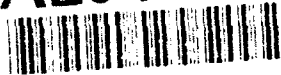


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ARMS COOPERATION: U.S. SECURITY AND ECONOMIC IMPERATIVES IN A NEW WORLD ORDER

BY

LIEUTENANT COLONEL MICHAEL W. PARKER
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This paper examines policy and directives regarding standardization through arms cooperation to determine if they support US national interests. Security, economic, and industrial interests are incrementally explored to help answer this question using the North Atlantic Treaty Organization (NATO), a mature alliance, as a basis for analysis. The author reviews arms cooperation from a historical perspective and describes the means by which arms cooperation is accomplished. Policies, positions, perspectives and lines of authority are reviewed in light of the emerging new world order. National interests are incrementally analyzed in the areas of national security, economic interests, and the impact on industry. The author concludes with detailed findings and recommendations which cumulatively propose that arms cooperation policies should continue to be pursued which open defense markets, avoid protectionist positions, and support a collective security strategy. Policies must be clearly articulated, avoid conflicting lines of authority, safeguard competition and technological advantage, and provide for a responsive industrial base. The author calls for rhetoric in this critical area be translated into real leadership.

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ARMS COOPERATION

US SECURITY AND ECONOMIC IMPERATIVES IN A NEW WORLD ORDER

Approved for Release by NSA on 09-11-2006 pursuant to E.O. 13526

by

MICHAEL W. PARKER
LIEUTENANT COLONEL INFANTRY

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CHAPTER I

INTRODUCTION: A HISTORICAL PERSPECTIVE

THE CHANGING ENVIRONMENT

In the emerging New World Order, U.S. policy decisions regarding standardization through arms cooperation should be reevaluated. Disjointed incremental analysis will be used to determine if standardization policy and implementing directives support national interests in the areas of national security, the economy, and industry. The North Atlantic Treaty Organization (NATO), as a mature alliance, will be used as a basis for this analysis. For a policy of international standardization and arms cooperation to be an appropriate direction, it must cumulatively further U.S. interests in the areas of national security and economic prosperity. Arms cooperation policies must also prove effective within the political arena in which they must be implemented. The basis research question asks, "Does NATO standardization through arms cooperation support the United States national interests?" Security, economic, and industrial interests will be incrementally explored to help answer this question.

The objective of standardization within NATO is two fold:

- a. Military...to increase the combined operational effectiveness of the military forces of the Alliance.
- b. Economic...to increase the overall efficiency in the use of available Alliance defense resources.

A definition of standardization adopted by the member nations during the mid-eighties is that standardization is "the process of developing concepts, doctrines, procedures and designs to achieve and maintain the most effective

levels of compatibility, interoperability, interchangeability and commonality in the fields of operations, administration and materiel."¹ The scope of this analysis is standardization of materiel through arms cooperation.

"The history of failure in war can be summed up in two words: Too Late. Too late in comprehending the deadly purpose of a potential enemy; too late in realizing the mortal danger; too late in preparedness; too late in uniting all possible forces for resistance; too late in standing with one's friends."

General Douglas MacArthur²

MILITARY IMPERATIVES

One of the major problems which faced the United States (US) following World War II was the defense of its interests in Western Europe which were vulnerable to superior Soviet conventional forces.³ The establishment of the North Atlantic Treaty Organization (NATO), with its military alliance which included US ground forces, served as a tripwire for escalation of European conflict to a nuclear level. This acted as a "nuclear umbrella" which effectively discouraged Soviet action.⁴ Essentially a military alliance, NATO was created on a foundation of fear and held together by both the overwhelming American nuclear capability and allied statesmanship.⁵

Although the interests of the United States have not changed significantly since the creation of NATO, our ability to protect those interests was measurably altered over time. Western Europe's industrial democratic nations became increasingly vulnerable to military attack and supply interdiction.⁶ The United States stood at a point of nuclear parity with Russia, radically altering the strategic balance.⁷ The arms race and the growing vulnerability of the United States to a direct nuclear attack led her into negotiations with the Soviet Union to maintain a stable nuclear environment. The effect was a moderation of the

security guarantee to Western Europe, originally based upon US nuclear strength.⁸ "During the 1950s and early 1960s, the United States enjoyed unchallenged nuclear superiority over the Soviet Union. So long as this superiority was demonstrably maintained, the conventional military forces of NATO were of less strategic importance than they became by the decade of the seventies."⁹

In the mid-1960s, the Soviet Union began a comprehensive program of massive build-up of all its armed forces. This build-up far outmatched that of the US and the NATO Alliance.¹⁰ The Warsaw Pact improved weapon systems of every type, both quantitatively and qualitatively. Statistical comparisons of US and Soviet strategic forces between 1967 and 1980 indicate a trend of rapidly increasing Soviet forces while the US level remained roughly constant.¹¹ In both nuclear and conventional forces, the Soviet military and political position did not stop at parity but continued to a point of superior military capability.¹² Soviet forward deployed divisions in Europe increased from twenty-six to thirty-one while NATO continued to defend with approximately twenty-one divisions forward. The Warsaw Pact forces were structured for offensive operations and deployed over twice as many tanks as are deployed forward by the NATO Alliance. These significant advancements, both quantitatively and qualitatively, indicated that the Warsaw Pact could initiate an armed conflict within Europe with little or no warning.¹³ The geographical isolation of the United States reduced rapid response and the sustainment capability necessary to counter that threat. This overwhelming military imperative to achieve collective implementation of the grand strategy of containment of communist expansionism was a driving force for the United States' policy of rationalization, standardization, and interoperability (RSI) which emerged in the mid seventies.

The following decade was marked by the United States' response through increased defense spending and force modernization. The decade ended with the Gulf War in 1991 which demonstrated increased U.S. capabilities and the success of new doctrine, training initiatives, force structure/mix, and conventional force modernization. It also demonstrated integrated and synchronized joint and coalition operations in asymmetric warfare with new requirements for cooperation and standardization. The fall of the Soviet Union and the birth of the Commonwealth of Independent States in December 1991 signaled the end of the Cold War and the beginning of a new world order. Economic considerations demanded the "peace dividend" the end of the Cold War promised. The emerging new order demanded new security and military strategies with smaller armed forces capable of defending unilateral, coalition, and treaty interests across the complete spectrum of military crisis. This dynamic environment dictates a need to reevaluate the collaborative acquisition policies of the Cold War.

ECONOMIC IMPERATIVES

Defense is no longer the major problem which faces the NATO Alliance. The tremendous expenditures once required to establish and maintain a relevant military capability coexisted in a political arena in which long-term security and economic prosperity were balanced against short-term political survival. This arena included the perceived national economic imperatives of "energy, capital flows, monetary policies, commercial relations with the Third World, and the rise of protectionism."¹⁴ Even during the Cold War the economic and monetary vulnerabilities of the industrial nations led many to regard these imperatives as more urgent than military deterrence and capability.¹⁵ Political survival in many countries is tied directly to the economic environment as it is in our own democratic society. Defense industry plays a vital role in the economy of the

alliance and, therefore, impacts directly on decisions regarding NATO equipment acquisition and its standardization. With a decline in the urgency to sustain a collective defense, economic imperatives have become preeminent.

HISTORY OF U.S. INTERNATIONAL STANDARDIZATION

Standardization is not a new concept to the defense industry. The value of parts standardization was generally accepted by the fifteenth century. The Arsenal of Venice Planning Committee required standardization in naval bow production, ships stern designs, and deck rigging and furnishings. Eli Whitney, in the 1700s, used interchangeable parts in the manufacture of guns to increase production.¹⁶ Since the birth of our nation, standardization has remained a major goal within the defense system. Congress continues to monitor the triad to assure the maximum commonality of systems and components. The benefits of a national policy of internal standardization and interoperability have long been appreciated. Current efforts to achieve standardization among allies can be traced directly to World War II and the agreements made in 1940 between the US and Great Britain. US military aid was provided to Britain based upon her acceptance of US standard equipment. Although the support was directed to Great Britain, US defense and industrial leadership knew they might have to rapidly shift to outfitting American forces without the needed time for design changes or retooling.¹⁷ Following the war, the cooperative agreements continued, joined by Canada and Australia to become the ABCA Program. The current program is based upon the Basic Standards Agreement of 1964 which had as its aims:

- a. To insure the fullest cooperation and collaboration among American, British, Canadian, and Australian Armies.

b. To achieve the highest degree of interoperability among the signatory armies through materiel and non-materiel standardization.

c. To obtain the greatest possible economy by the use of combined resources and effort.¹⁸

The existence of the nuclear deterrent and a proliferation of US and British conventional weapon systems in Europe during the first two decades following World War II stifled any compelling pursuit of equipment standardization within the NATO Alliance. However, standardization has been a NATO goal since 1949 when the Military Production and Supply Board was created. Its purpose was to promote "coordinated production, standardization and technical research in the field of armaments.¹⁹ In spite of these initial efforts, the level of standardization and subsequent interoperability declined during the four decades of NATO existence. This decline can be attributed to:

a. The replacement of the prolific American and British weapon systems which dominated NATO conventional forces following the war.

b. The rebirth of the European industrial base and its primary drive to survive and thrive.

In spite of the decline in standardization, NATO never lost sight of the need for a cooperative approach to defense systems management. In 1951, the Military Agency for Standardization was established as the principal agency for standardization and the formulation of standardization agreements (STANAGS). A special committee was also established the same year to reconcile military requirements. However, no major weapon system has been developed and standardized under NATO standardization agreements.²⁰ During the first decade, efforts centered on technology and attempts to further applied research and

development. In 1958, the NATO Maintenance Supply Services was established to facilitate maintenance provisioning and repair parts supply for NATO common systems. In 1964, the organization was renamed the NATO Maintenance and Supply Organization (NAMSO).²¹ The Conference of National Armaments Directors was established in 1966 as the senior NATO body chartered to initiate collaborative projects to promote cooperative research and development and production.²²

In the early sixties, the rigid systems established for cooperative production began to give way to a more flexible structure. EUROGROUP was established in 1968 by several of the European nations to facilitate greater cooperation among the European members of the alliance.²³

Following the Vietnam conflict the United States began to refocus on its European military posture. The mid-1970s brought a rebirth of Congressional and subsequent Department of Defense (DOD) interest in the alliance's failure to standardize.²⁴ The reduction in nuclear superiority was marked by a decade of emphasis on conventional deterrence in Europe.²⁵ The enactment of the "Department of Defense Appropriation Act, 1976" (P.L. 94-106) in October 1975, contained the Culver-Nunn amendment which declared that it was the sense of Congress that equipment procured for US forces in Europe under the terms of the North Atlantic Treaty be standardized or interoperable. It also directed DOD to implement procedures to carry out that policy. The policy was strengthened when the "Department of Defense Appropriation Act, 1977" (P.L. 94-361) was enacted in July 1976.²⁶ Prior to the passage of this act, DOD had shown little interest in NATO standardization.²⁷ Subsequent DOD directives have implemented the policy and procedures necessary for cooperative acquisition of defense systems. Since

this legislation, the Secretary of Defense has submitted annual reports to Congress on "Rationalization/Standardization within NATO."²⁸

President Ford's emphasis on rationalization and standardization in 1975 was enhanced by President Carter's reinforcement of that policy in 1977 coupled with a promise to the alliance of increased cooperation and defense growth. These statements firmly outlined the American commitment to Rationalization, Standardization, and Interoperability (RSI). However, the European industrial nations continued to fear standardization would be sought at the expense of their own industrial growth and economic survival. To establish a unified voice, the EUROGROUP members and France created the Independent European Program Group (IEPG) in 1976, thereby stimulating defense cooperation between European NATO partners.²⁹ Assembled in The Hague in April 1984, they reaffirmed their position as the member state secretaries agreed to a ten point resolution. They agreed to continue to work together to find European solutions and to increase rationalization of defense resources, especially in research and development efforts. They resolved as a group to seek a more balanced "two-way street."³⁰ In November 1988, the IEPG adopted an Action Plan to implement the proposals set forth in the European Defense Industry Study, Towards a Stronger Europe which featured an open and competitive European market, closer coordination of research, and encouragement of defense industry in Greece, Portugal and Turkey.³¹ A stronger European defense industrial market has major implications for U.S. defense industries.

Cooperative research, development and acquisition between members of the alliance is today clearly in a period of consolidation as the anticipated peace dividend is defined and the future of NATO and the potential of collective security are decided. However, this is also a period of opportunity with a need for even greater rationalization of alliance resources to meet the collective

defense and security challenge. Collective action will emerge as military and economic imperatives which must be met in the political arena of the alliance.

MEANS TO ACCOMPLISH COOPERATIVE ARMAMENT

The systems involved in RSI have evolved primarily as a result of the actions of industry and allied governments. Discussed below are the methods which currently exist to enhance commonality of equipment in NATO. Current initiatives place the greatest emphasis on seeking candidates for either purchase or cooperative research and development. Licensed production is defined separately even though, in most instances, it will be associated with other alternatives. Memoranda of understanding between participating nations have become an important, if not legally binding, way to implement international arms cooperation.

Cooperative Research and Development (CRD). CRD occurs when the US and one or more NATO countries collaborate in basic military research or the development of military hardware. It normally includes a sharing of technology and costs by the countries and companies involved. The following types of activities are included under cooperative research and development:

a. Data Exchange. The United States and participating countries exchange technical and scientific information of mutual interest.

b. Allocated development. The US and participants define a R&D problem in terms of tasks, allocate responsibility for task accomplishment among participants, complete tasks using national resources, and finally share the outcome.

c. Adaptive development. The US obtains for evaluation and possible adoption existing materiel which has been or is being developed by one or more other participants. It may culminate in a decision to accept the foreign-developed materiel as meeting US requirements.

d. Interdependent development. Participants agree upon a materiel requirement and one participant is assigned all development responsibility, including funding, and other participants forego development. The product is evaluated for possible adoption. The final culmination may be a decision to accept foreign-developed materiel as meeting US requirements.

e. Joint development. The US and one or more participants agree upon a materiel requirement and share responsibility for funding and managerial or operational aspects of development. Finally, the participants evaluate for possible adoption the outcome of the development. The US may accept jointly developed materiel as meeting its requirements.

f. Competitive R&D. Competitive R&D has become another alternative in the list of NATO cooperative R&D options. Competitive R&D envisions independent development of systems by two or more countries. Competition is then conducted between systems. Based on evaluations of test results, one system is selected with licensed production of the winning system offered to the losing country. Competitive R&D does not eliminate duplication and redundancy in the R&D effort; however, it should result in the production of standard systems.

Direct Purchase. Direct purchase is another NATO standardization and interoperability alternative that is not precisely defined. But, it is a rather straight forward option. The US purchases a NATO system to satisfy a US military need. Whether there is competition between US and NATO systems is

determined by the status of US systems. The term direct purchase implies either that the foreign system is clearly superior to the US competitor or is the only one which will meet the established need. Licensed production in the US by a US commercial firm or the US Government is anticipated to be a feature of the direct purchase.

Coproduction. Coproduction is addressed in DOD Directive 200.9, International Coproduction Projects and Agreements Between the United States and Other Countries or International Organizations, 23 Jan 74. Coproduction encompasses any program wherein the US Government, either directly through the Arms Export Control program or indirectly through specific licensing arrangements by designated commercial firms, enables an eligible foreign government, international organization, or designated commercial producer to acquire substantial knowledge necessary to manufacture or assemble, repair, maintain, and operate, in whole or in part, a specific weapon, communication or support system, or an individual military item.

Licensed Production. Licensed production is the term which usually describes the case in which the NATO country or industrial firm is the licensor and the US Government or firm is the licensee. It is sometimes called "reverse coproduction." Present policy generally provides for the US to obtain licensing rights for any system purchased from a NATO country.³³

SUMMARY

The need to continue rationalization of alliance resources to meet new strategic requirements and to maximize defense resources has emerged as a military imperative which must be met in the political arena of the alliance. A number of techniques have been evolved to facilitate standardization efforts.

CHAPTER II

POLICIES, POSITIONS, AND PERSPECTIVES

The rules for international standardization are often based upon the perspective of the NATO partners. This perspective is expressed in their position and policies regarding standardization through arms cooperation.

NATO

The most authoritative statement of the NATO Alliance position regarding standardization is found in the Long-Term Defense Program (LTDP). Adopted in May 1978 by the Heads of State and Defense Ministers of the NATO member nations, the LTDP represents a unified attempt to identify, acknowledge and resolve continuing alliance deficiencies in light of the Warsaw Pact buildup of forces.³⁴ It was accepted that the criteria for the mutual defense effort must be: collective, affordable, realistic, cooperative, prioritized, and specifically planned.³⁵ Ten major elements were developed under the program; most included some element of RSI. One of the ten elements specifically addressed RSI and emphasized the need of long-range armaments planning and closer weapons cooperation among alliance member nations. It established the ultimate goals of more rational and efficient use of NATO resources and improved military effectiveness. The current military reorganization within NATO toward multinational corps will serve to further increase standardization requirements. The principles outlined remain the cornerstone for current efforts toward collective defense and security. The realities of the arms cooperation

environment have helped move the Alliance toward policies which focus on requirements and cooperative research and development efforts. The larger and yet unanswered questions of out-of-sector operations and efficacy of collective security will affect the thrust and momentum of cooperative arms initiatives.

UNITED STATES

The rebirth of US active pursuit of standardization came as a result of President Nixon's signing of the Department of Defense Appropriation Act, 1975. The act set the stage for continued standardization policies. In 1975, at the NATO summit meeting, President Ford declared that the alliance had not done enough to standardize weapon systems and called for increased efforts to rationalize defense efforts.³⁶ In May of 1977, President Carter made the strongest presidential statement on NATO standardization. He promised that the US would work to improve the "two-way street" and agreed upon an annual increase in alliance defense budgets of three percent.³⁷ Allied interdependence and cooperative arms development have remained a part of the nation's security and military strategies throughout the decline of the Cold War and in the emerging era of collective security. The four main goals which involve and compete with transatlantic cooperation are:

- a. Encourage RSI and burden sharing
- b. Regulate technology transfer and release of classified information
- c. Protect the defense industrial base
- d. Maintain U.S. industry access to European markets³⁸

CONFLICTING POSITIONS AND POLICY

The diverse interests and objectives of the nation often create conditions which place policy into conflict. Outlined below are the major areas of conflict regarding arms cooperation:

a. Rationalization, standardization and interoperability (RSI) and burden sharing reflect the sense of Congress. Legislation which support increased collaboration include:

- (1) Culver-Nunn Amendment - 1977
- (2) Roth-Glenn-Nunn Amendment - 1983
- (3) Nunn-Roth-Warner - 1985

All three pieces of legislation support and appropriate additional funds as incentive for collaborative programs with increased emphasis on international research and development.

b. Restrictions which cover sensitive technology transfer and classified information limit opportunities for collaboration. Sensitive technology is restricted through the Export Administration Act (EAA) which limits dual-use technologies and the Arms Export Control Act (AECA). Through executive order (1977) the State Department implements this program. If classified information must be transferred as an element of the cooperative program, the National Disclosure Policy Committee (NDPC) must approve exemptions before program continuation.

c. Industrial base protection is legislated in the Buy America Act of 1933 which protects domestic suppliers from foreign competition. The provisions of this act must be waived for collaborative arms development and acquisition to procede.

d. Defense market access is best achieved through partnership with allies and friends. This critical area was addressed in the General Agreement on Tariffs

and Trade (GATT) negotiations with pressure, both domestically and abroad, to include defense and dual-use markets.

e. Initiatives toward conventional arms reductions and arms control limit momentum toward growing market access.

Industry strongly desires access to expanded defense markets in Europe and worldwide. However, they remain skeptical about the future of ventures under collaborative programs due to the risk and conflict among policies and lines of authority as outlined above.³⁹

DEPARTMENT OF DEFENSE

The basic DOD policy on NATO RSI is promulgated in DOD Directive 2010.6, "Standardization and Interoperability of Weapons Systems and Equipment Within the North Atlantic Treaty Organization." The policies outlined in the directive include, inter alia, that:

a. The DOD will initiate and carry out methods of cooperation with its Allies in defense equipment acquisition to improve NATO's military effectiveness and to provide equitable economic and industrial opportunities for all participants.

b. The DOD will seek greater compatibility of doctrine and tactics to provide a better basis for arriving at common NATO requirements.

c. The goal is to achieve standardization of entire systems where feasible and to gain the maximum degree of interoperability throughout Alliance military forces.

d. The need for US forces to meet worldwide commitments is not a basis for failure to maximize interoperability and standardization of systems within NATO.

e. The US shall pursue three major approaches, among others, in its effort to achieve increased Alliance standardization and interoperability.

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

(2) Negotiation of dual production of developed or nearly developed systems.

(3) Creation of families of weapons (program packages) for systems not yet developed.

f. The US will actively participate in the trials for the NATO Periodic Armaments Planning System (PAPS) and support the NATO Armaments Planning Review (NAPR).

g. The DOD will not normally enter into government-to-government offset procurement agreements with other nations. Industry shall be relied upon to arrange for efficient means of arms collaboration on each program or project.

h. The US shall, in general, permit sales and transfers by NATO allies participating in cooperative programs to any nation to whom the US is willing to sell the same equipment in the same quantity.

i. The DOD shall encourage the transfer of technology, foreign intelligence, and military information, consistent with the terms of the National Disclosure Policy and applicable US laws and regulations, to include the International Traffic in Arms Regulation.

j. DOD will include NATO standardization and interoperability as a basic goal in acquisition programs.⁴⁰

The recent emphasis on international research and development has as its objectives:

- a. Improve current and projected defense posture through...
 - agreed upon operational deficiencies
 - support for the NATO Conventional Arms Planning System (CAPS)
 - improved burden sharing
- b. Enhance U.S. allied defense industrial base through...
 - capitalization of each country's strengths
 - exploitation of economies of scale
 - stabilized production levels through cooperative production and logistics efforts
- encouragement of cooperation at the "tech base" level
- focused military applications of defense critical technologies
- c. Reduce defense RDT&E costs through technology and facilities sharing
 - encourage services to establish cooperative programs as a part of the mission needs statement
- target the year 2000 for a significant level of research and development cooperation
- d. Improve military system interoperability through...
 - emphasis of the importance of coalition operations
 - identification of crucial command, control, communications, and intelligence⁴¹

The objectives, although straight forward, have been difficult to achieve. A major problem has been the use of the memorandum of understanding between nations participating in the collaborative R&D. The MOU has no formal legal basis and must pass through a series of reviews (fiscal, industrial, legal,

technology transfer) which make the process so burdensome that less than half of the funds appropriated for this program are actually committed.⁴²

There appears to be little commitment by the Army to actively pursue collaborative programs. This position has emerged due to a number of factors. The Army has historically found itself in the buyers position (eg. ROLAND) on the two-way-street while other services sold high technology systems abroad. Long procurement lead times have resulted from multi-agency involvement, incompatible procurement cycles among participating nations, translation of requirements and specifications, and additional Congressional oversight. Promised savings of procurement dollars have not been realized. Additionally, system requirements have not been universally met under the conditions of a European scenario.

The Army strategy of power projection recognizes the entire spectrum of possible conflict with a low probability of major conflict involving US ground forces in the NATO theater. As early as the decade following the Vietnam War this broad view of potential conflict was recognized as the basis for requirements determination. This broad view was consistent within a strategy of containment. General John W. Vessey stated that the Army did not view standardization as a NATO problem; it involves all allied countries. "It is essential that we not be trapped into focusing only on a single region to the detriment of our capability to respond to a wide range of global contingencies."⁴³

To meet this world-wide commitment, the Army historically has sought materiel which reflected the ultimate in available technology. The Army has shown little interest in foreign materiel which did not reflect state-of-the-art technology. The Army underwent extensive force modernization during the decade of the eighties; it was an excellent opportunity for increased standardization and

interoperability. However, the Force Modernization Office, which was created to integrate overall Army plans into the acquisition plan, stated that RSI issues tended to be an effect of their efforts rather than a cause. Only in areas where research and development was being duplicated in the alliance or where procurement for the Army was too small to provide for an economic buy, did the RSI issue affect modernization coordination efforts.⁴⁴ The result was a failure to standardization among allies.

It has also been alleged by some Army acquisition program and project personnel that the high dollar sales of Air Force equipment (e.g. F-16, AWACS) to NATO have forced the Army into a "buy" position on the "two-way street". This perception is strong in spite of the DOD policy to generally not provide for defense materiel offset agreements. The key individual responsible for insuring RSI considerations are included in the acquisition process is the project or program manager. "...the PM must take an active, aggressive role in furthering standardization and interoperability within his system if it is to be successful."⁴⁵ However, the program manager is normally not appointed until the acquisition strategy has been established.

EUROPE: GOVERNMENT AND INDUSTRY

The European perspective of allied standardization differs greatly from that of the United States. It is sought for reasons which often run counter to the basic motivation for US RSI policy.

European union is a goal of the European member nations. Actions which were taken during the last two decades which support this position include:

- a. Election of an European Parliament.

b. Establishment of an European Monetary System (EMS) for coverage of economic policy.

c. Unprecedented European political cohesion on international affairs.⁴⁶

d. EC Summit at Maastricht and the WEC.⁴⁷

These strides toward a united Europe reflect increased European rationalization. The formation of consortia for weapon system development solely in Europe has continued to gather momentum due to the rebirth of European industry. In the long-run, this trend could foreshadow US industry's increasing decline in the weapon systems world market.⁴⁸

The national motives within Europe for collaboration and cooperative arms acquisition include:

a. Use and preservation of existing industrial capacity.

b. Distribution of high research and development costs through expanded exports.

c. Maintenance of a diverse national technology base.

d. Budget restraints and collaborative savings.

e. Standardization of military hardware.⁴⁹

Where the US has endorsed collaborative procurement as a means of achieving standardization and military efficiency, the Europeans, although recognizing military benefits, endorse standardization as a means to achieve collaborative acquisition. This position reflects the economic priority European governments place on international affairs. The priorities of the US and Europe are

reversed.⁵⁰ It is here that the distinction between standardization efforts and cooperative arms acquisition is most dramatically revealed. Within a shared strategy of collective security these perspectives could become more consistently aligned.

European defense industry is characterized as sole source/nationalized firms whose economic survival parallels the political survival of the member nation's leadership. Teak A. Wilson, President of the European firm, Teledyne Ryan Aeronautical, expressed his view of European industry's outlook on standardization as follows: It is "An alloy of hope, fear, and frustration bound in a matrix of cynicism." The hope is that US markets will open to European suppliers; the fear is that standardization is a scheme to sell US products in the European marketplace. The cynicism is that the whole process will never evolve due to bureaucratic, Congressional, labor, and industrial actions in the US, and that the US will continue to seek its own materiel due to national research and development preferences.⁵¹ European industry often concedes that it cannot compete against US industry due to technology shortfalls and the lack of a volume production capability. Additionally, they have strong labor laws which make it dangerous to expand due to subsequent reduction difficulty and expense. They exist in a political and economic atmosphere of:

- a. high national debt
- b. poor balance of payments deficits
- c. serious unemployment
- d. strong leftist movements
- e. high inflation

f. weak government conditions 52

There are seven major trends which characterize the future of the European defense sector; these include:

- a. Further consolidation although at a slower pace
- b. Creation of "strategic" alliances within industries
- c. Less state control over defense industry with increased privatization
- d. A hollowing of conglomerates in favor of more sectoral economic interest groups (EIG) which equate to mergers of short duration
- e. Diversification within defense related and civil industries
- f. Greater focus on versatile defense technologies with broader civil application
- g. Increased attention to systems integration

The first four trends may be seen as structural changes to the European defense industry.⁵³

An understanding of this environment helps to explain the totally opposite approaches to cooperative arms acquisition which were taken by the US and European alliance member nations. The conflicting priorities and goals within NATO serve to reduce the rapid emergence of standardization.

FOCUS

NATO outlined a long-term program for increased alliance military capability to strengthen deterrence and enhance the ability to fight a European theater war

against the Warsaw Pact. This collective defense strategy has been overshadowed by the move toward collective security. The US has encouraged standardization to increase the allied force multipliers; the European member nations have also sought standardization, realizing military benefits exist, but seeking first the economic stability provided by arms cooperation. The conflicting priorities and goals within NATO served to reduce the rapid emergence of standardization. Each cooperative arms agreement traced a new path through cold terrain.

The Subcommittee on NATO RSI and Readiness of the House Armed Services Committee found that, on a case by case basis, arms cooperation goals are political and economic and had little to do with military policy.⁵⁴ The US appears to have focused on near-term acquisition strategies; in reality, it cannot afford to do otherwise.

Only as this century comes to a close can the effectiveness of the RSI policies and procedures adopted by NATO and its member nations be fully measured against the elements of national security strategy.

CHAPTER III

NATIONAL SECURITY INTERESTS

STRATEGIC REQUIREMENTS

The ability of the alliance and the US to deter conflict in Europe eroded through a period of "trip-wire" nuclear diplomacy and emerged in a period of new emphasis on conventional strength. By the early sixties, massive nuclear retaliation had lost credibility in the face of the asymmetries of the US / Soviet nuclear forces. The alliance adopted a strategy of "Flexible Response" which required an improved conventional deterrent. This improved conventional strength was expressed in terms of tactics and weapon systems employed in "AirLand Battle", "Counter Air 90", and "Attack of Follow-on Forces." Cold War termination and emerging Joint operational doctrine with its lessons from coalition warfare have emphasized that standardization and interoperability of weapon systems are necessary to increase the military force multipliers within a theater of operations. However, there are military costs which are also associated with a policy of standardization. The degree to which the costs are offset by increased national and collective security provides a measure of the effectiveness of standardization.

HARVEST OF FAILURE

Although the need for military standardization within NATO had long been recognized, failure to manifest this realization into national and international policy resulted in a proliferation of weapon systems on the battlefield. The nationalization of systems and major platforms within the NATO equipment mix resulted in logistic and combat interface problems which continue to degrade the

force multipliers provided by the astute use of high technology.⁵⁵ The degree to which combat capability is degraded was estimated by General Goodpasture, former commander, US Army Europe, to be between thirty and fifty percent based upon logistic considerations alone.⁵⁶ Other sources estimate that an overall fifty percent reduction in military efficiency is a realistic assessment.⁵⁷

Erosion of equipment standardization can be most graphically demonstrated by the growth in types of weapon systems deployed within NATO (Includes France and Spain (after 1983)):

	1967	1971	1977	1987	1997*
FIGHTER AIRCRAFT	15	15	17	22	22
MAIN BATTLE TANKS	7	7	7	10	12
TANK MAIN GUN TYPE	3	3	3	4	4
NAVAL SURFACE TO AIR MISSILE TYPES	7	9	12	11	13

* Anticipated 1997 - projection⁵⁸

The failure to standardize is a multidimensional problem. NATO member nations continue to sow the seeds which contribute to a lack of standardization through:

- a. different doctrinal requirements
- b. different equipment replacement schedules
- c. different budgetary cycles

The doctrinal issue and global mission cause the US to face a force design dilemma which is not easily reconciled within the current standardization initiatives.

The NATO harvest and hope were expressed by General T. R. Milton, USAF (Retired). "For years the NATO military members have drifted separate ways on equipment and procedures, but the future of the Alliance may depend on rationalization of collective security."⁵⁹

SECURITY BENEFITS OF STANDARDIZATION

The most significant benefit of standardization and collective arms agreements is difficult to quantify. It is the unity of the alliance through economic, industrial, political, and military interdependence and partnership. The ability of this force to extend its foreign policy and provide for its collective defense and security is greatly enhanced by the synergetic cooperation of the alliance.

The two most frequently cited benefits of standardization are conservation of resources and improved combat capability. Areas in which standardization may have the greatest potential for improving combat efficiency and effectiveness are:

- a. coordination of forces
- b. improved tactical compatibility
- c. force interoperability
- d. consolidation and interoperability of logistics
- e. improved deployment time for forces
- f. decreased transportation requirements.⁶⁰

These areas are of greatest potential significance to a power projection strategy and the potential for out-of-theater NATO operations which would include European forces.

Cooperative projects selected by NATO, in April 1984, to capitalize on emerging technology include:

- a. New identification friend or foe (IFF) system for NATO aircraft.
- b. Low-cost submunitions dispenser for fixed targets.
- c. Electronic support mission (ESM) system for passive detection of enemy aircraft and vehicles.
- d. Multilaunch rocket system (MLRS) with precision-guided submunitions.
- e. Automated 155mm precision-guided munitions.
- f. Short-range antiradiation missile.
- g. Standoff surveillance and acquisition system.
- h. Battlefield target acquisition system.
- i. Electronic jamming system for tactical aircraft.
- j. Artillery locating system.
- k. Self-protection system for battlefield helicopters, including both passive and active electronic units.

NOTE: The first seven projects were designated to receive priority.61 Increasingly emphasis was placed on cooperative research and development to

advantage technological opportunities. This thrust is reflected in and consistent with the current U.S. defense acquisition strategy.

SECURITY COSTS OF STANDARDIZATION

There are potential security risks associated with a policy of standardization. One such risk is that the US forces would not be armed or configured to meet the wide range of global contingencies included in the current Military Strategy.

Another military liability of over standardization could result from the ability of potential adversaries to focus the development of its countermeasures to meet only a single compliment of weapon systems and doctrine. It is easier to develop countermeasures for a single system than for several which use different principals of operation.⁶²

A possibly even greater liability than fielding a single technology is the potential of accepting systems which are generations behind the available state-of-the-art. This may occur through the political and economic considerations of an acquisition⁶³ or through lengthening of the acquisition process beyond reasonable limits.

Standardization can potentially reduce the industrial base of the nation. Foreign purchase, without licensing agreements, eliminates a technology and production capability at home. General Meyer (Ret), quoting General of the Army, Omar Bradley, noted, "Nations not armies go to war. There is a vital need to preclude surprise, that the (industrial) base be in the best possible shape when it may be called upon."⁶⁴ This will be increasingly significant as the strategy of rapid reconstitution is implemented. However, the alliance industrial base can potentially be expanded through the standardization process of coproduction in which several nations retain a production capability.

Perhaps the most significant issue involved in cooperative arms agreements relates to the sale of arms and conventional arms control. Although West Germany has refrained from large-scale arms exports to countries that are not allies of the United States, Britain and France have not. NATO nations will probably need to export jointly produced arms to lower unit costs of production and to support their trade balance. Should US firms find it attractive in the future to join with European corporations in the development of advanced armaments, the United States will feel pressure to allow sales to third countries. In this contest of policy, NATO standardization and a policy of restraining the arms trade will clash head-on.⁶⁵

It is therefore evident that total standardization, even as a goal, is not realistic and does not increase national security. The US and NATO must establish that point where standardization is most effective for collective defense and collective security requirements.

CONCLUSION

The US policy for standardization of NATO forces supports national security interests through:

- a. increased potential for a collective security strategy to be a viable deterrent or response. The potential for power projection of a decisive coalition or alliance force would be enhanced. (Strategic Agility)
- b. increased interoperability and force multipliers equating to more effective combat power should it have to be used. (Readiness and Decisive Force)
- c. Security Assistance programs to friends and allies. (Forward Presence Operations)

d. Sustained Defense Industrial Base through wider defense markets.

(Reconstitution)

Although standardization should remain a goal, total standardization would not serve the national interest. The approach taken by the Joint Chiefs of Staff and accepted by NATO for near term interoperability appears to offer the greatest benefit; the five high priority categories for interoperability are:

- a. command and control systems
- b. cross servicing capabilities of aircraft
- c. greater interoperability in ammunition
- d. compatibility of battlefield surveillance and target acquisition systems.
- e. standardization or interoperability of components and spare parts for a variety of systems and subsystems.⁶⁶

These areas can be achieved through some level of standardization achieved through cooperation.

CHAPTER IV

ECONOMIC IMPERATIVES AND US POLICY

US economic interests are directly affected by NATO standardization and arms cooperation policies. However, as Charles W. Duncan, former Deputy Secretary of Defense, stated before the House Subcommittee on Government Operations, "I think the fact is that the main gain you get from (RSI) is not economic. The main gain is military cost effectiveness. The main gain is combat effectiveness."⁶⁷ Therefore, an analysis of standardization policy in support of national economic interests must be made in terms of cost-benefit. Are the costs of standardization worth the benefits gained in national security? Although it may be argued that no cost is too great to ensure national security, the economic imperatives of a free country dictate that a cost effective balance be achieved. An analysis of NATO economic variables, such as gross national product, defense spending, balance of payments, and their relationships can provide an economic perspective. To the degree standardization policy promotes US productivity, limits US defense spending, and protects the US balance of trade, the effectiveness of standardization as a national policy can be measured.

NATO/US ECONOMICS

The "Nixon Doctrine" of the early seventies resulted in the Department of Defense policy of global "Total Force" defense. This concept included collective defense efforts and power projection to protect Western interests. Although not totally successful, this policy envisioned the security of the West as a shared burden. The increase of Soviet power through increased military expenditures was alone justification for this policy to meet the requirements of a global containment strategy. Authoritative estimates of Soviet defense expenditures

during the seventies have ranged from 11-15 percent of their gross national product (GNP) with estimates reaching as high as 18 percent for the early eighties.⁶⁸ During the same period, US expenditures continued to fall. Although increases in defense spending occurred during the Reagan Administrations, increases in defense spending to unilaterally match that of the Soviet Union would not be acceptable to the American people. However, the collective GNP of the NATO Alliance, which was 235 percent that of the Warsaw Pact, would allow for an effective defense capability.

It was, therefore, the collective economic strength of NATO which was molded into an effective military capability. The following chart show the relative contribution of the alliance member nations.

**DEFENSE EXPENDITURES
AS PERCENTAGE OF GROSS DOMESTIC PRODUCT IN
PURCHASERS' VALUES**

COUNTRY (0)	70-74 (1)	80-84 (2)	1985 (3)	1986 (4)	1987 (5)	1988 (6)	1989 (7)
BELGIUM	2.9	3.3	3.1	3.1	3.0	2.8	2.7
DENMARK	2.4	2.4	2.2	2.0	2.1	2.2	2.1
FRANCE (a)	3.9	4.1	4.0	3.9	3.9	3.8	3.7
GERMANY (b)	3.5	3.3	3.2	3.1	3.1	2.9	2.9
GREECE	4.7	6.6	7.0	6.2	6.3	6.4	6.0
ITALY	2.3	2.2	2.3	2.2	2.4	2.5	---
LUXEMBOURG	0.8	1.2	1.1	1.1	1.2	1.3	1.2
NETHERLANDS	3.1	3.2	3.1	3.0	3.1	3.0	2.9
NORWAY	3.3	2.9	3.1	3.1	3.3	3.2	3.3
PORTUGAL	6.9	3.4	3.2	3.2	3.1	3.2	3.0
SPAIN	---	2.4	2.4	2.2	2.4	2.1	2.1
TURKEY	4.4	4.9	4.5	4.8	4.3	4.1	3.9
UNITED KINGDOM	5.1	4.9	5.2	4.9	4.6	4.2	4.2
NATO EUROPE	---	3.6	3.5	3.4	3.4	3.2	---
CANADA	2.1	2.1	2.2	2.2	2.2	2.1	2.0
UNITED STATES	6.5	5.8	6.5	6.7	6.4	6.1	5.8
TOTAL NATO	---	4.7	5.2	5.0	4.8	4.5	---

NOTES:

- a France is a member of the Alliance without belonging to the integrated military structure; the relevant figures are indicative only.
- b Does not include figures on Berlin.

This data from NATO REVIEW, February 1990, no. 1, p.32.69

"Recognizing that ...mutual commitment is by far the most critical ingredient of security, NATO governments made determined efforts to preserve the momentum of their defense programs even in the face of adverse and discouraging circumstances. This is not to disparage the troubling fact that real increases in allied defense spending have run well below ours for the past few years. But account must be taken of political and economic imperatives in Europe as well as the United States."70

BURDEN SHARING

The economic burden of Western defense and collective security has long been shouldered by the United States. The US retained the resources to maintain the strategic nuclear balance with the Soviets, however, US expenditures and initiatives alone were not adequate to provide the necessary strategic conventional deterrent.⁷¹ The US provided 20 percent of the conventional forces to NATO. The remaining burden was shouldered by Europe and Canada. However, two of every three dollars spent on the defense of Western Europe was spent by the United States. The US spent three times more on research and development than the rest of NATO combined and ten times more than any single member nation. With the decline of the Soviet Union, the arguments for increased European burden sharing have been overshadowed by the issues of collective security and out of theater operations by the alliance.

However, if collective security and partnership in world wide influence is to become a role of the NATO Alliance, rationalization is essential to insure efficient and effective use of limited available resources.

BALANCE OF TRADE

One of the major economic issues involved with NATO standardization has been the balance of traffic on the "two-way street." There are two perspectives of this issue and the way traffic should be measured. The European perspective limits the traffic count to arms trade. The United States historically has sold approximately ten times the defense goods and services that it procured through imports. Given this narrow perspective of the "two-way street", the European leaders have a valid argument for offset and quid-pro-quo cooperation.

However, with respect to the aforementioned burden sharing and total defense related goods and services, the United States was in a deficit position on the street. The exact amount is difficult to establish as evidenced by conflicting government reports. Despite the inconsistency in these reports, there appears to be little reason to support the European perspective of the "two-way street" in light of the total relevant balance in defense payments and the collective security provided alliance members.

SAVING DEFENSE \$\$\$\$\$

One of the stated goals of a policy of standardization is to achieve the cost efficiencies associated with cooperative arms agreements. There has been only minimal and then conflicting research into the long range economic implications for American trade balance and industry of a cooperative weapons procurement.⁷² There are several figures offered which quantify the savings from total NATO

standardization. These estimates range from three to fifteen billion dollars annually. These estimates are based upon total standardization which is neither practical nor totally warranted. The three billion dollar figure is less than two percent of NATO's defense budget and obviously not an answer to all of NATO's problems.⁷³ One study of the potential savings associated with standardization found that the designation of a single source for development of each type of major weapon system could save three billion dollars during a ten year acquisition cycle.⁷⁴ However, this approach would severely limit the industrial base and surge capacity of the alliance, critical to a strategy which includes the concept of reconstitution.

In a Comptroller General Report to Congress on the NATO Long-Term Defense Program, it was stated that additional costs could be anticipated. Also, due to its world-wide role, the US may actually pay for both large unilateral efforts while participating in similar NATO programs.⁷⁵ The hard fact is that supporting a standardization policy will probably result in additional cost to the United States defense program.

SURVIVAL OF THE U.S. ECONOMY

The rematuring of the European economy and defense industry represents a challenge to the stability of the US economy as evidenced by the growth of the European multinationals.⁷⁶ Recent statistics indicate that, although the "Buy American Act" of the 1930s was to protect the US from cheaper foreign labor, the reverse is becoming the case. Higher labor costs in Europe may force NATO allies to pass similar law.⁷⁷ Under today's conditions, opportunities for profits are attracting a rising volume of foreign investment to the United States, and the fading "American challenge" to Europe has been followed by what some would call a "foreign challenge" to America.⁷⁸

Failure to resolve the arms cooperation issue can have a devastating effect on US defense industry and the economy. Chapter Day, Senior Editor of Air Force Magazine, summarized the problem facing one defense industry when he said,

The US aerospace industry, key to military strength and a strong position in foreign trade, is at a major crossroads ...America's long dominant position in aircraft production is threatened abroad by government-backed European companies and at home by US government policies...At stake is the future shape of US aerospace, thousands of jobs, and the ability of the industry to respond to the nation's military needs.⁷⁹

European allies are demanding a fairer share of the Alliance arms sales; straight sales of US weapon systems to European NATO nations are increasingly difficult to achieve. The changing economic climate dictates that the US share the market or risk being completely eliminated. Standardization is more than just a military program to enhance capabilities and efficient use of resources; it is also a political program to protect the economic interests of the member nations. Economically, the US must move to protect its own defense industrial base by taking actions which do not otherwise induce the Europeans to exclude the US from European markets. Failure to establish a North Atlantic defense market could result in failure of the alliance to provide for collective security through a collective defense effort. Economic interests and national security are here clearly linked.

CONCLUSION

The changing economic environment dictates new policies and procedures for economic growth and survival. The US must support a North Atlantic defense market for the viability of the American defense industry and the economy, as well as to support national security interests. Although the US policy has focused on standardization to achieve combat effectiveness, the economic imperatives demand that arms cooperation be addressed as a separate issue.

NATO Europe must continue effective levels of defense spending and rational arms cooperation if collective security is to remain a treated objective. It is here that standardization is most effective.

There will be little if any savings of defense dollars as a result of standardization. There can also be an initial impact on the US economy as the strains of development of a mature NATO defense market are felt. However, the "benefits" derived from these costs justify the expense. The United States and its defense establishment must go beyond rhetoric to provide the real leadership necessary to open the defense market if it is to reap the benefits sown by expanded markets for arms cooperation and collective security.

CHAPTER V

INDUSTRIAL POLICY

From Acquisition Policy to Industrial Policy

US industry is directly affected by NATO standardization policies. To a great extent, government policies shape and control the structure of defense industries, the international operations in which they may engage, and their access to both domestic and foreign markets.⁸⁰ The employment and output in domestic defense industries is a major political and economic concern related to NATO defense materiel acquisition. Robert W. Dean, in a RAND Corporation report, outlined national acquisition policy as having four driving forces:

- a. satisfaction of operational requirements
- b. desire to make technical progress
- c. maintenance of broad defense technological and industrial capabilities (to include a skilled labor force)
- d. satisfaction of national economic requirements (i.e., trade balance or employment levels)

The last three of these forces are also seen as industrial policy decisions.⁸¹ Therefore, the Culver-Nunn Amendment to the Defense Appropriations Act for FY 1977, and those like it which detail the policy for NATO standardization, are not only defense acquisition policies; they may also be viewed as national industrial policies. The success of these policy decisions is measured on international economic scales in a political arena.

INDUSTRIAL IMPERATIVES AND US POLICY

There are basic imperatives which must not be sacrificed as a result of industrial policy decisions:

- a. Industry must survive and thrive.
- b. The US must not lose its basic competitive system.
- c. US industry must retain its technical vitality and leadership.⁸²

If these imperatives can be met within collaborative arms policy, NATO standardization through arms cooperation may remain a valid direction for US defense industry. Industrial leaders do not question the basic premises offered for standardization within NATO. However, implementing procedures which will survive in the political arena and stand the test of time are more difficult to achieve than mere acknowledgement of the theoretical goals.⁸³

A DEAD END "TWO-WAY STREET?"

The flow of defense sales and purchases between the United States and the European NATO members on the "two-way street" has developed from two basic approaches. The "protectionist" approach is one which is based upon a guaranteed and equal flow of defense procurement. This method is characterized by offset or reciprocal agreements between participating industries and nations. The other approach is termed "competitive." Competitive bidding between potential contracting industries characterizes this procurement process.⁸⁴ In the February 1979 report by the Special Subcommittee on NATO Standardization, Interoperability and Readiness of the Committee on Armed Services (House of Representatives), one of the findings of the subcommittee was,

As European defense products proliferate, the only conceivably efficient and equitable mechanism to provide the best defense will be to select equipment competitively. This approach is universally supported in principal but also nearly universally ignored in practice.

However, in the same report, the subcommittee also found,

If some level of meaningful arms cooperation is to become a reality, defense contractors and labor must be consulted and participate at an early stage in the process.⁸⁵

It is the imperative to sustain the competitive system and the need to involve industry at an early stage in the acquisition process which together have formed a basic stumbling block to industrial understanding of the "two-way street". Competition and industry's early involvement in the procurement process become opposing forces in the development of international arms cooperation procedures as no provision currently exists to allow both to occur.

In actual practice, the Department of Defense rarely consults industry in the course of negotiation of international research and development collaborative agreements since the specific contractor is not yet known. The United States is the only major industrial nation within NATO which fails to include industry at this point in the acquisition process.⁸⁶

It is of little wonder that industry's representatives at the United States Army's Atlanta VI Conference, in February 1980, stated that one of the major problems in getting a program started was "confusion over the RSI issue."⁸⁷

The decision to seek NATO standard materiel is further complicated by the decisions involved in selecting the process for development and production. There are basically three options available as outlined in Chapter I:

- a. Develop and produce the system in one country.
- b. Develop the system in one country and license others to coproduce.

c. Joint development by two or more countries and coproduction in those countries.⁸⁸

Each of these decisions will have a tremendous impact on the defense industry of the United States.

The Department of Defense established a series of Memoranda of Understanding (MOU) with allied nations which provide for blanket waiver of the "Buy America Act" for defense contracting. Contracting agents may solicit bids from industries in these nations. The nation to nation agreements allow for continuation of the competitive process on an international scale. However, MOUs are agreements between international defense officials and are not formally enacted by Congress. Congressional approval of the agreements is not achieved until appropriations or legislation is enacted.⁸⁹ It is yet unclear if the MOU will provide a lasting answer to problems of international acquisition.

RESEARCH AND DEVELOPMENT

Technology Transfer

Technological superiority is a major element of the U.S. National Security Strategy⁹⁰ The Defense Department Science and Technology program has adopted a strategy which seeks to acquire and protect leading edge technologies in the following areas:

- a. Global surveillance and communications
- b. Precision strike
- c. Air superiority and defense

- d. Sea control and undersea superiority
- e. Advanced land combat
- f. Synthetic environments
- g. Technology for affordability⁹¹

One of the major advantages enjoyed by United States industry is the technological lead it possesses over other industrialized nations. The export of high technology products serves to balance our trade, offsetting our imports of natural resources.⁹² The transfer of technology and skilled professional management by political process, rather than industrial collaboration, erodes the nation's technological leadership. However, DOD has argued that firm-to-firm relationships in the exchange of industrial property rights could eliminate competitive procurement.⁹³ Again the basic problem of early involvement of industry and the competition issue block the road to standardization. One response to this problem was provided by a student research team at the Industrial College of the Armed Forces:

US industry says it thrives on competition in a free marketplace. The plain fact is that the arms industry is not a free competitive marketplace outside the USA. What US industry really thrives on is Return on Investment (ROI) and good ROI is assured when markets are predetermined and investment can be planned based upon expected sales. Because of the pervasive profit motive of US industry, they can be expected to be very efficient at developing teams, determining roles, and allocating work based upon ability: everything is weighed in terms of ROI which is a good means of achieving efficiency.⁹⁴

In spite of industry concerns over the standardization issue, industrial leaders have taken the position of doing what is asked of them. Once firm requirements and funding are established, the emphasis shifts to a search for assistance for

waivers of the "Buy American" and "Specialty Metals" acts, the very provisions which have helped to protect US industry. However, the concern for protection of intellectual property rights (technology) continues.

The current provisions of the Armed Services Procurement Regulation provide for US government use or disclosure of any technical data called for under government contract. The regulation also requires that DOD acquire the capability to produce codeveloped equipment. This provision insures that the United States will not be totally dependent upon foreign manufacturers for its requirements.⁹⁵ It does not, however, protect the technological edge of the US from migrating to European industry. There is a real danger that technology transfers associated with defense standardization may affect the balance of trade in defense related commercial technology markets.

Family of Weapons

The Alliance nations established a program of materiel development focusing on the Family of Weapons (FOW) concept. This program was implemented in an effort to eliminate duplication in NATO research and development. Consortias are the basis for the program with sponsor nations heading development of specific weapons families.⁹⁶ This fragmentation of research effort may partition the commercial technology base in related industries as well. The cartel approach to partitioning R&D may even be a threat to the basic system of competition.

Current strategies within the Alliance and the U.S. emphasize research and development as they are where the greatest return on investment can be achieved in the near term in an environment of scarce defense dollars.

PRODUCTION CONSIDERATIONS

Technical Data Package

The effect of NATO standardization can also be seen on production. The production process which involves the transfer of technical data must face a new set of problems. Production cost estimates are hard to make prior to transfer of the required technical data from a foreign industry under a coproduction agreement. These production costs will include a tremendous expense incurred due to the physical conversion of the technical data into the specifications, drawings, and plans necessary for US production. The Roland missile costs derived from the conversion of the technical data transferred from Euromissile's subcontractors to Hughes/Boeing contractors totalled approximately eighteen million dollars. The Roland technical data conversion required disciplined engineering skills to complete.

Design engineers must conduct US counterpart searches for each European produced part. The Roland project experienced an impressive correlation between European and US equivalent items.⁹⁷

Exact US equivalents	54,800	80.3%
Near US equivalents	4,000	5.9%
Parts requiring European purchase	9,430	13.8%
	68,230	100.0%

The success of this search may not be duplicated since each technical data package must be evaluated based upon its own merits.

Language also proved a barrier to efficient technical data conversion. A technical vocabulary must be developed which will insure no misunderstanding. When more than two nations are involved the magnitude and expense associated with this process increases dramatically.

Standards

To achieve standardization of the basic building blocks of defense systems, NATO's Group of Directors for Materiel Standardization (AC/301) was created. The US has served as both chairman and member nation since its creation. The purpose of the AC/301 group is to increase standardization, interoperability and interchangeability and to reduce costs through standardization below the system level. Over eight hundred NATO standards (STANAGS) have been published. However, few are fully implemented by any nation and no major system has been developed based upon STANAGS.

Each nation has developed its own basis for standards and measurements. In the US defense system, the Military Specifications (MILSPECS), Military Standards (MILSTDS), and qualification for high reliability (HIREL) parts provide the framework for defense industry guidance. The DOD attempts to adopt and use standards established by non-government standardization groups. It is here that industrial associations and not-for-profit organizations can formulate standards to be used in production.

Because of the correlation between MILSPEC/MILSTD and industrial standards and measures, civilian industry has adopted many of the standards as well. It was expected that European standards would closely correlate as well, since materials and processes are often derived from those of the US. However, the Roland experience showed that shop practices and design requirements differed and only a sixty percent correlation with MILSPEC/MILSTD could be established.⁹⁸ This situation will further complicate and delay technical data conversion. Industry can take a leadership role in the development of international standards and measures.

Metrification

DOD has undertaken a major thrust toward conversion from the US customary system of weights and measures to the metric system. DOD policy states that the Metric System will be adopted in:

- a. Developing materiel to be used jointly with NATO and other allied nations.
- b. Developing military materiel that has potential for significant foreign sales or multinational joint acquisition programs.
- c. Areas where industry has made significant progress in the design and production of metric products.
- d. Areas where defense-industry preparedness or defense production readiness may be enhanced.
- e. Areas that offer an economical, operational, or other advantage, or where no disadvantage is incurred.⁹⁹

Although the conversion was initially seen as a major problem for industry, the use of the Metric System for new production has not been a significant stumbling block. Only conversion of existing production systems from the US Customary System to metric would pose significant problems and increased costs.¹⁰⁰ Industry's conversion to the metric system is important to competition in a world of expanded free market economies.¹⁰¹

Quality Assurance (QA)

NATO policy for quality assurance is formulated by the Advisory Committee (AC/250) Group. There are two STANAGS which cover quality assurance. STANAG 4107 establishes guidelines for mutual government QA of defense materiel and

services¹⁰² and STANAG 4108 provides for standard application of inspection and quality control requirements outlined in Allied Quality Assurance Publications.¹⁰³ DOD supports the NATO QA program. Defense industry should model its production quality assurance program within the framework of one of the three QA levels provided by NATO.

Administration

Administration of cooperative arms agreements will require increased legal services and knowledge of national and international law. Communications will be difficult due to time/distance and language barriers. Personnel requirements will increase due to added engineering and translation requirements. Audit and control requirements for joint production efforts will be difficult and may require waivers of Comptroller General requirements.¹⁰⁴

Industry may find foreign items used in joint production efforts or provided by subcontracted suppliers fail to meet the stringent Occupational Safety and Health Administration requirements and lack many of the elements of human engineering expected in US industry production. These problems, and many like them, must be anticipated and management decisions made which account for the international environment. However, the production systems problems can be overcome. There appears to be only a limited effect on production or productivity except as it relates to ultimate levels of production and production runs.

COOPERATIVE DEFENSE MARKETING

The decline of the defense market due to the rebirth of European industry limits production efficiencies due to shorter production runs. Direct sales to Europe are difficult if not impossible without some type of offset or reciprocal agreement. Our allies have demanded a fairer share of the arms market. In

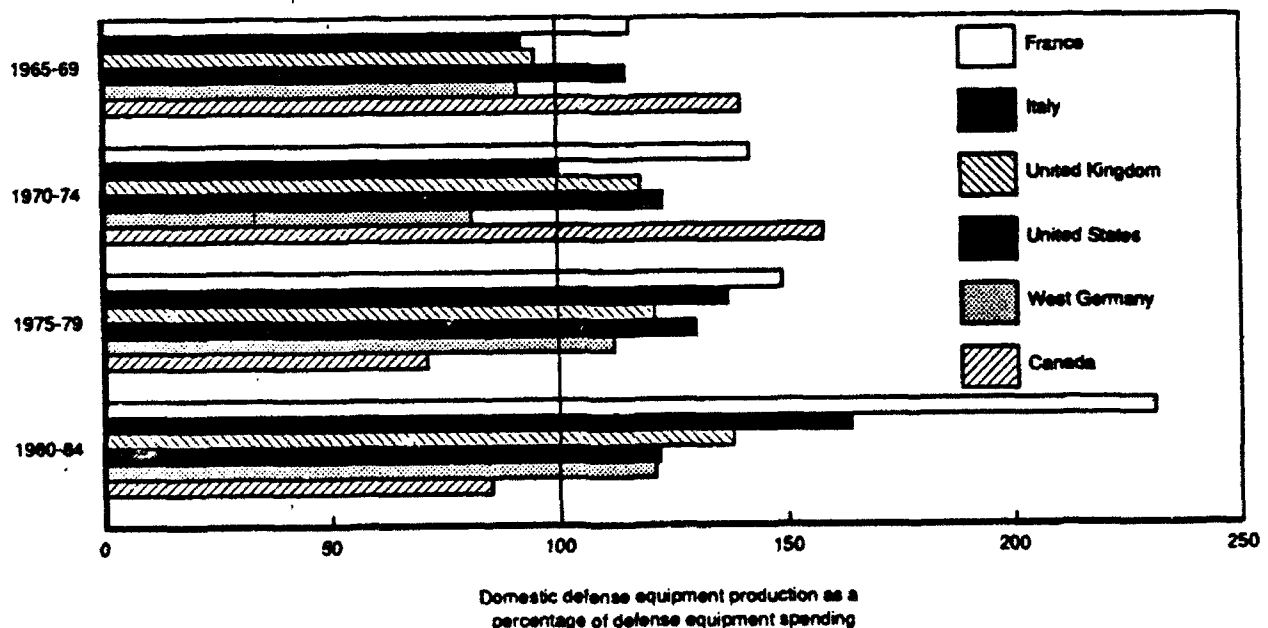
testimony before the Special Subcommittee on NATO Standardization, Interoperability and Readiness, the former Advisor to the Secretary of Defense on NATO Affairs, Ambassador Komer, stated:

The Administration's effort to promote the two-way street is not a giveaway program. In fact, it's designed to protect our own export position, as well as to promote standardization and interoperability.

I think we are kidding ourselves if we think Europe will keep buying as much from us if we don't buy more from them. The handwriting is on the wall as far as this problem is concerned.

The British, the Germans, the Belgians, the Norwegians, the Canadians, and the Dutch have put us very clearly on notice.. .. Either we're going to give the allies a somewhat bigger share of our market or they're increasingly going to go for their own equipment, even if ours is better and cheaper. It's as simple as that, because we do the same thing.¹⁰⁵

The political climate has apparently become one of cooperative production or no sales. Industry must view arms cooperation as a means of sharing in the market or having no share at all within the Alliance. The chart below shows national defense equipment production and national armed forces spending. Figures below 100% imply that the country is a net importer of defense equipment; those over 100% are net exporters of defense related goods.¹⁰⁶



INDUSTRIAL BASE

The greatest national security implication of industrial related policies is the erosion of the defense industrial base. It is the one area where current trends in defense procurement expenditures and standardization policies portend the greatest impact. A Department of Defense Report to Congress in November 1991 concluded that uncontrolled downsizing of the defense technology and industrial base would not hamper DOD in meeting future threats. It indicated that initiatives which were being taken to offset the impact included: dual-use technologies, promotion of civil-military integration, adoption of procedures more consistent with commercial practice, and free market economy.¹⁰⁷ The risk in this assessment is extremely high. Maintenance of a strong capability is essential to national security. Expanded markets, reduced regulation, and increased competition appear to be the essential ingredients to sustain this vital capability.¹⁰⁸ If the Department of Defense is to remain a monopsony, acquisition policies with adequate production runs¹⁰⁹ must help provide for the desired industrial base to support national security objectives. If competition is to be a major part of the end-state, then a wider marketplace and deregulation are essential.

CONCLUSION

It can be concluded that Alliance and U.S. standardization of weapon systems within NATO is compatible with U.S. industrial interests and policy only if industrial policies are adopted which open markets and avoid protectionist positions within a spirit of partnership.

Industrial strategies, in both government and the private sector, must advantage new world markets while safeguarding competition, technological advantage, and the industrial base, critical to both national security and industry.

CHAPTER VI

CONCLUSION

FINDINGS AND RECOMMENDATIONS

U.S. policy for standardization through arms cooperation supports national security, economic, and industrial interests. However, there are significant problems with the implementation of arms cooperation which must be overcome if the value added by this "way" will contribute to the strategic "ends".

FINDINGS

a. Policy and legislation, as now promulgated, do not provide a clear path for implementation of cooperative arms trade agreements. Multiple lines of authority and conflicting interests impede full implementation of policy toward cooperation and leads to confusion and frustration within industry.

b. Army acquisition program and project managers often are appointed too late in the acquisition cycle to influence development of a cooperative arms strategy.

c. A goal of total standardization is neither achievable nor desirable.

d. The U.S. views standardization as a means to increase combat force multipliers, increase interoperability, and to achieve cooperative influence in a collective security environment; Europe views standardization primarily as a means to achieve arms cooperation and economic security.

e. Few, if any defense dollars will be saved as a result of arms cooperation. Until cooperative arms development procedures are streamlined, near term costs will exceed unilateral development for most programs.

f. Survival of the U.S. defense industry may well depend upon its ability to retain a fair share of the defense market. Conflicting interests, policies, and lines of authority make this extremely difficult.

g. U.S. industry does not participate at an early stage of international arms cooperative efforts. Government to government agreements do not allow for the efficiency provided by industry to industry arrangements.

h. Memoranda of understanding have become burdened with review and oversight and do not carry legislative authority for implementation. However, they remain the best available avenue to achieve cooperative arms agreements.

i. Protection of the competitive system and U.S. leadership in technology are major arms cooperation issues.

RECOMMENDATIONS

a. The current Administration must articulate its arms cooperation policy in clearly stated objectives.

b. Legislative language and appropriations should provide further incentives for pursuit of arms cooperation, especially in the area of research and development.

c. Interoperability through arms cooperation should remain NATO's immediate goal as it moves toward multinational corps and power projection capability.

d. Program and project managers should be appointed by milestone zero to insure arms cooperation is fully integrated into the acquisition strategy.

e. Identify specific areas of science and technology for strong research and development collaboration efforts (eg. NBC defense, health services, logistics).

f. Expand collaboration in areas where technological leadership is abroad (eg. Japan - manufacturing technology, France - optics, etc.).

g. Streamline the process for approval and continuation of collaborative programs at each milestone (especially prior to Milestone II).

h. Support initiatives for open publication of international defense requirements and industrial capabilities within NATO and while supporting competition at each milestone.

i. Support renewal of bilateral Memoranda of Understanding (MOU) agreements while seeking to increase their legal foundation.

j. Translate rhetoric into real leadership toward policies in this critical area which transcend individual programs or acquisition strategies.

Arms cooperation policies should be pursued which open defense markets, avoid protectionist positions, and support a collective security strategy. Policies must be clearly articulated, avoid conflicting lines of authority, safeguard competition and technological advantage, and provide for a responsive industrial base. Leadership in this collective security arena should remain a goal of our National Security and Military strategies.

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