasons.

Hence the best time to get standardized or inter-operable designs is at the very outset of the development cycle, before much cost is incurred. Even so, there remains the thorny question of which nation should develop the system needed. A promising way around this hurdle is for two or more countries to split up the development of different systems within a single family. This would avoid duplicatory development, thus saving potentially hundreds of millions in development costs. Then countries could buy or license the resulting systems from each other, and all would have common systems.

Of course this concept is best suited to major NATO armaments producers like the FRG, US, UK, and France who among them develop and produce 75 percent to 85 percent of the Alliance's equipment. They and Italy have extensive R&D establishments, whereas smaller Allies do not except for specialized purposes.

Thus it is most encouraging that the armaments directors of the US, UK, FRG and France recently agreed on principles of collaboration on such weapons packages. They also agreed, and secured the approval of their superiors, to consider initially how to divide up development responsibility for next generation families of

(1) Anti-Tank Guided Missiles (ATGMs); (2) anti-ship missiles; (3) air-to-air missiles; and (4) air-to-surface munitions. Of course other nations can be invited to participate as appropriate.

As yet this is only a beginning, albeit a promising one. We will report to you further on the concept as it evolves. Note that, if successful, this approach would (1) reduce duplicatory development efforts hence save costs; (2) provide greater S/I; (3) promote wider use of the latest technology; and (4) provide more equitable traffic on the two-way street.

Importance of Technology Transfer.

Let me add a few words about the importance of sharing advanced military technology with our Allies for the purpose of the common defense. For the most part this is technology bought and paid for by the US taxpayer in the interest of our own national security. Moreover, we seek this security collectively with our Allies, through a system of Alliances like NATO. Collective defense is a key feature of our own security posture.

But to the extent that their forces are inadequately equipped, the burden on us is that much heavier--or the risk to us that much greater. This is particularly the case where the US and its Allies face a high technology threat like that from the Soviet dominated Warsaw Pact--and where it is particularly important that quantitatively inferior NATO forces preserve a real qualitative edge.

In brief, there is an overwhelming military rationale for sharing US military technology with our Allies. It is highly dangerous to have an unbalanced NATO force under SACEUR and SACLANT, where only the Americans and perhaps a few others have the latest equipment, while other Allies playing crucial defensive roles do not. It would be folly in the NATO Center Region, for example, if only two of the eight active corps and only US tactical air had the newest equipment in key respects such as electronic warfare. The enemy commander would only have to concentrate on the weaker Allies to put our own troops at risk. Unfortunately, this is the situation all too often today.

For this basic reason, the Department of Defense favors greater sharing of military technology in our own security interest. It is a fact of life that major Allies will produce a large part of their own equipment--just as

we do. Our failure to make available technological improvements relevant to their needs is not only wasteful; it can be militarily foolish.

Of course we will do so with all due regard to any security risk involved. There are cases where a rational calculation shows that the risks could exceed the potential gains. In some of these cases we would prefer to provide finished components to minimize the risks. But in all too many cases we have found Services arbitrarily using security reasons to deny technology transfer without adequately considering the potential gains. A balanced appraisal is essential in our own security interest.

Lastly, technology transfer is not a one-way street. Frequently our Allies develop new systems or components which we need as well. One could list literally dozens of European innovations which we have adopted since World War II. For example, many innovations in aircraft carriers were originally British. Therefore everyone in the Alliance, ourselves included, will benefit from freer exchange of defense technology. But let me assure you that we are not giving a carte blanche to anyone. All technology transfer will be given careful case-by-case review.

Need for added legislation.

Finally, let me urge you support the modest new legislation needed if we are to make NATO Rationalization/Standardization/Interoperability as effective as we should.

HR 11607 would facilitate US ability to interchange logistic support with our NATO allies during peacetime and in a crisis. It would enable us to both obtain and furnish such support in accordance with standard arrangements to be negotiated with our Allies and NATO agencies. At the present time, we cannot provide them with support without going through elaborate foreign military sales procedures. By the same token, as you have heard from previous witnesses, we are often unable to purchase routine support from our Allies on the basis of forms and procedures which they routinely use among one another, because these do not incorporate or reflect all of the contractual clauses and practices required by our law. But these governments do not consider it appropriate to make changes to suit the unique requirements of US laws. Moreover, several of these clauses are regarded as simply inappropriate to dealings between sovereign states.

These have become points of issue between us, to the point that we could be set back in our efforts to rationalize our support and logistics functions and save money

to boot. We are unable to obtain services under the umbrella of agreements set out in accordance with NATO STANAGs in a way which would be to our benefit and which would greatly facilitate operational needs both in peacetime and in war. In addition we need to have clear authority to interchange parts for common equipments on a short term loan basis, to support cross-servicing. We have a need for this legislation this year if that is possible. It specifically would not apply to procurement of major equipment. It is not an attempt to evade procurement regulations to promote a two-way street.

On the other hand, HR 12837 is aimed at resolving difficulties that we have encountered in giving effect to the requirements of our procurement laws in agreements with other governments for weapon system development and acquisition cooperation. This bill would provide needed authority for the Secretary of Defense in this area. It would enhance US ability to pursue NATO Standardization and Interoperability by providing the needed authority, under strict controls, to waive the requirements of procurement-related statutes, such as those specifying mandatory contract clauses, when determined necessary to implement other statutory policies favoring NATO standardization and interoperability and cooperation with other governments

in the development and acquisition of defense equipment. DoD would use this authority only on a selective basis and only after giving careful consideration to its need as developed during negotiating sessions.

Our lack of authority to frame agreements with sovereign governments and international organizations in a manner different from that applicable when we are dealing with a private contractor has impeded the development of such agreements to facilitate cooperation with other governments in developing and producing defense materials. For example, we have run into obstacles in attempting to participate in projects being developed under NATO projects groups pursuing cooperative development programs. Since we see these as a highly feasible method of attaining R/S/I, relief in this area is badly needed.

Specialty Metals Problem.

On the other hand, reimposition of the pernicious restriction on specialty metals procurement overseas would be a dire blow. Last year we obtained legislative authority to acquire foreign specialty metals when purchases of equipment involved in offset agreements or for NATO R/S/I were involved. The amounts involved under the use of such authority would be very small. We estimate that overall the whole Department of Defense

consumes no more than 4 percent of the total US specialty metals output. The fraction of this small percentage which would be foregone because of foreign defense sales to the US would be much smaller yet, even if the two-way street were perfectly equal, which is highly unlikely.

But unfortunately specialty metals in however tiny amounts are contained in nearly all defense equipment. Therefore, if we cannot procure foreign defense products because they contain peanut amounts of specialty metals, it would have highly adverse impact on our efforts to improve NATO's readiness through R/S/I. It could also cause loss of US exports as European nations turn away from US equipment, because of anger at such restrictions on their sales to us.

Concluding Remarks

As the Committee can readily see from all the testimony it is receiving, the area of its interest is terribly broad, complex, and in many cases ill-defined as yet. But I hope that our extensive testimony, plus the documents we have provided, convince you that NATO readiness and R/S/I are indispensable to credible collective defense at politically affordable cost.

These are by no means the only NATO deficiencies urgently needing corrective action, but they are certainly among the most important ones. We in DoD give high

priority to correcting them.

But we can only do so effectively in full partnership with the Congress as well as our Allies. If you go in the opposite direction, by denying funding or imposing new restrictions on Alliance collaboration, it will undermine the new cooperative thrust in NATO so strongly endorsed two weeks ago at the Summit. Thus we in DoD are eager to explain our purposes, consult on the best methods, and seek your full support. If we both keep our eyes firmly on the overall gain to NATO defense, and not let ourselves be distracted by lesser issues then we can both spend the taxpayers dollar more effectively in support of our most important overseas security commitment--one made in our own self-defense.

Thank you.

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THE LONG-TERM DEFENCE PROGRAMME - A SUMMARYINTRODUCTION

At the meeting of Heads of State and Government held in Washington on 30th and 31st May, the leaders of States participating in the integrated defence structure of the Alliance gave their endorsement to a wide range of measures as an action programme designed to help adapt the defence posture of the Alliance to the challenges of the 1980s(1)

2. This Long-Term Defence Programme has been developed, in response to directives given at the Summit Meeting held in London in May 1977, as a means of strengthening the ongoing NATO force planning and national programmes in the face of the challenge to Alliance security posed by the continuing momentum of the Warsaw Pact military build-up. The programme marks a significant milestone for NATO through its projection of Alliance defence planning into a longer term framework and its emphasis on co-operative efforts to strengthen the defences of the Alliance.

THE POLITICAL AND MILITARY BACKGROUND

3. The enhancement of NATO's security must be assured not only by strengthening the Alliance's deterrent and defence posture but also by continued pursuit of détente and, as a key part of that process, equitable and meaningful arms control and disarmament agreements. However trends in the military balance which in the conventional area are moving strongly to NATO's disadvantage, could, if left unchecked, undermine deterrence and stability. NATO is determined to meet this challenge by maintaining a credible deterrent and defence posture. NATO's capabilities will continue to be designed to support the concept of forward defence based on adequate conventional, theatre nuclear and strategic nuclear forces through the 1980s.

4. NATO also recognises the challenge to its collective defence planning arising from the fact that members of the Alliance are sovereign states. Therefore increased Alliance-wide co-ordination of national planning is required to strengthen NATO's defence capabilities by achieving a greater degree of co-operation and rationalization.

(1) In this connection, Turkey pointed out the importance to her participation of sufficient support from her Allies as well as of the complete removal of existing restrictions on the procurement of defence equipment.

THE PROGRAMME

5. The Long-Term Defence Programme is designed to meet these challenges. It provides for force improvements in certain selected areas and for a far greater degree of Alliance co-operation, leading to an increase in overall defensive capability from the national resources already made available or planned for the Alliance. Further improvements are to be made to the readiness and combat capabilities of NATO's military forces and in the capability to reinforce those forces. The programme recommends a series of detailed actions to improve NATO capabilities in certain priority areas: readiness; reinforcement; reserve mobilization; maritime posture; air defence; communications, command and control; electronic warfare; logistics; rationalization and theatre nuclear forces. In all these areas particular emphasis will be placed on co-operation between member countries.

THE ACTION AREAS

Readiness

6. The ability of Warsaw Pact forces to attack with less preparation than in the past challenges NATO forces to be ready to respond rapidly with the maximum possible combat capability. NATO forces thus require improvements to a wide range of defence capabilities, especially anti-armour units, modern air-to-surface weapons and defence against chemical warfare. In-place forces must be ready within the minimum warning time. Arrangements for maximum support from the civil sector are essential. Programmes include increases in the national holdings of tanks, anti-armour weapons and missiles and armed helicopters. It has also been agreed to pursue co-operative or co-ordinated development of the next-generation anti-armour weapons. A programme for substantially increasing national holdings of modern air-to-surface weapons will also be introduced, along with the pursuit of a common family of these types of weapons. Protective equipment against chemical warfare will be provided to meet NATO standards. The ability of combat forces to upload ammunition at short notice will be increased. In addition, a number of nations have agreed to increase the degree of commitment of their forces to NATO, which will enhance readiness in time of crisis. Multilateral discussions to shorten the reaction time of the 1st Netherlands Corps are continuing.

Reinforcement

7. The imbalance of conventional forces in Europe is such that, in periods of rising tension or crisis, deterrence could be put at risk without a capability for rapid and effective reinforcement of Allied Command Europe as a whole. Improvements are now necessary to enhance the Alliance capabilities for rapid reinforcement. This involves the commitment of civil air, sea, land and national infrastructure resources to the reinforcement task and the establishment of effective arrangements to co-ordinate the flow of reinforcements. An essential element is the use of existing European facilities, with improvements where necessary, to receive and move forward external reinforcements with

minimum delay. In addition measures will be taken to accelerate the movement of significant fighting units to the forward areas in the critical early phase. A major feature is the prepositioning by the United States of the heavy equipment for three additional US divisions in the Central Region by 1982, recognising the need for European Allies to provide the necessary support and other facilities. For some Allies modifications to civil aircraft are proposed to carry equipment which cannot be prepositioned. The amphibious lift for the United Kingdom/Netherlands Marine Force is to be improved.

Reserve Mobilization

8. Since reservists comprise a significant proportion of NATO's total ground forces, timely deployment of reserve units is critical, especially in Allied Command Europe. It is therefore necessary to take additional measures to ensure that reservists and reserve formations are properly equipped, trained and capable of being rapidly deployed to locations where they are required. Programmes are designed to bring national reserve forces up to NATO standards and to seek to upgrade and improve the operational readiness of certain reserve units. In addition a number of European countries will consider providing additional reserve brigades over the longer term. This would increase the effective use of individual reservists and make available additional combat units for initial reinforcement.

Maritime Posture

9. A number of maritime programmes have been agreed upon to provide for greatly increased capabilities in maritime command, control and communications and for air defence of naval units. The programmes also include measures to achieve improved anti-submarine capabilities, better anti-missile surface defence and greater mine warfare capabilities. Co-operative or co-ordinated development of key weapon systems will be pursued. It has been recognised that the most serious deficiency lies in shortages in the number of ships, submarines and aircraft and that specific remedies for these shortfalls should be sought under established NATO planning procedures.

Air Defence

10. Agreement has been reached on a basic Alliance-wide co-operative programme to improve air defence capabilities recognising the need for subsequent detailed planning and refinement. It includes measures designed to improve the identification of hostile aircraft and to enhance the control of NATO's own combat aircraft. Provision is to be made for improvements to fighter aircraft, acquisition of improved surface-to-air weaponry, to provide the Alliance with a significantly enhanced capability for engaging Warsaw Pact aircraft penetrating at all levels.

Communications, Command and Control

11. A number of co-operative efforts were agreed which will make important contributions to the overall capabilities of the Alliance for communications, command and control which are essential to political consultation in times of crisis and for the political direction of forces and which will also achieve a high level of interoperability in the area of tactical communications. These include the implementation of the second phase of the NATO Integrated Communications System and co-operation and co-ordinated efforts in the fields of maritime communications, tactical trunk network, single-channel radio access, NATO/national area interconnection, strategic automatic data processing and war headquarters improvements.

Electronic Warfare

12. All NATO nations have agreed that urgent action is required to cope with this important dimension of modern conflict. Programmes provide for important improvements in NATO's capability to counter the sophisticated electronic warfare threat posed by the Warsaw Pact. They cover land, air and maritime forces, together with improvements in NATO's organization and procedures in this field, including closer co-operation in research and development.

Rationalization

13. The objective is to achieve economic savings and enhanced military efficiency through increased standardization and interoperability. Programmes include development of new procedures for systematic long-range armaments planning, new procedures for the improved formulation and utilization of Standardization Agreements, and continuation of the work being undertaken by the Conference of National Armaments Directors in the field of intellectual property rights. In the development and acquisition of the equipment recommended in the Long-Term Defence Programme, co-operative programmes will be pursued to the greatest extent possible. Nations have also endorsed the need for the transfer of technology between member countries where such transfers contribute to the furtherance of standardization/interoperability of NATO defence equipment.

Logistics

14. Policy and organizational improvements have been agreed to harmonize and co-ordinate arrangements in the rear areas and thereby improve the logistic support of combat forces. The logistics support responsibilities between NATO Commanders and member nations will be more clearly defined, and improved logistics structures provided within NATO military commands. A logistics master planning system is to be developed to provide for better planning and management of NATO logistics functions. There are also to be increased war reserve stocks and ways are being sought to improve flexibility in the use of ammunition stocks in war and to build up stocks of primary fuels with improved storage facilities.

Theatre Nuclear Modernization

15. Measures are being developed to ensure that NATO's theatre nuclear forces continue to play their essential rôle in NATO's deterrence and defence posture.

IMPLEMENTATION

16. There is to be a vigorous and sustained follow-through on the details of these recommendations. To this end Heads of State and Government have pledged their full support for the intensive civil and military planning and development efforts needed at national and NATO level. Arrangements will be made for ensuring an effective follow-through for the measures approved under the Long-Term Defence Programme, including a study on strengthening of international machinery. There will be further action on related low cost/no cost recommendations and provision for periodic monitoring and review of progress.

NATO Standardization/Interoperability/Rationalization

Chairman Daniel. What is the present status of French participation in coordinating more efficient NATO European arms production?

Please address the views of the French military and industrial communities.

Ambassador Komer. The French are one of the strongest supporters of interoperability in NATO. They participate in both the Independent European Program Group (IEPG) and in the Conference of National Armament Directors (CNAD). In addition, France pursues bilateral/multilateral armament cooperation.

The French participate in a number of cooperative R&D and production programs, mostly with Germany. Examples of French cooperative efforts are Jaguar, Alpha Jet, MILAN, HOT, and ROLAND. We believe that the French military and industrial communities are favorably disposed as well. A potential problem, however, is France's interest in third country sales. France, as well as other NATO Allies, does not agree with the US arms restraint policy. Their view is that if they don't sell, others will. They believe that they will lose sales as well as influence if they don't pursue a forthcoming arms sales policy.

Chairman Daniel. In 1976 the Congress proposed and the President signed legislation declaring it the policy of the US to use standardized or at least interoperable equipment with our NATO Allies where feasible and practicable. Has any other NATO member made such a strong declaration of policy?

Ambassador Komer. Not in the manner in which we have. Their parliamentary form of government does not lead to declarations of policy by the Legislative Branch in the same manner that ours does. Nevertheless our Allies are cognizant of the need for RSI. Several Allied Ministries of Defense have made strong statements regarding the need for RSI. Furthermore, the approval of the Long Term Defense Program by NATO at both the Ministerial and Heads of State levels signifies a real commitment to RSI by all of the nations involved.

A White Paper of the Federal Republic of Germany dated 20 Jan 1976 states in part:

"The Federal Government is an active advocate of equipment collaboration as a means of promoting Alliance-wide standardization in this field; and standardization will enhance NATO's defence capability. In the event of war, military units of various countries will have to be employed in central Europe in combined operations. Standardization facilitates uniform command and control, logistic support, and training. Moreover, it will ultimately lead to a more cost-

effective use of military equipment. Where NATO-wide standardization of complete weapon systems cannot be achieved, it will have to be put into practice at least among some of the allies or cover highly important assemblies.

Standardization of components may lead to considerable savings in the field of logistics and furthermore, offer advantages where units of various allied countries are to be employed in combined operations."

In addition, the West German Armaments Director for Technology had this to say at a recent Aviation Week conference in Brussels:

"The wide ranging objectives of comprehensive standardization in the sense of equipment identity will often be confronted with the national political, military and economic interests of the various countries. Moreover, it is a long term process which promises real success only if cooperation was initiated at a period before national manufacturing programs have become fixed. Therefore, we should make a greater effort - nationally and within the Alliance - to standardize prefabricated equipments, components and spare parts and materials so as to make them at least interchangeable."

Chairman Daniel. Has the Defense Department documented the lessons learned from the Department of Navy's purchase of the Harrier aircraft? In particular, has there been documentation of the problems associated with the inadequate logistics support planning for integrating that foreign system into the U.S. inventory?

Ambassador Komer. The Chief of Naval Materiel, U.S. Navy and the Controller of the Navy, Royal Navy initiated a joint study of the difficulties encountered in past projects and ways to avoid such difficulties in the future. One of the major problems addressed was the different methods and needs for logistics support for the AV-8A and Pegasus Engine. To minimize these problems in future programs the establishment of adequate liaison organizations and information channels was found to be extremely important and essential. These findings were incorporated in the US Navy comments on the GAO Report on "Problems with Providing Integrated Logistics Support to Foreign Produced Weapons Systems."

Chairman Daniel. Standardized equipment alone cannot offer the maximum improvement to NATO's combat effectiveness. To achieve maximum benefit there must be complete tactical compatibility of forces and a total integration of separate national logistics systems. In your opinion, is it feasible to achieve the maximum benefits of standardized equipment? How can this be accomplished within the confines of a political alliance?

Ambassador Komer. It would be very difficult indeed in an alliance of sovereign states. But we are not seeking the theoretical maximum benefits of standardization derived from complete tactical compatibility of forces and total integration of separate national logistics systems, because we believe that it is neither militarily essential nor politically feasible. It is not necessarily the case that to achieve maximum benefit for the Alliance standardization must be total. There are certain instances where some diversity is a definite advantage and complicates the enemy's problems. Moreover, each measure to attain a greater degree of SI need not include all NATO countries, nor need it be predicated upon complete standardization of all related activities, in order to begin to achieve important improvements to NATO capabilities.

The objective of the Department of Defense is to increase NATO effectiveness. The need for standardization or interoperability in order to carry out these actions must be analyzed in the context of the problem to be solved and that degree of S/I pursued which will provide the most effective, efficient and practicable means of solution.

One of the benefits of a situation in which components are interchangeable is that Allies can supply each other. This is especially true where components or even whole systems are standard. The ability to provide this common logistics support is very important in an operational sense, particularly for the US which must rely on a long supply line and whose forces will likely be committed in several European theaters at once. As we have structured our forces in Europe to have maximum fighting capability in Europe and reduced logistics tail, the ability to rely for significant logistics support on our Allies would be a great benefit to the US. The same would be true of the Allies, particularly where they are not operating in their own sectors.

However, these benefits can be achieved to a great degree without total integration of 15 separate national logistics systems which would be a herculean task. The Long Term Defense Program identifies more limited areas in which logistics can nonetheless be improved from an overall NATO standpoint.

It may be most practical to achieve integrated logistics support for high volume or high tonnage items. Indeed, both between and within our own military services high turnover items generally are handled on a different basis than are slow moving or one of a kind items. Similarly, for NATO we have to fit the type of management we apply to the problem at hand.

In general, our approach toward RSI is pragmatic--to look at each problem and determine what solution is appropriate. This is the case with our proposed approach to equipment.

Chairman Daniel. Do you think that the adverse effects on balance of payments and domestic employment of direct US purchases of European arms can be offset by European purchases of US hardware?

Ambassador Komer. They already are. As has been pointed out by Administration witnesses, the balance of hardware defense trade is heavily in favor of the United States. US purchases of European hardware would have to increase greatly before we began approaching what the Europeans buy from us. Of course, the relative ratio of equipment trade varies substantially from country to country.

Chairman Daniel. Are European discussions of standardization now being handled by the Independent European Program Group (IEPG), and are armament experts in Europe concentrating on interoperability of NATO forces pending further progress by the IEPG on standardization?

Ambassador Komer. Many potential cooperative armament projects are being discussed either in the IEPG, or Eurogroup, or the Conference of National Armaments Directors (CNAD), or between individual nations. Standardization and interoperability on particular programs (e.g. tactical area communications) are being pursued bilaterally and multilaterally and, wherever feasible, on a NATO-wide basis. European armaments experts address both standardization and interoperability at the same time as alternatives. There is a continuum between the two.

June 15, 1978

**WRITTEN STATEMENT OF MAJ. GEN. RICHARD C.
BOWMAN**

Mr. Chairman, Members of the Subcommittee, I greatly appreciate your invitation to testify today on NATO. I will briefly review the state of alliance defense and the need for NATO standardization, interoperability and readiness initiatives if we are to continue to maintain deterrence. The Long Term Defense Program which NATO Allies approved last month, should produce the necessary improvements. However, because of the dimensions of the increased Warsaw Pact threat I prefer to consider the results of the past year's work on the LTDP as an impressive beginning, rather than a conclusion or even an interim solution. It will take years of hard work to implement the Long Term Defense Program and the arms cooperation measures it includes. Certainly, in the United States, it will take close teamwork between Congress and the Executive. Your report--coming soon after the Summit--will provide one of the first important indications to our NATO Allies of Congressional willingness to build further cooperation.

The North Atlantic Alliance has given us 29 years of peace in Europe, which in turn has meant 29 years without the terrible scourge of world war. It is a unique occurrence in history that a large and complex alliance of sovereign nations could be so successful in the face of the political and economic interests that usually tear alliances apart. Our populations are now composed of a majority of people who never experienced world war and therefore have no personal appreciation of the value of NATO. Only the public understanding of Soviet military capabilities and continuing improvements -- a degree of public knowledge of peacetime military balances unheard of in the past -- has permitted Alliance leaders to make the tough national decisions necessary to sustain our common defense.

The rough calculation of what the Alliance means is easy to make. The Warsaw Pact forces maintain armed forces of over 5 million men including over 4 million Soviets. On our side, the U.S. maintains 2 million and our NATO Allies provide nearly 3 million. Without our

alliance, both Europe and the United States would have to greatly increase their defense efforts to preserve their present degree of freedom in the world.

Without our alliance it takes little imagination to understand what would happen. I believe that both Europeans and Americans would strive to make the extra effort needed, but not being centralized in their governmental control nor militaristic in their outlook, they would fail. Europe would not be able to generate the necessary strategic and tactical nuclear capabilities, nor the nearly doubling in conventional strength required. In a few short years it would become apparent to all that the balance in Europe was so heavily in favor of the Soviets that a rapid Soviet movement to the Atlantic could happen on many axes without even much of a battle. Indeed, the 1976 Report by Senators Nunn and Bartlett highlighted the possibility of such a disaster even with a sound North Atlantic Alliance. And if such a result became a foregone conclusion, political decay stemming from the hopelessness of the situation would surely result, producing the danger of a general loss of freedom in Western Europe.

The United States, with its 2 million-man force would then face an accelerated worldwide advance by the Soviets, buttressed by domination over Western European technological capabilities. That would not be a very comfortable world for us to live in. In fact, cut off from supplies of raw materials, it is questionable that we could mount the level of effort needed to preserve our freedom even within our own boundaries. Indeed, our society would take on the attributes of an armed camp in which not much freedom would remain.

The New Basis for Deterrence

Until the early 1970's, Alliance political leaders or at least Alliance publics did not have to worry much about the state of NATO defenses. Military commanders discussed problems of surprise attack and lack of standardization in armaments, but governments viewed such concerns as myopic. Deterrence rested on the strategic nuclear threat to Moscow and Leningrad and perhaps

also the tactical nuclear threat to Soviet massed armored divisions and bases. Allied conventional forces were only needed to establish the fact that an attack had been launched.

Only in the 1970's have Alliance governments realized that nuclear equivalence means that the alliance must also be able to fight conventionally to preserve deterrence. If the Soviets could defeat Alliance forces by rapid, deep penetrations without massive concentrations of forces there might not be any tactical nuclear targets that would affect the outcome of the war. In fact, Alliance forces in Europe might succumb without being able to put up much of a fight, perhaps using nuclear weapons without much damage to anyone but themselves and local populations.

For deterrence to continue the Soviets must be convinced that the Alliance could block -- if not defeat -- their advance with conventional forces, making necessary massive Soviet concentrations necessary which would be very vulnerable to nuclear weapons, insuring local defeat at best and eventual destruction of the Soviet Union at worst..

The Current State of Alliance Defenses

Comparing Alliance forces in West Germany and the Benelux countries with Warsaw Pact forces in East Germany, Poland and Czechoslovakia, we find that in the past 10 years the ratio of tanks in active units has gone from a ratio of 2 to 1 to 2.7 to 1 in favor of the Soviets. Moreover, the significance of this Soviet gain has been even more significant in quality than in quantity. Thousands of new model Soviet tanks are being introduced with greater mobility, guns of over 120 mm in size, and new armor configurations. It can be argued that of Alliance tanks in the field today only the British Chieftain tank approaches the Soviet T-64 and T-72 in capabilities. There are some 7000 tanks on the Alliance side in active units in the Central region. In addition to some 600 UK Chieftains, the FRG has about 3000 tanks, mostly Leopard I's; the Belgians have 400, mostly Leo I's; and the Dutch have 700, over half of which are Leo I's. The French have about 300 AMX 30s in the FRG and the US has some 1500

M-60s, plus another 500 prepositioned for reinforcement units. These Alliance tanks were all superior to previous Soviet tanks but do not measure up to the new T64s and T72s.

The Warsaw Pact has increased its armored personnel carriers by 50% moving from near parity to a lead of some 20% in The Central Region. And the Soviet BMP personnel carrier with an automatic rapid fire cannon and built-in anti-tank launcher is far superior to anything in the Alliance, with only the new German MARDER even in the same generation.

The Pact has also increased its artillery by 50% moving their lead from about 1.5 to 1 to over 2 to 1. The new Soviet artillery is self-propelled and has a longer range than most Alliance artillery. The new FRG/UK/Italian 155 mm gun will approach it in range as will the US new US gun in development, but the latter is still further in the future. The Warsaw Pact has also made major improvements and increases in multiple rocket launchers with some 1000 of these systems, while in the Alliance only the FRG has developed and deployed these weapons.

Even in guided anti-tank weapons the Soviets have the lead in quantity though the US TOW and DRAGON and FRG/French MILAN and HOT are superior in quality. The French led the way in initial development of these wire guided systems.

In the area of anti-aircraft guns and missiles in combat divisions, the Soviets are ahead in both numbers and quality with the ZSU-23/4 radar directed gun and the SA4, SA6, SA8, and SA9. The FRG and the Netherlands are deploying the GEPARD gun system which is the only Alliance gun system in the same league. The French/FRG ROLAND will soon provide a comparable missile system, but we are clearly far behind in these capabilities.

If we have any superiority left it is in tactical aircraft, but that, too, is decreasing with new longer ranged, high performance Soviet aircraft like Fitter, Fencer, Foxbat, and new model Floggers and Fishbeds. New Alliance aircraft like the F-15, F-16, A-10, MRCA, JAGUAR and Alpha Jet will help, but the qualitative balance will still be much more nearly equal than in the past and the quantitative

balance of in-place aircraft in Central Europe favor the Warsaw Pact by 2 to 1.

In short, in the critical Central Region the Alliance is now at a disadvantage of some 2 to 1 in ground force capabilities and little better than equal in air capability.

The Soviets have also improved their quality and increased their quantity in their naval forces during the last 15 years. The original strategy to protect the "homeland" has been expanded to a more active role in a sea control mission. This change has caused some concerns among the US Naval strategists when viewed in connection with the increase in Soviet naval assets.

Individual Allied Efforts

In the face of the Soviet build-up, all Allies have agreed to seek a 3% real increase in their defense efforts. The particular contribution of each Ally depends a great deal on geographic location as well as other vital concerns and economic and societal conditions. For example, the US devotes 5.4% of its GDP to defense compared to an average of 3.6% for NATO Europe. But an important part of US defense spending supports worldwide US interests rather than the Alliance common defense. Also, the US defense budget is considerably increased to support the all volunteer force, while most other Allies continue to use conscription.

Looking at a specific Allied example, Norway has a population of only some 4 million people -- $\frac{1}{50}$ the size of the US population -- and this population is spread along 1500 miles of territory, stretching into the Arctic Circle. Thus while Norwegian per capita income approaches that of the US, the cost of national services and infrastructure is proportionally much higher. Moreover, Norway maintains highly important reserve units that are not fully reflected in its defense budget. All physically able Norwegian men are required to serve in the armed forces. Those in the Army serve for one year active duty and then in the reserves until they are 40 to 45 years old. The reserves include 150,000 men in fully armed units. After that they must serve in the Home Guard until they are 50. Actually, the average age in the 80,000

man Home Guard is only about 33, since most Air Force and Navy personnel go into the Home Guard rather than the reserve. Home Guard members keep their uniforms and individual weapons at home and participate in alerts and exercises.

With respect to active force capabilities, Norway has the equivalent of two combat brigades in its active army and some 125 fighter aircraft. Thus in comparison with the US, on the basis of the 1 to 50 ratio in population and GDP, Norway has over twice the relative number of active brigades and fighter aircraft.

The Norwegian Navy has only 5 frigates, 15 small submarines and 40 torpedo and missile boats, but again that appears reasonable in proportion to the size of the country and its coastal defense mission. Norwegian weapons development efforts are on a small scale but well focussed. The Penguin missile used on the patrol boats is nearly automatic in operation with a range of 30 km and terminal guidance. The R&D program for that missile was highly efficient, costing less than \$40 m.

All in all, counting active forces, reserves, and home guard, Norway maintains a level of defense personnel that, in proportion to population and GDP, would amount to 14 million men in the United States.

A second Allied example is the defense program of the Federal Republic of Germany -- our largest Ally which is a little over one-fourth the size of the US in terms of population and GDP. The FRG has a defense budget amounting to 3.5% of GDP or 4.3% including expenses to maintain the viability of West Berlin. However, like Norway, all FRG defense efforts are not fully reflected in its budget. For example, the FRG is in the front line position and must provide the land for most center region army and air forces. In addition, it maintains a territorial force of almost 400,000 men, 1/3 of which is active component. This includes several combat brigades plus a large number of units specializing in logistics support and rear area security. For example, FRG civilian truck drivers would put on their territorial army uniforms and use their trucks for delivery of supplies to US units in the event of conflict.

In its active forces the FRG maintains 12 combat divisions which compares with the US total of 16 (the proportional US equivalent would be 12). FRG divisions are fairly comparable in manpower and armament.

	<u>Mechanized Division</u>	
	<u>FRG</u>	<u>US</u>
Manpower	14,500	16,300
Tanks	250	270
Armored Personnel Carriers	280	322
Medium Artillery	54	54
Heavy Artillery	12	18

The German Air Force has about 500 active duty fighters and attack aircraft, compared to some 1700 in the US Air Force. And the FRG Navy maintains a force of 17 destroyers, 24 submarines, 40 patrol boats and 57 minesweepers, with emphasis on Baltic Sea defense.

The Long Term Defense Program as the Key to Alliance Rationalization

As illustrated by the Norwegian and German examples, our Allies are indeed pulling their weight in the Alliance, but even if we all continue to perform our respective roles and, in addition, manage to fulfill the NATO goal of a 3% annual real increase in defense budgets, we will be unable to maintain adequate deterrence unless we also improve the level of harmonization and standardization in the Alliance. The Soviets hold a serious advantage today, are themselves increasing their effort by over 3% annually in real terms, and insure cooperation and commonality in their forces by fiat. Our fifteen Alliance countries must not only do their individual parts, but must also harmonize their efforts. We have the advantage of the choice of terrain which comes with the defense, but to make use of that advantage we must be more quick to reinforce each other in threatened areas, with the capability for full cooperation in operations and without having to depend on separate, incompatible logistics tails.

The Long Term Defense Program, approved at the NATO summit meeting in Washington in May 1978, provides a 10-15 year blue print

for harmonization of Alliance defenses. If we are able to provide the organizational mechanisms and public support needed to carry out that program we will insure effective interoperable defense equipment, developed and procured at somewhat lower costs through rationalization of the armaments process, and therefore affordable in the larger quantities needed to maintain deterrence.

The Long Term Defense Program calls for development of an Alliance system for weapons harmonization which will permit us to start collaboration in armaments early in the cycle of development, before national views become established and national programs reach an inflexible stage. The LTDP also calls for packages or families of weapons in various mission areas, which will mean that developments can be more logically structured in such areas as air-to-ground munitions, air-to-air missiles, and anti-tank weapons. Also, by considering such packages in their entirety we should be able to structure national contributions to development in a more efficient manner.

In the overall execution of the LTDP, the Alliance will designate appropriate authorities to coordinate and report on each of the nine program areas. All Allies agree on the importance of this follow-up work if the LTDP is to fulfill its promise in strengthening deterrence. In the US Department of Defense we will continue to give high priority to the LTDP work in each of our functional areas of responsibility in both OSD and the Services, with the DoD Rationalization/Standardization Steering Group providing a mechanism for overall coordination.

US Policies to Achieve Standardization

Congress has made clear its bipartisan support for increased NATO standardization and interoperability. That support in turn agrees with the policy direction of both Presidents Carter and Ford and of the past three Secretaries of Defense. Our national policy of seeking improved NATO standardization is not the whim of one or a handful of individuals; since 1976, it has been a matter of law. Section 802 of Public Law 94-361 states:

It is the policy of the United States that equipment for use of personnel of the Armed Forces of the United States stationed in Europe under the terms of the North Atlantic Treaty should be standardized or at least interoperable with equipment of other members of the North Atlantic Treaty Organization.

The law specifically directs the Secretary of Defense to initiate and carry out procurement procedures in pursuit of that policy, and authorizes him to waive "Buy American" price differentials in procuring equipment manufactured outside the United States.

In March 1977 the Defense Department published a comprehensive directive implementing departmental policy on NATO standardization/interoperability. Since then each of the Military Departments has moved forward with its own related implementing instructions.

All DoD components now include standardization and interoperability goals as fundamental considerations in development and procurement for both major and minor items. As a matter of policy the DoD:

- Seeks NATO agreement on needs, requirements, schedules, doctrine.
- Considers Allies' systems, system derivatives, sub-systems, and components.
- Employs mutually beneficial licensing agreements.
- Seeks configuration control for new weapons.
- Supports equitable and competitively determined defense trade within NATO.
- Minimizes possible impact on NATO standardization of worldwide orientation of US forces.

DoD also is pursuing a mutually cooperative policy regarding exchange of information with NATO partners. We support transfer of technology to nations where such will strengthen collective security, contribute to standardization/interoperability, and maximize allied R&D investments.

In conjunction with the State Department, DoD uses bilateral and multilateral forums to advance Alliance armament cooperation. Part of this effort is our continuing dialogue with the Independent European Program Group, where we are seeking measures to improve defense industry cooperation between Europe and North America and to

increase opportunities for cooperation in the research, development, and production of defense equipment.

The Conference of National Armaments Directors (CNAD) is our major multilateral forum, established under the authority of the North Atlantic Council in 1966 as a means of promoting armaments cooperation. We are participating in a study group aimed at increasing the effectiveness of this organization. This study group on a Periodic Armaments Planning System is presently considering revisions which will encourage nations and the NATO military authorities to submit military equipment needs to the Conference and to focus the activities of the Conference on establishing early cooperative programs to meet these needs. A second aspect of this plan is to develop a report and analysis process which will allow high level NATO and national review of weapons programs with significant impact on NATO's military effectiveness. We expect to have the framework for these revisions approved by the North Atlantic Council this December, with implementation beginning early next year.

Finally we have developed bilateral memoranda of understanding regarding arms cooperation with a number of NATO allies. Our first effort in this direction began with Canada in 1941, pre-dating NATO. The next bilateral defense trade arrangement was negotiated with the UK in 1975. Adopting essentially the same goals as our agreement with Canada and reflecting DoD's renewed determination to achieve greater equipment commonality and military effectiveness in NATO. A third agreement was signed with Norway in May of this year. These agreements, in brief, allow the industries of each country to bid competitively for defense contracts without the application of "buy national" duty or tariff restriction. We see advantages in extending this sort of arrangement to other NATO countries, and intend to keep open the option for a multilateral or NATO-wide agreement to remove or decrease "buy national" barriers to defense trade.

Production Alternatives. NATO derives strength from great industrial capacity on both sides of the Atlantic--capacity for

research and development as well as production. Once Alliance members select a particular weapon system, production from a single source would usually be most economical. However, if the entire Alliance is to standardize on a new weapon, production using industrial capacity on both sides of the Atlantic may be a preferred choice for reasons of more rapid deployment and vulnerability to enemy action. In addition, political support for procurement of high technology, high cost modernization will be much stronger if each Ally is able to contribute an appropriate increment to the production effort. Such is the case with the F-16 being built by the US, Norway, Denmark, Belgium, and the Netherlands. And of course there remains the option for producing an entire system under license, as the US is doing with the French-German ROLAND air defense missile. Either option is likely to be more economical than starting anew; either will increase standardization or interoperability.

F-16. The F-16 program illustrates the flexibility nations can achieve through coproduction if they are determined. The US signed a Memorandum of Understanding with the European Participating Governments of Belgium, Denmark, Netherlands and Norway in 1975, committing these European Allies to purchase 348 F-16s and the US to coproduction of F-16 components and assembly of aircraft in Europe.

The US agreed that, assuming reasonably competitive prices were obtained, the prime contractors would place in the European industries production work valued at 10 percent of USAF, 40 percent of EPG and 15 percent of third country airframe and engine procurement. For a program of 650 USAF and 348 European aircraft, the US committed itself to a minimum offset level of 58 percent of the procurement value of the 348 aircraft purchase. Higher offset levels would be achieved as a result of third country sales. At this time the majority of European contracts necessary to support the F-16 program have been signed. More important the prospects are good for at least five NATO members to deploy a standard, high performance, low-cost, multimission fighter.

ROLAND. Adoption of the ROLAND French/German anti-aircraft missile design saved us about a half billion dollars in R&D costs

and years in development time that would have been necessary to field a new US system. The total US RDT&E for production of ROLAND is \$265 million, with an estimated operational capability of 1983. The Army estimates a similar, original, US-developed, one-vehicle system would have involved RDT&E of about \$800 million with field deployment two or three years later than ROLAND.

When US ROLAND is deployed to Europe, the missile will be completely interoperable with French and German missiles. That is, US ROLAND will be able to fire European missiles and the French/German fire units will be able to launch US missiles. In addition, 90 percent or some 630 items of US ROLAND's field replaceable sub-assemblies will be interchangeable with the European ROLAND.

Families of Weapons

When several sovereign allies seek to fill a new military need the opportunities are great for wasteful development projects. This is especially true if their equipment replacement cycles are out of phase and if they fail to discuss their needs with each other very early. Once an Ally decides unilaterally on a technical solution to a need, the chances of collaboration diminish. To cut down on duplicative development and simultaneously to improve standardization and interoperability, we are discussing with NATO Allies a concept whereby a designated country might take the development lead on appropriate weapons in a mission-related group or "family" of weapons. Examples which we are considering include air-to-ground munitions, air-to-air missiles, anti-tank guided weapons, and anti-surface ship missiles.

The result could be common munitions for the participating countries, with the advantage that the users would train in peacetime on the same weapons several allies would use in case of combat. For example, it's not enough to be able to re-arm an aircraft at an Ally's base using ordnance that fits the plane, but with which the aircrew has not trained. We would expect great flexibility, with substantial transatlantic industrial teaming. However, the decision to go to offshore procurement, licensed production at home, or coproduction for a given system would be a national decision.

Political Value of Sharing Participation in Weapons Programs

The long term strength and deterrent utility of NATO rest on the political support and will of the members. NATO members are increasing their real defense expenditures and this year have agreed to implement a far-reaching Long Term Defense Program. Allied political support is strong, but to sustain that support we must ensure that each Ally has an opportunity to participate to the extent of its ability in weapons R&D and production.

In part the matter is one of pride, and much of the European design excellence warrants considerable pride. In part the matter is economic, not always in the sense of getting the best weapon for the least cost, but sometimes in terms of getting an adequate weapon with the advantage of increased domestic employment. This latter objective is inseparable from political support. In sum, direct involvement in design and production is now far more important to our Allies than it was four or five years ago. It is an involvement we should encourage if we hope to maintain a strong Alliance.

STATEMENT ON
THE CRITICAL TECHNOLOGY APPROACH IN
THE CONTROL OF EXPORTS OF U.S. TECHNOLOGY

BY

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BEFORE THE
SUBCOMMITTEE OF INTERNATIONAL ECONOMIC POLICY AND TRADE
OF THE
COMMITTEE ON FOREIGN AFFAIRS
UNITED STATES HOUSE OF REPRESENTATIVES

22 MARCH 1979

Mr. Chairman and Members of the Committee:

I am pleased to respond today to your invitation to discuss the concept of the Critical Technology Approach as it pertains to export control and the role that it is playing in the Department of Defense's formulation of improved procedures for carrying out its responsibilities in the export of U.S. technology. I am accompanied by Colonel John Hager, USAF, who is the Acting Director for Technology Export in my office.

After some brief observations on DoD's policy regarding the control of the export of U.S. technology, I will:

Describe the genesis of what has become known as the Critical Technology Approach to the control of exports of U.S. technology.

- . Discuss some of the actions taken by DoD in the past few years to provide for more effective controls on the export of technology with significant military value.
- . Discuss the present status of our work in developing the Critical Technology Approach to controlling the export of U.S. technology, and
- . Provide a prognosis of the next steps in the implementation of the Critical Technology Approach which will highlight some of the relevant issues.

My statement provides answers to the nine questions you posed in your letter to me of March 13, 1979.

I. OBSERVATIONS ON DOD'S POLICY TOWARD EXPORT CONTROLS

DoD strongly supports the currently stated Administration policy regarding exports which emphasizes the importance to the national interest of having both the private sector and the Federal government place a high priority on trade which strengthens the domestic economy. We know from experience the necessity of encouraging trade to further the sound growth and stability of our domestic economy. Indeed, our national security is dependent upon the strong and diversified industrial base that has been built-up over the years. It is the most powerful industrial base in the world: it must remain so since it is the foundation for our national security as well as our national well-being.

At the same time we would point out that although the Export Administration Act of 1969 has been amended in a number of respects, there has been

no retreat from its statements highlighting Congress's interests in using export controls "to the extent necessary to exercise the necessary vigilance over exports from the standpoint of their significance to the national security of the United States." In this Act as amended, Congress specifically stated its finding that "the defense posture of the United States may be seriously compromised if the Nation's goods and technology are exported to a controlled country (country to which exports are restricted for national security purposes) without an adequate and knowledgeable assessment being made to determine whether the export of such goods and technology will make a significant contribution to the military potential of such country."

We endorse this policy and have manifested our endorsement by conscientiously carrying out the important responsibility assigned to the Secretary of Defense: namely, the responsibility for this military assessment and for recommending to the President that exports be disapproved if they make such a contribution which would prove detrimental to the national security of the United States.

II. THE GENESIS OF THE CRITICAL TECHNOLOGY APPROACH

A. MILITARY TECHNOLOGY SUPERIORITY

Our national security has, in recent times, become increasingly dependent upon our military technological superiority which in turn is based on maintaining our technological lead time. To maintain this technological lead time demands that we use, in concert, all the applicable mechanisms available to us. There are four principal mechanisms that we can apply: namely;

1. Real increases in our research, development and acquisition resources,
2. Improved armament cooperation with our Allies,
3. Support to enhance and exploit our domestic advantage in commercial technology and our industrial base, and
4. Controls over the export of military critical technologies and of critical products of direct military significance.

It is apparent that export controls must figure prominently in our national security calculations. I will discuss export controls in this context in the following sections.

The measurement of technological superiority is inexact. It is primarily a measurement based on judgment - judgments based, in part, on assessments of comparative differentials between competitors. Judgments on military technological superiority are based on such comparative factors as: (1) the date at which new technologies are first seen as product embodiments in competitive military systems, (2) the date at which activity in a given militarily useful technology is initiated by each competitor, (3) the demand by one competitor for the militarily useful technology of another, (4) the comparative rate of advance of technologies of military value among competitors, and (5) the resources allocated to technologies of military value by each competitor.

B. MILITARY CRITICAL TECHNOLOGIES

Not all technologies are of equivalent value to national security. There is thus an inherent assumption that one can select that subset of

technologies of significant military value on which our national military technology superiority can be presumed to be most dependent. Experience seems to validate this assumption.

These technologies of significant military value have been traditionally described in terms of their applied science or engineering substance. We mention, for example, jet engine technology, avionics technology, nuclear technology, guidance and control technology, surveillance technology, munitions technology, armament technology, etc. as being important to our national security. Such technologies described in terms of their applied science or engineering content have often been referred to as strategic technologies.

The phrase "strategic technology" in this sense depicts an area of applied science and/or engineering which is of significant military value.

"Technology" is also used to mean structured methods for achieving a practical or material goal as differentiated from scientific knowledge per se. As such, it is the know-how used in such applied scientific or engineering functions as design, manufacturing, utilization, testing and maintenance.

"Know-how" as used here means some combination of engineering skills, scientific procedures, structured processes and technical information and contributing equipment (or products).

The phrase "critical technology" has been introduced in the last several years, as for example in the Secretary of Defense's Interim Policy on the Control of Exports of U.S. Technology of August 1977, to denote a technology whose acquisition by a potential adversary would make a significant

contribution to its military potential and thus prove detrimental to the national security of the United States. Its first use seems to have been in 1977.

These several definitions of technology, strategic technology and critical technology with their varying meanings may be combined to provide a description of a "military critical technology." Specifically:

A military critical technology is:

- . Know-how^{*} used for such practical functions as design, manufacturing, utilization, testing and maintenance,
- . In areas of applied science or engineering which have significant military value,
- . Whose acquisition by a potential adversary would make a significant contribution to its military potential and thus prove detrimental to the national security of the United States.

*"Know-how" is a combination of engineering skills, scientific procedures, structured processes, technical information and contributing equipment (or products).

This definition is consistent with but represents a refinement and synthesis of earlier related definitions found in documented export control procedures, the 4 February 1976 Defense Science Board Report on Export of U.S. Technology, and the Secretary of Defense's August 1977 Interim Policy Statement on the Export of U.S. Technology.

C. THE CRITICAL TECHNOLOGY APPROACH TO EXPORT CONTROL

Current export control legislation and the COCOM agreement govern the export control practices of the Federal government. The control of exports of military equipment or technology (weapons, armament, etc.) for which there is little or no commercial market is done under the authority of the Munitions Control Act.

The control of exports of technology and products of military value which also have a commercial market is performed primarily under the authority of the Export Administration Act of 1969 as amended and the COCOM agreement. Such technologies and products have become known as "dual-use" technologies and products since they have both a military and commercial use. It is through the international commercial market place that military critical technologies and products of significant military value find their way to potential adversaries.

It is over this international commercial market place that controls must be exercised which reflect the many policies of the United States. It is in this market place that the tensions resulting from the simultaneous desire to promote trade and to control exports which will degrade our national security manifest themselves.

The Department of Defense's more recent efforts to better control exports of military value so as to protect national security without restricting U.S. trade any more than necessary have centered on determining the best procedures to control the export via the commercial market place of military critical technologies. This recent quite extensive effort, underway for the

last two-three years (1976-1979), has become known as the Critical Technology Approach (CTA) to export control.

Some of its more salient features are:

1. The presumption of a set of military critical technologies - "small" in number and relatively stable over time. This appears to be a correct presumption after 18 months of developmental activity.

2. The presumption that control of military critical technologies will:

- a. More adequately protect our military technological lead time than existing export control procedures.

- b. Require controls on a fewer number of products, than the existing export control procedures on the assumption that the sale of products per se will not usually transfer any associated military critical technology, and

- c. Make the export control process a more simple, and expedited process, on the assumption that many case-by-case reviews can be eliminated.

3. The presumption that assessments of comparative military and technological differentials between ourselves and potential adversary countries can be made for each military critical technology, and

4. The presumption that technology transfer mechanisms can be identified and that government control can be exercised over the more effective (or active) technology transfer mechanism for each military critical technology.

I would point out that the second feature of the Critical Technology Approach cited above can also be considered as the real purpose of attempting this approach to export control: namely,

- . To more adequately protect our military technological lead time.
- . To permit DoD to require export controls on a fewer number of products, and
- . To make the export control process as it relates to national security a more simple and expedited process.

I believe that my discussion thus far has accentuated a key point - namely that the principal motivation for DoD's interest in establishing an effective procedure through which it can control the export of military critical technologies is the compelling evidence of the importance to national security of protecting our military technological lead time relative to that of our principal potential adversaries. It is the urgency for better protection of this lead time that underlies our present emphasis on pursuing the Critical Technology Approach to export control.

D. TWO CONTRIBUTING DOCUMENTS IN DOD'S ACTIVITIES (1976-1979)

There are two principal contributing documents that were published in the three years from February 1976-February 1979 that serve to identify DoD's interests and policies and have spearheaded its development of the Critical Technology Approach to export control. They are:

1. The Defense Science Board Study published in February 1976 and titled "An Analysis of Export Control of U.S. Technology - A DoD Perspective."

This report is often referred to as the Bucy report as Mr. Fred Bucy was the Chairman of the group performing the analysis. A chart showing its recommendations and findings is contained in Attachment 1.

2. The 26 August 1977 memorandum issued by the Secretary of Defense stating his "Interim DoD Policy Statement on Export Control of U.S. Technology." Its key points related to findings and recommendations of the Defense Science Board report are found in Attachment 1.

III. IMPLEMENTATION BY DOD OF THE CRITICAL TECHNOLOGY APPROACH

A. IDENTIFICATION OF THE CRITICAL TECHNOLOGY APPROACH WITH NATIONAL SECURITY

I have in previous sections stressed the proper identification to date of the Critical Technology concept with the DoD objective of utilizing controls on the export of technology as one important mechanism for protecting our military technological lead time without restricting U.S. trade more than is absolutely necessary. The corresponding initiative and responsibility for the development of policies and strategies for introducing and recommending procedures for the protection of military critical technologies via the export control process rests firmly on DoD: DoD has accepted both this initiative and the associated responsibility.

B. OUTLINE OF STEPS IN THE IMPLEMENTATION PROCESS FOR CONTROL OF EXPORTS OF MILITARY CRITICAL TECHNOLOGIES

This implementation process has been underway for not quite three years, that is since the summer of 1976. It has been characterized primarily by

ad-hoc or interim actions, one-time studies and reliance on volunteer-participatory groups from industry and government. This is not atypical of formative, innovative process design activities.

The principal steps in the formative stages of implementation of the Critical Technology Approach are presented here in outline form.

1. Determination of the areas of applied science or engineering constituting the first current list of Military Critical Technologies (MCT's).

This list was completed in January 1979. It is phrased in the terminology of the commercial market place since this is the gateway through which military critical technologies flow to potential adversaries. The technology areas are thus broadly titled and serve as pointers to the gross areas of technology in which will be found the specific military critical technology products, transfer mechanisms, and information over which DoD believes export controls are warranted. The 15 areas are:

- . Computer network technology
- . Large computer system technology
- . Software technology
- . Automated real-time control technology
- . Composite and defense materials processing and manufacturing technology
- . Directed energy technology
- . LSI-VLSI design and manufacturing technology
(LSI refers to large scale integration and VLSI to very large scale integration in microelectronics)
- . Military instrumentation technology
- . Telecommunications technology
- . Guidance and control technology
- . Microwave componentry technology
- . Military vehicular engine technology
- . Advanced optics technology (including fiber optics)
- . Sensor technology
- . Underseas system technology

Illustrative descriptions of some of these technology areas are provided in Attachment 2.

2. Determination of the specific component technology areas within each of these 15 areas of applied science or engineering which are of significant military value.

This step is partially completed. Recent work has been accomplished in 9 of the 15 areas by voluntary technical experts from industry and in informal conjunction with DoD staff. This step also can rely heavily on the technical efforts which resulted in the current Commodity Control List (CCL) used for export control and on the current COCOM List Review activity. Completion of this step is tied to the resources identified for it. Its accomplishment has been shown to be technically and managerially feasible. An illustration of a listing of militarily significant component technologies for Composite and Defense Materials Processing and Manufacturing Technology is provided in Attachment 3.

I would point out that this step makes evident the many component technology areas in each of the identified 15 primary technology areas of concern to DoD which are not of significant military value. This important listing is illustrated also in Attachment 3.

3. The identification in each of the 15 identified areas of military critical technology of the contributors to the relevant design, manufacturing, utilization, testing and maintenance functions which can be subjected to export controls.

This step makes evident the fact that a military critical technology does not, per se, lend itself to export control. Only tangible manifestations of the technology or the mechanisms of technology transfer lend themselves to explicit control. For example, one can control the export of products and of technical information not in the public domain. Similarly, control can be exercised over mechanisms of technology transfer such as the provision of training, the construction of turn-key factories or the initiation of co-production agreements.

Attachment 4 contains, for information purposes, a listing of recognized mechanisms for technology transfer.

4. Recommendations as to what products, technical information, or other controllable features of each Military Critical Technology should not currently be exported.

This step is vitally time-dependent and corresponds roughly to what is now performed in the case review of individual export applications. It relies on determinations of:

- a. Foreign availability of identified products, information, etc.
- b. The technological capability in and military reliance on each Military Critical Technology by potential adversaries, and

- c. The comparative differential between U.S. and foreign military reliance on and capabilities in each Military Critical Technology along with the rate of change of this comparative differential.

Such information implicitly influences the outcome of all of the steps of the Critical Technology Approach. It explicitly underlies the successful completion of this step. This step however is an on-going process itself because its resultant recommendations rely on what has been shown to be continually changing data and on the allocation of resources by the Intelligence Community to this effort.

The carrying out of this step involves extensive cooperation and interaction by the Intelligence Community. It also depends upon the support of the Department of Commerce and of U.S. industry in obtaining estimates of foreign availability.

I asked CIA and DIA by memorandum of January 16, 1979 to assist in this step. I have been most impressed and pleased with the intensive support effort now underway by the Scientific and Technical Intelligence Committee (STIC).

5. Delineation of technology transfer mechanisms effective for each of the Military Critical Technologies along with recommendations on what governmental controls can and should be invoked over them.

This step is well underway. It was initiated in late 1977. It appears feasible and its completion is dependent upon resources allocated to it.

These five steps just outlined are necessary for implementation by DoD of the Critical Technology Approach. No technical problems have emerged as barriers to their completion. The carrying out of the supporting efforts with **associated** time-schedules is dependent upon the resources allocated by DoD which depend in turn on the priority assigned by DoD to this particular means for protecting our national security.

Approval of an Office of Technology Export reporting to me with responsibilities for developing and implementing the Critical Technology Approach has been obtained only this fiscal year. The first opportunity for having budgeted resources identified by DoD for Presidential and Congressional approval will occur in conjunction with the FY 81 budget process. I will be providing time-tables for supporting activities as an integral part of our first formal budgetary request.

IV. CONCLUDING COMMENTS

The implementation by DoD of the Critical Technology Approach to export control as a means for protecting our military technology lead time with minimum interference to trade is taking place in the manner described in my statement. It will include as an integral component a list of products and technical information which we will recommend should not be exported. It will also include a list of technology transfer mechanisms which we would ask to be subjected to recommended export controls. Both lists will be categorized within the framework of the already identified 15 substantive areas of Military Critical Technologies.

The incorporation of these lists and recommended implementation processes into the existing governmental export control process will involve interagency support, cooperation and agreement. The principal involved Departments are the Departments of State and Commerce who have administrative responsibilities for export control.

Similar support, cooperation, and agreement by COCOM members is also required.

Transition from present lists of controlled products (e.g., the Controlled Commodity List and the COCOM List) to the Military Critical Technology Product and Information List, either through substitution or merger, will need to be effected.

DoD will also need to obtain agreement that controls can be explicitly exercised, as appropriate, over technology transfer mechanisms. There is no corresponding current exercise of control.

After three years of exploratory and developmental activity by both government and industry, we have encountered no technological or institutional hurdles which would prevent the implementation of the Critical Technology Approach as I have presented it. I have been impressed by the widespread support industry has voluntarily provided over the last year to helping implement this new approach. I believe I correctly infer from this support, that industry views it essential just as we do, to find an improved means of using export controls to protect our national security with minimum interference to trade.

I believe that DoD needs to pursue with adequate and dedicated resources the Critical Technology Approach to export control. The urgency of maintaining our military technological superiority and the increasing attractiveness of the Critical Technology Approach for so doing together produce a compelling reason for eliciting Congressional support of DoD's effort and for vigorously expediting our on-going efforts.

Attachments 4

ATTACHMENT 1

SUMMARY OF FINDINGS
DEFENSE SCIENCE BOARD REPORT ON
EXPORT CONTROL OF U.S. TECHNOLOGY

The Assessment of selected technologies, their impact on U.S. strategic requirements, transfer mechanisms and current effectiveness of export control restrictions reinforce the need for export controls and the COCOM agreement as a defense necessity. The effectiveness of these controls for the more critical technologies needs to be improved through definition of policy objectives, simplified criteria and a more pragmatic approach to the review and approval of license applications. Products of technology not directly of significance to the Department of Defense should be eliminated from controls to enable more effective control of significant items.

The findings and principal recommendations of the Task Force are:

I. Design and manufacturing know-how are the principal elements of strategic technology control.

These categories of export should receive primary emphasis:

1. Arrays of design and manufacturing know-how.
2. Keystone manufacturing, inspection and test equipment.
3. Products accompanied by sophisticated operation, application or maintenance know-how.

II. The more active the relationship, the more effective the transfer mechanism.

1. The more active mechanisms must be tightly controlled.
2. Product sales do not usually transfer current design and manufacturing technology.

III. To preserve strategic U.S. lead time, export should be denied if a technology represents a revolutionary advance to the receiving nation, but could be approved if it represents only an evolutionary advance.

1. Tactics to protect lead time must differ depending on the technological position of the U.S. as compared to that of the prospective receiving country:

a. When both are on the same evolutionary track, export control decisions should weigh the receiving country's immediate gain from the acquisition of the technology.

b. When the U.S.' position results from a revolutionary gain, export controls should focus on protecting all key elements of this gain.

2. Because of its importance as a factor in strategic lead time, a viable R&D effort should be continued.

IV. Current U.S. export control laws and the COCOM agreement provide a continuing means of protecting the lead times of strategic technologies.

1. U.S. export control activity should place primary emphasis on control of the active transfer mechanism.

2. Control of product sales should emphasize their intrinsic utility, rather than commercial specifications and intended end use.

3. A simplified criteria should be developed in order to expedite the majority of license requests.

4. The U.S. should release to neutral countries only the technologies we would be willing to transfer directly to Communist countries.

5. The U.S. should pursue actions and decisions to strengthen the COCOM network of export controls.

6. Key elements of technology that constitute revolutionary gains should not be released--excepting to COCOM nations. Any COCOM nation that allows such technology to be passed on to any Communist country should be prohibited from receiving further strategic know-how.

V. "Deterrents" meant to discourage diversion of products to military applications are not a meaningful control mechanism when applied to design and manufacturing know-how.

1. Deterrents such as end-use statements and safeguards should not be used to control applications of design and manufacturing know-how.

2. Deterrents should not be relied upon to prevent manufacturing equipment from being used for military purposes.

3. Deterrents attached to product sales may have some face value, but they should be supplemented by vehicles for enforcement against violations.

4. Deterrents should not be used when a high degree of certainty is required that diversions to military applications will not occur.

VI. The absence of established criteria for evaluating technology transfers reinforces the cumbersome case-by-case analysis of all export applications.

1. The Department of Defense should develop policy objectives and strategies for the control of key high-technology fields.

2. These objectives should include sufficient information to identify key elements of technology, including critical processes and key manufacturing equipments.

3. Technology exchange opportunities should be identified by citing technologies in which the U.S. lags the Communist world.

4. Policy objectives should be communicated broadly to interested U.S. agencies, private firms and COCOM nations to obtain a wider base of cooperation in effecting controls.

5. Advisory committees consisting of individuals from government and private sectors should be used to recommend policy objectives and strategies.

6. The Department of Defense should reevaluate and increase the resources required to perform and implement these studies.

INTERIM DOD POLICY STATEMENT EXCERPTS

Defense Department Policy in Export Control of US Technology

In assessing and making recommendations upon those export applications referred to it by the State and Commerce Departments, Defense will place primary emphasis on controlling exports to any country of arrays of design and manufacturing know-how; of keystone manufacturing, inspection and test equipment; and of sophisticated operation, application or maintenance know-how. (DSB Finding I)

In order to protect key strategic US lead times, export control of defense-related critical technology to all foreign countries is required. To this end, Defense will: (DSB Findings I, III, IV)

- 1) request the Department of Commerce to alter existing regulations so as to require a validated license for proposed exports of critical technology to all destinations;
- 2) recommend to, and support the negotiation by, the Department of State with COCOM countries, and such other nations as may be appropriate, of new measures to control or restrict the flow of critical technology to Communist countries, as well as recommendations as to the revision of the list of embargoed products.
- 3) recommend to the Secretary of Commerce that procedures be streamlined in such a way as to minimize delays in forwarding and processing export applications by a) speeding referral by Commerce of export applications for review and b) making use of new and/or improved technical guidelines to be supplied by DoD, which will allow maximum emphasis to be placed upon applications for the export of critical technologies and associated end products, thereby also allowing more rapid processing of applications for other, non-critical end products.

Defense will support the transfer of critical technology to countries with which the US has a major security interest where such transfers can 1) strengthen collective security, 2) contribute to the goals of weapons standardization and interoperability, and 3) maximize the effective return on the collective NATO Alliance or other Allied investment in R&D.

In assessing the advisability of the transfer of critical technology to either COCOM or other non-Communist countries, Defense will carefully assess the proposed recipient's intent and ability to prevent either the compromise or the unauthorized re-export of that technology. Where classified information is involved, security classification guidance will be provided to the recipient, and where feasible, security surveys will be accomplished in addition to the completion of appropriate military and industrial security arrangements. (DSB Finding IV)

The Department of Defense will look to the State and Commerce Departments and the intelligence and security communities to identify those instances in which the initial recipient makes unauthorized further transfers, or allows compromise, of critical technology. The Department will incorporate the results of such observations in its assessments of subsequent applications for commercial export, Foreign Military Sales (FMS), Data Exchange Agreements (DEA), Information Exchange Programs (IEP), and other transfers to such recipients. Violations of US third-country transfer prohibitions or instances of compromise will normally be considered grounds for employment of sanctions involving critical technologies. Coordination within DoD will be strengthened to meet the requirements of military and industrial security. (DSB Finding V)

Defense will normally recommend approval of sales of end products to potential adversaries in those instances where 1) the product's technology content is either difficult, impractical, or economically infeasible to extract, 2) the end product in question will not of itself significantly enhance the recipient's military or war-making capability, either by virtue of its technology content or because of the quantity to be sold, and 3) the product cannot be so analyzed as to reveal US system characteristics and thereby contribute to the development of countermeasures to equivalent US equipment. (DSB Finding I)

There shall be a presumption for recommending disapproval of any transaction involving a revolutionary advance in defense-related technology to the proposed recipient country (If the resultant military capability threatens US interests). Defense will assess a proposed export of technology not on the basis of whether the item is obsolete by US standards, but on whether the proposed export would significantly advance the receiving country's potential and prove detrimental to the national security of the United States. (DSB Finding III)

End-use statements and safeguards are not to be considered a factor in approving exports to potential adversaries of critical technologies and products except as may be otherwise provided in Presidential directives. Departure from this procedure will occur only with specific approval of the Secretary of Defense, or his designee. (DSB Finding V)

Defense recommendations to approve the export of end products to potential adversaries are to be made primarily on the basis of an assessment that the products' inherent performance capabilities, or the quantity sold, do not constitute a significant addition to the recipients' military capability which would prove detrimental to the national security of the United States. (DSB Finding IV)

This policy shall be applied without regard to whether the exporter is a government department or agency, a commercial enterprise, an academic or non-profit institution, an individual entrepreneur, or in the case of re-export requests, a foreign government or an international organization; and without regard to the transfer mechanism involved, e.g., turnkey factories, licenses, joint ventures, training, consulting, engineering documents and technical data.

Explicit account shall be taken of the relative efficiency of the various mechanisms of technology transfer (e.g., foreign liaison activities, scientific and technical exchanges, commercial visits, trade fairs, training programs, sales proposals and consulting agreements, as well as in specific technology export cases). When the potential for inadvertent transfer of critical technology is considered to be high, Defense shall formulate and recommend to the responsible agencies restrictions on the amount, extent or kind of interpersonal exchange in a given transaction. Visitor control mechanisms within the Department of Defense will be improved. (DSB Finding II)

The Department of Defense, in coordination with other Departments and Agencies, shall identify and maintain a continuously updated list of specific critical technologies and/or end products whose export should be restricted for reasons of national security. This list and its updates will be communicated to Departments responsible for administering US export controls. It is recognized that these list items will be time-dependent. Appropriate items will be added and/or deleted from the list as time goes by. (DSB Finding IV)

In coordination with and assisted by the intelligence community, Defense will undertake to improve the information and data base pertaining to technology transfer by studying in greater depth and on a continuous basis selected aspects of US technology transfers over time in order to ascertain their impact on the military capabilities of potential adversaries and on critical US lead-times. (DSB Finding III)

In the interagency arena, Defense will propose and support means by which national security considerations can be taken fully into account from the beginning stages of any international projects having the potential of promoting the transfer of critical technologies. (DSB Finding IV)

The Department of Defense will propose and support means of improving interagency communication and coordination on matters of export controls and technology transfers in order to help achieve adequate and appropriate interagency coordination in these areas. (DSB Finding VI)

ATTACHMENT 2

GUIDANCE AND CONTROL TECHNOLOGY

Definition: This technology is that of sensors and detectors, transmitters, signal processing and their integration with control functions including feedback control systems.

Scope: Guidance and Control Technology applies to navigation, positioning, flight control, platform stabilization and midcourse and terminal guidance, including both active and passive systems. It is distinguished from and can be considered a subset of command and control systems for vehicles such as aircraft and ships which include many additional functions and additional technologies (e.g., data bases). Acoustic systems are covered under Undersea Warfare Technology.

Key Components:

- o Sensors and Detectors which include infrared (IR) detectors, vidicons, charge coupled devices (CCDs), conventional and laser gyroscopes, accelerometers, gyrocompasses, gravity meters, cesium clocks, low noise Field Effect Transistors (FETs), parametric amplifiers, IR and RF radiometers and PIN diodes.

- o Transmitters which include solid state and tube microwave and millimeter sources and laser sources.

- o Signal Processing which includes computers and related key components such as analog to digital (A/D and D/A) converters, integrated circuits and memories, analog CCDs, surface acoustic wave (SAW) devices, and related special purpose software and firmware for signal processing.

- o Feedback Control Systems which include high precision synchros, resolvers and potentiometers for analog systems and items included in signal processing for digital systems.

Military Applications: Guidance and Control Technology is the key to attainment of both precision guided and fire and forget munitions. For fixed wing aircraft it can provide major advances in simpler pilot controls, improved maneuverability, and reduced costs. For helicopters it can provide significantly improved nap-of-the-earth operations. The GPS systems can prove an unprecedented precision navigation and positioning capability.

Trends: The major trend is the application of signal processing in guidance and control systems to provide greatly improved target discrimination from clutter, noise and decoys. A related trend in control circuits is the use of digital systems instead of analog systems. Concerning sensors the trend is to electroptic, IR and millimeter wave active and passive systems and digital controls is paced by the availability of faster digital circuits. Processing throughput speed of guidance and control computers

will continue to advance at the rate of about a factor of two annually.

MICROWAVE COMPONENT TECHNOLOGY

This technology is that of active generators, amplifiers, switches and detectors of microwave energy as well as of passive components for transmission and distribution.

Scope: Microwave component technology includes both active device technology (semiconductor and electronic vacuum tube circuit elements such as amplifiers, switches and modulators) and passive component and assembly technology (such as antennae, filters, duplexers and power dividers).

Key Aspects: For active semiconductor devices the key aspects are precision control of impurity levels and doping profiles over dimensions that are smaller than one micrometer; contact metallurgy to provide low microwave loss and long life at high power densities; and packaging methods to match impedances between macroscopic transmission lines and microscopic semiconductor devices while providing an inert environment to protect the semiconductor and metallization. For microwave electronic vacuum tubes the key aspects are preparation of long life (1000 to 10,000 hour) cathodes with emission current densities of greater than 0.5 ampere per square centimeter; glass-to-metal seal and ceramic-to-metal seal processing that provides 10^{-9} Torr vacuum envelopes without contamination of cathodes and circuit structures; precision machining and assembly of circuit structures with tolerances of 0.0001 to 0.0005 inch. For passive components the key aspects are precision machining, finishing and assembly of metal and dielectric parts. Computer aided circuit design and computer aided microwave measurement equipment are key aspects of all microwave component technology.

Military Application: Microwave components are used in radar, communications, electronic warfare receivers and jammers, munitions guidance, fuzing and fire control. Wide bandwidth in both active and passive components is critical in jamming equipment to allow many threat frequencies to be countered with the same hardware. Low noise field effect transistors are important to ELINT receivers and microwave communications links. Small size solid state sources and microstrip circuit components that can withstand shock and vibration are critical to fuzing. High speed frequency division and microwave analog-to-digital conversion is critical to surveillance receivers.

Trends: Increased power at higher frequencies with solid state amplifiers and sources will occur, with tens of watts per device at 10 GHz and one watt per device at 100 GHz in the next few years. Low noise field effect transistors are now available through 20 GHz and will become available to 40 GHz within five years, but progress beyond that will require new material capabilities. Mixers will dominate over low noise FETs at frequencies above 40 GHz and will reach 300 GHz through quasi-optical

techniques. Power tube efficiency will increase about 10% at frequencies below 40 GHz through the use of multiple depressed collectors within the next five years. New power generation techniques will be needed before tube technology can achieve 10 KW levels at 100 GHz, but significant effort will be directed toward this goal. Dielectric waveguide and quasi-optical circuits will be used above 100 GHz, but conventional stripline and waveguide components will dominate below 100 GHz.

UNDERSEA SYSTEMS TECHNOLOGY

Definition: Undersea systems technology is that of system and systems components designed to operate in the sea, or to obtain information about the water column, or about objects therein from locations on shore, in space, on the sea surface, or on the ocean floor from fixed, tethered, or mobile platforms, (including free floating or drifting unmanned, manned, or living platforms.)

Scope: Systems and systems components that are supported by undersea systems technology include:

- o Undersea vehicles, including vehicles that move along the ocean floor.

- o Systems for research, exploration, and understanding of the undersea environment.

- o Communications and control systems, including undersea sensor and instrumentation systems, as well as undersea navigation systems.

- o System for economic exploitation of the undersea environment, including the ocean floor. Examples are undersea mining, aquaculture, fishing, fish farming and salvage.

- o Life support systems.

- o Underwater weapons systems, including those designed to be used against targets in the water or to originate in the water but directed against land, air, or surface targets.

Dominant (but not exclusive) discipline - orientations of undersea systems technology components are¹:

- o Underwater acoustics:

- Sensors, transducers, instrumentation
 - Transmissions
 - Propagation
 - Information processing
 - Display

- o Materials (shock, pressure, corrosion, and temperature resistant or compliant).

¹This is not an exhaustive list.

- o Hydrodynamics
- o Medical physics
- o Magnetic, infrared, and microwave
- o Mathematical simulation and modeling of undersea environments on micro and macro scale.
- o Underwater propulsion and energy storage and conversion.

End Products:

- o Undersea vehicles
 - Submarines
 - Bottom crawlers
 - Torpedoes
 - Craft to aid swimmers
- o Research and Exploration
 - Seismic profilers
 - Acoustic transducers and transponders
 - Acoustic receiving arrays
 - Magnetic survey equipment
 - Microwave radiometry receivers
 - Infrared mapping equipment
 - Acoustic and electromagnetic signal processing and display equipments
 - Compilations of geophysical data and mathematical analyses and simulations
 - Chemical and radiological test equipment
- o Communications and Control Systems, Including Undersea Sensor Instrumentation, and Navigation Systems
 - Underwater communications systems - acoustic and electromagnetic
 - Mechanical guidance and control systems
 - Passive and cavitation sensors
 - Sonars - active and passive
 - Towed arrays
 - Optical systems - periscope TV
 - Echo sounders
 - Inertial navigation systems
 - Satellite navigation systems
 - Satellite instrumentation for sea surface and ice-cover condition measurement
 - Submarine - infrared
 - Submarine electro-optical system
 - Computer (network) for internal command and control of underwater vehicles

Acoustic classification equipments
Acoustic quieting and noise reduction

o Systems for Economic Exploitation of the Undersea Environment

Cable laying equipment
Fault-finding equipment
Underwater positioning devices
Submerged stable platforms
Underwater tools

o Life Support Systems

Hypobaric chambers
Protective clothing and equipment
Underwater reserve (deep submergence) equipment

o Underwater Weapons Systems

Mines
Torpedoes
Acoustic and Magnetic Countermeasures
Electro-magnetic countermeasures
Communication security
Submarine time control system
Remote targeting system

Many of the above products exist in different versions for application from satellite, surface, submarine, or fixed platforms. Design, fabrication and packaging to meet the constraints imposed by the intended application constitutes, in many cases, the real technological lead. The principles that govern undersea warfare are well understood.

o Key Technology Components

The following are some examples to illustrate the process. The Navy and DARPA are the sources of definitive information on critical technology components and keystone equipments.

o Undersea Vehicles

Drag reduction technology
Thick-wall welding technology
Quieting of flow and propulsion technology
Sound isolation technology
High power density energy storage

o Keystone equipments in each case

Design
Technical data
fabrication equipments

- o Research and Exploration Systems and Communications and Control Systems, Including Sensors, Instrumentation, and Navigation Systems
- o Acoustic Transmission Techniques
 - Integrated circuits
 - Piezo-electric ceramics
 - Magneto-strictive metal
 - High-power audio amplifier design
 - Transducer-dome material
 - Noise reduction and control
- o Keystone equipments
 - Design
 - Data
 - Fabrication
- o Acoustic Propagation
 - Mathematical simulation
 - Acoustic signal processing
- o Keystone equipments: Simulation models of the environment in specific frequencies and locations. Processing codes and techniques.
- o Towed Arrays
 - Signal processing
 - Materials
 - Hydro dynamics
 - Fiber optics

ATTACHMENT 3

ILLUSTRATIVE LIST

CRITICAL AND NON-CRITICAL TECHNOLOGY COMPONENTS
FROM THE
STRUCTURES, MATERIALS, AND PROCESSES
MILITARY CRITICAL TECHNOLOGY AREA

This list illustrates one possible identification of critical and non-critical technology components in this one Military Critical Technology area.

SUMMARY OF MILITARY CRITICAL AND NON-CRITICAL TECHNOLOGY COMPONENTS

TECHNOLOGY SUB-AREA	CRITICAL COMPONENTS	NON-CRITICAL COMPONENTS
Fracture Control Design Processes (10)	Damage Tolerance/Durability/ Fail Safe Design Methodology - Metal Structures - Composite Structures - Drive Systems	High Fracture Toughness Materials/ Processes Improved Fatigue Resistant Materials/ Processes Non-Destructive Evaluation/Inspection Techniques as Related to Damage Tolerance/Fatigue Resistance (see also #26) Structural Life Management
Diffusion Bonding and Other Advanced Joining Methods (15)	Superplastic Forming/Diffusion Bonding (SPF/DB) Laser Welding Plasma Arc Welding Laser Surface Enhancement	Diffusion Bonding Narrow Gap Welding Gas Metal Arc (GMA) Welding Explosive Welding Ion Surface Alloying Ion Surface Treatment Brazing Weld Brazing Adhesive Bonding Electron Beam Welding
Inspection of Advanced Composite Structures (25) and Non-Destructive Evaluation Technology (26)	Ultrasonic Spectroscopy X-Ray Image Enhancement Acoustic Fingerprinting	Ultrasonic Reflection/Through Transmissi on Resonance Ultrasonics Holographics Radiography - X-Ray; Neutron Acoustic Emission Thermal - IR; Liquid Crystal Thermography Radiation Penetrants Hole Shapes/Finishes Surface Waves/Shear Waves Chemical Footprinting Photogrammetry Penetrants Magnetic Particles Exo-Electron Emission Eddy Current Ultrasonic Holography Thermal Emission

SUMMARY OF MILITARY CRITICAL AND NON-CRITICAL TECHNOLOGY ELEMENTS (Cont'd)

TECHNOLOGY SUB-AREA	CRITICAL COMPONENTS	NON-CRITICAL COMPONENTS
Vacuum Casting (Especially Air-Cooled Turbine Blades) (31)	Investment Shell Molds and Cores Directional Solidification (Including Eutectics & Single Crystals)	Superalloys Titanium Alloys Aluminum Alloys High Strength Steels Stainless Steels Melting
Corrosion/Erosion Resistant Coatings (35)	Corrosion/Erosion Resistant Coatings	Corrosion Resistant Coatings - Plating - Cadmium & Time - Cadmium - Vacuum Deposited Metallic Coatings - Spray & Baked Aluminum-Alumazite Z
and High Temperature Coatings for Super-alloys and Titanium (38)	MCrAlY Coatings Thermal Barrier (Metal/Ceramic) Titanium - Various High Temp. Coatings Eng Pts	Superalloy Coatings - Diffused Aluminide - Pack Cementation - Vapor Deposition - Slurry Precoat (Incl. Electrophoretic) - Composition
Metal Matrix Composites (Including Carbon-Carbon, Organic) (39) - Metal Matrix Composites	Boron/Aluminum Silicon Carbide/Aluminum Silicon Carbide/Titanium Graphite/Aluminum Graphite/Magnesium Selective Reinforcement Borsic/Aluminum Borsic/Titanium	Tungsten/Superalloys In-Situ Composites Graphite/Lithium Graphite/Copper Graphite/Lead Alumina/Aluminum Beryllium/Titanium

SUMMARY OF MILITARY CRITICAL AND NON-CRITICAL TECHNOLOGY ELEMENTS (Cont'd)

TECHNOLOGY SUB-AREA	CRITICAL COMPONENTS	NON-CRITICAL COMPONENTS
- Carbon-Carbon Composites and - Ceramic Matrix Composites	Fiber Reinforced C-C Composites Thermochemical/Thermostructural/ Erosion/Ablation Analysis Quartz/Silica	Carbide Loaded Graphite Graphite/Ceramic Tantilum Carbide/Silicon Nitride
- Organic Matrix Composites	Graphite Epoxy Graphite Polyimide Kevlar Epoxy Hybrid Composite Designs (Mixed Fiber/Metals)	Advanced Thermoplastic Matrices Selective Reinforcement
Powder Metallurgy (e.g., High Cooling Rate) (43) and Hot Isostatic Processing (24)	Rapid Solidification Particulate Composites (Disper- sion Strength of Materials) Powder Processing (Metals, Ceramics) Component Rejuvenation/Repair Advanced Alloys	Hot Isostatic Pressure (HIP) Vacuum Hot Pressure (VHP) Shock Compaction Explosive Compaction Powder Composition/Specifications Parameters/Sizes Cold Isostatic Pressing Casting Followed by HIP Metal Matrix Composites (See Also #39) Isothermal Forming/Forging Superplastic Forming Explosive Forming

ATTACHMENT 4

TECHNOLOGY TRANSFER MODES AND MECHANISMS

Technology can be transferred between individuals or companies by any one of a number of mechanisms. In this sense a transfer mechanism is any specific vehicle or means for conveying technology whether consciously or unconsciously. In most cases technology is transferred through a contractual or organizational framework involving more than one mechanism. We call this a transfer mode, that is, a framework, with an economic incentive, to provide an orderly procedure or way of teaching the recipient how to do something. Thus, the key distinctions between transfer modes and mechanisms are:

(1) that modes involve a contractual or organizational framework, with an economic incentive and a conscious orderly procedure to effect the transfer; and (2) that transfer modes probably involve more than one mechanism. Most technology transfer modes also involve or require an active rather than a passive relationship between the transferrer and the recipient whereas mechanisms can be completely passive. A listing of the major modes and mechanisms used for international technology transfer is provided below:

Major Technology Transfer Modes and Mechanisms

Modes - contractual or organizational frameworks, with an economic incentive, within which technology transfers occur.

1. Transfers of technology from the U.S. to a foreign controlled organization.
 - a. Turnkey factories
 - b. Licenses with technical assistance (anything beyond an arms length transaction)
 - c. Joint ventures
 - d. Management or technical service agreements
 - e. Coproduction agreements
 - f. License agreements without technical assistance (arms length transactions with no personnel training or support)
 - g. Trade shows, industrial exhibitions, symposia, and technical meetings
2. Multinational corporation internal transfers
3. Foreign direct investment in the U.S.

Mechanisms - specific vehicles or means for conveying technology.

1. Processing equipment transfers.
2. End product transfers.
3. Unpublished design information transfers.
4. Unpublished engineering document transfers.
5. Operations and maintenance data transfers.
6. Other technical data transfers.
7. Foreign citizens employed, trained, educated in the U.S.
8. Exchanges of personnel and visits of foreign personnel to U.S. facilities, or visits of U.S. personnel to foreign facilities.
9. Transfers of published documents with design, engineering or other technical data and information.

In a number of studies the importance of sustained enterprise-to-enterprise relations or continued personal interactions to best effect the transfer of technology has been emphasized. These studies show that technology is most effectively transferred through close and continual contact by individuals or firms. Thus, transfer modes and mechanisms involving extensive training or teaching efforts are more effective than exporting hardware or documents with little or no subsequent involvement of technical personnel on the part of the donor. While there may be some cases where the export of a product, or some set of information, would permit the recipient to make a revolutionary versus an evolutionary advance, these should be exceptions to the general case and handled as such.