
NATO WEAPON SYSTEMS: THE IMPACT OF INTERDEPENDENCE

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INTRODUCTION

The NATO alliance has experienced a wide range of challenges since its inception. NATO is a free association of sovereign states, and differences among the member nations frequently lead to divisive situations. NATO's impending demise has been predicted since its birth. The alliance came into existence primarily to deter Soviet aggression. Its founders considered alternative structures but chose to create a multilateral alliance based on the recognition that the members had, and always would have, divergent interests. Conflict in NATO and perpetual crisis are not unnatural where such disparate concerns prevail.

The plain truth is that NATO represents the greatest and most successful peace movement within living memory. This is a point that NATO should make and make vigorously. Instead of allowing the peace role of NATO, so successfully played for over thirty years, to slip into obscurity, more needs to be done in fostering public awareness of how NATO defenses actually work and what must be done to continue to make them work.

Besides making plain that NATO stands for peace, its leaders must reassert the myriad of other values whose safeguarding led to the founding of the Alliance in the first place and which have bound its members together ever since. The NATO agreement is more than a defensive military alliance under which allies agree to come to each other's assistance voluntarily in the event of armed attack against one or more of them. The signatories sought also to eliminate conflict in their international economic policies and to encourage natural economic and cultural cooperation. Indeed, NATO has gradually assumed political, economic, military, and financial functions which clearly distinguish it from previous peacetime alliances. To be a member of NATO means more than the enjoyment of protection through a military alliance; it also signifies membership in a great community of nations.

There are those who feel that the Alliance is at a crossroads today, rife with misunderstandings, suspicions, and recriminations on both sides of the Atlantic. There is, for example, impatience among Americans with what is considered unequal burden sharing. Europeans are accused of failing to carry out promised financial commitments and are charged with inadequate assistance in promoting peace outside NATO's boundaries. In addition,

Americans feel let down over a perceived lack of Allied support for economic sanctions against Soviet actions in Afghanistan and Poland. Also, many U.S. citizens appear alienated from Europeans over perceived differences concerning their own defense. Significantly, it has always been explicitly recognized that collective defense cooperation does not imply unanimity of policy across the board. Suffice it to say, the NATO allies have been in solid array for more than three decades on the need to stand together to defend convincingly their common heritage and the blessings of freedom. The Alliance has thus far succeeded remarkably in doing just that. Many of the differences that have arisen are serious but there is no change in the common purpose which binds the Alliance. For all the manifestations of and attention paid to such notions as unilateralism, neutralism, and pacifism, public support for NATO remains strong throughout the Alliance.

DEFENSE COLLABORATION

NATO's European members have pursued vigorous and important joint defense modernization efforts in recent years to improve their military forces, especially in the conventional arena. The impressive list of collaborative efforts constitutes very important but oft unrecognized progress towards more common programs and the efficiency of large scale production, common logistic support in the field, and, of course, increased economic and military interdependence. In the whole field of armaments in Europe today, very few, if any, programs begin without cooperation between several nations. These programs develop through a natural process, whereby nations and their industries determine how to work together to their mutual advantage to meet a military need.

For example, collaborative efforts by NATO nations that have been successful in naval armaments include the following systems:

- NATO MK 44 TORPEDO
- NATO MPA aircraft (Atlantic)
- NATO Azores fixed acoustic range (AFAR)
- NATO acoustic communication with submarines
- NATO Sea Sparrow
- NATO helicopters, Lynx, Puma and Gazelle
- NATO patrol craft hydrofoil missile (PHM)
- NATO naval forces sensor and weapon accuracy check sites (FORACS)
- NATO frigate
- NATO Sea Gnat system
- NATO conventionally powered submarine for employment in European waters
- Very short range air defense weapon system
- Explosion resistant multi-influence, sweep system for mines (ERMIS)
- Electro-optical devices
- NATO anti-surface ship missile (ASSM)
- NATO small surface-to-air ship self-defense system for the post 1985 timeframe (NATO "6S" system)

Other collaborative efforts by NATO nations that have been successful in areas other than naval armaments are as follows:

- F104G Starfighter
- Fiat G91 strike fighter
- Hawk missile
- Sidewinder missile
- Bull-pup missile
- AS-30 missile
- Jaguar tactical and training aircraft
- Multi-role combat aircraft (MRCA)
- NADGE air defense system (80 sites)
- NATO multi-national F-16 air combat fighter
- 220 NATO airfields with common communications and pipeline links for support
- 28 allied tactical publications (ATP's) containing common doctrine
- 53 allied communications publications (ACP's) containing common communications procedures and doctrine

Also, nearly 900 standardization agreements (STANAGS) have been made between NATO nations to enable their forces to operate together in the most effective manner.

Other bilateral or multilateral projects between NATO nations, established outside the NATO framework for cooperation, that have been beneficial are:

- Harpoon missile
- 3 inch/76 millimetre OTO melara gun
- Terrier missile
- Olympus/Tyne engines
- M20 series fire control systems
- Tri-partite mine counter-measures (MCM) vessel
- Exocet missile

Additionally, NATO is presently improving its degree of standardization or interoperability in the following areas:

- 41 different types of naval guns, from 20mm upwards
- 31 different types of anti-tank weapons
- 6 different types of recoilless rifles
- 36 different types of fire control radars
- 8 different SAM systems
- 6 different types of anti-surface ship missiles (ASSM's)
- Common aircraft identification system (IFF)
- Common data link
- NATO RD&P program
- Harmonizing national armament schedules
- Establishing Test and Evaluation programs
- Integrating RD&P of armaments into defense planning process

West Germany, Italy, and the United Kingdom are introducing the TOR-NADO, a variable geometry, all-weather fighter-bomber with terrain following (TRF) capability. Denmark, West Germany, and Canada are deploying the LEOPARD main battle tank. The Dutch and West Germans are introducing the

GEPARD, a new mobile and highly accurate, radar-guided, anti-aircraft gun system. At the same time, the U.S. has introduced the F-15 all superiority fighter and A-10 close air support aircraft in Europe, and NATO is replacing aging combat aircraft with the F-16 fighter. These improvements, among others, are sizeable and significant.

NATO LONG-TERM DEFENSE PROGRAM

The NATO Long-Term Defense Program (LTDP) approved by the NATO Heads of Government at the 1978 Summit in Washington, D.C., represents a significant political milestone for NATO in that it gives the Alliance a practical basis for improving its multinational forces in the common defense. Militarily, the LTDP provides a blueprint for defense planning in response to the increased threat confronting NATO in the mid- to long-term future.

Once they are implemented, the measures recommended in the LTDP will improve and modernize both individual and collective defense capabilities in ten key functional areas: readiness, rapid reinforcement, reserve mobilization, maritime defense, integrated air defense, C³, electronic warfare (EW), armaments collaboration, logistics coordination and war reserves, and theater nuclear modernization.

Although all NATO nations expressed a willingness to implement the LTDP measures, national responses in terms of actual progress have been uneven. Areas reflecting substantial progress include rapid reinforcement, rationalization, C³, and to a lesser extent, maritime posture. Full implementation of measures requiring either greater manpower or increased financial resources is lagging. Progress has been particularly slow in the areas involving EW, reserve mobilization, logistics, and infrastructure requirements.

NATO has pursued cooperative programs through Memoranda of Understanding (MOUs), families of weapons, and dual production. MOUs promote reciprocal competitions through elimination of "buy national" restrictions. Several have been signed and more are in negotiation.

FAMILIES OF WEAPONS

Initiatives in this area involve identifying requirements for weapons development in various military fields and then dividing development responsibility among countries. This division reduces duplication of effort while establishing an equitable distribution of development tasks and opportunities. The first family of weapons MOU, signed in August 1980, divided responsibility for the development of air-to-air missiles. The United States, United Kingdom, and Germany (and France, as an observer) signed the air-to-air MOU. The Europeans would develop an advanced short-range air-to-air missile (ASRAAM) while the U.S. would develop an advanced medium-range missile (AMRAAM). Similar agreements were signed for families of antitank guided weapons (ATGW), advanced naval mines, and air-to-ground munitions.

DUAL PRODUCTION

Dual production of weapon systems can reduce unnecessary duplication in both research and development. Under this approach, a nation that has developed a system useful to others in the Alliance would permit other nations or a consortium of nations to produce the entire system or portions of it.

Key dual-production programs include the following:

a. F-16 Fighter Aircraft. Belgium, Denmark, the Netherlands, and Norway are participating with the United States in the F-16 Multinational Fighter Program. The European nations are not only procuring F-16s, but are also teamed with the United States for coproduction and coassembly. Standardization between U.S. Air Force and allied F-16s is coordinated through the F-16 Multinational Configuration Control Board.

b. AIM-9L SIDEWINDER Air-to-Air Missile. This missile is under production in Europe by a four-nation, German-led consortium (Germany, Norway, Italy and the United Kingdom).

c. ROLAND' Air Defense System. This all-weather, short-range air defense system is being produced in the United States under license from France and Germany. Joint testing has been conducted and a Joint Improvement Program has been initiated to simplify engineering change procedures. Although the total number of ROLAND systems has been reduced to 38 from the originally planned 184 due to budget considerations, the ROLAND system became operational in the U.S. Army during 1982.

d. PATRIOT Surface-to-Air Missile. Six European nations have signed an MOU with the United States for the purpose of acquiring PATRIOT as a replacement for NIKE HERCULES as a high-altitude air defense system.

e. 120 Millimeter Tank Gun. In 1978, the United States selected the German 120 millimeter smoothbore tank gun for future incorporation into the XM-1 tank. The gun is produced in the United States on license from Germany. Initial delivery of the XM-1 equipped with the 120 millimeter gun is scheduled for late 1984.

f. Multiple Launch Rocket System (MLRS). This NATO Cooperative Project, under a July 1979 MOU, includes U.S. development of the basic system, with British and French financial contributions, and German development of a scatterable mine warhead. In a declaration of intent signed in July 1980, the four nations agreed to negotiate a supplemental MOU to establish a joint development program for a terminally guided, anti-armor warhead. The four participating nations also negotiated a production supplement to the basic MOU.

g. Forward-Looking Infrared Seeker for Missiles (MODFLIR). Germany coproduces this module, which can be employed in a number of systems, both for its own use and for sale to other nations.

h. MAG 58 Machine Gun. This armor machine gun has been adopted by the U.S. Army for the M48, M60, and XM-1 tanks, as well as for the IFV/CFV. Following procurement of an initial quantity for Belgium, the

weapon will be produced in the United States by a subsidiary of the Belgian manufacturer.

i. Squad Automatic Weapon (SAW). Following competitive evaluation of several candidates, the U.S. Army selected the Belgian FN MINIMI (XM 249) to proceed to the maturation phase in its squad automatic weapon program.

j. M-483 155 Millimeter Artillery Round. The Netherlands and the United States signed an MOU in October 1980 that led a European consortium to produce this round. Germany, Italy, and the United Kingdom have already joined the consortium, and other European NATO allies are expected to join in the future.

k. STINGER Surface-to-Air Missile. Discussions are underway with Germany on the subject of an MOU for European production of this air defense system, which can be carried by an individual soldier.

l. Multifunctional Information Distribution System (MIDS). Six NATO nations recently finished a year-long study of MIDS candidate technologies and possible operational applications as a potential communications-navigation-identification system for NATO. The basic candidate is the U.S. Joint Tactical Information Distribution System (JTIDS), which was operational aboard U.S. and NATO AWACS forces in mid-1983 and will enter full-scale development for other U.S. tactical platforms.

Other cooperative programs:

a. NATO Airborne Early Warning (AEW&E) Program. The largest single, commonly funded project ever undertaken by NATO nations, this program is the most significant cooperative acquisition effort the Alliance has achieved to date. The program includes acquisition of 18 E3A AWACS aircraft; the United Kingdom's "in-kind" contribution of 11 NIMROD aircraft; modifications to make a number of European ground radar and communications sites compatible with the AEW&E aircraft; and upgrading of several European air base facilities to accommodate the aircraft. The interoperable "mixed force" of NIMROD and AWACS aircraft will greatly increase Alliance detection, warning, and control capabilities to defend against low-altitude air attacks. AWACS aircraft are flying in Europe today.

b. NATO SATCOM Gapfiller. NATO recently determined that a space segment gapfiller was required to span the period to mid-1987. This gap intervenes between the potential availability of the NATO III communications satellites now in orbit and the expected operational date of the next generation of NATO satellites. NATO will fill this potential gap by procuring one additional NATO III satellite from the United States.

c. Tactical Command and Control. EIFEL/DISTEL I is a German tactical air offensive command and control system that will enhance NATO's ability to conduct a large-scale air campaign in central Europe. The United States is procuring the German system, and, if the Allies agree to install the

same system in the control center in the Netherlands, all offensive air command and control in the Central region will be performed on a common, fully interoperable system.

d. NATO Air Command and Control System (ACCS). This is a new and very large program that will integrate all offensive and defensive C³ for air operations in NATO.

e. U.S. Rapier Acquisition. U.S. air bases in the United Kingdom must be protected from low-altitude attack. The United States plans to procure RAPIER air defense systems for this purpose, while the British will man and operate the RAPIER systems. The arrangement may prove to be precedent-setting for NATO, in that a host nation would provide manning for the operation of air defense systems at U.S. facilities.

To sum up, the Alliance's essential solidity is not under threat because of an erosion of support for collective security. Disagreements within alliances are not new. Alliances tend to remain strong only so long as a danger exists. Once the danger abates, the alliance weakens. Communities of nations, such as NATO, are different; mutually reinforcing tendencies and commonly held ideals go far in dispelling frustrations and resentments.

Using signs of allied political disarray as a whip to beat NATO as an organization, overlooks its military strength and resolution. Political unity and cohesion are vital. Importantly, NATO has never experienced any prolonged period of total disarray. Before the cynics tear NATO apart, it should be evident that political disagreements notwithstanding, NATO is an alliance of military and economic interdependence. This reality alone points to a period of continued growth and effectiveness during the 1980s.

Interdependence means that no NATO member is now capable of assuring its own security. There can no longer be such a thing as a national strategy, i.e., a national policy elsewhere and an allied strategy in Europe. The total military resources available to NATO are limited in relation to the flexibility of Soviet power and the area which the Alliance covers.

The sixteen NATO nations spend billions on defense annually. It is no longer speculation that greater military strength is produced by standardizing equipment and concentrating production in those countries where it is economically the most profitable.

The primary goal of cooperation in armaments is increased military effectiveness within NATO budget constraints. The more that equipment, munitions, and logistic support are freely standardized, the more effectively NATO forces can operate together in a war scenario.

Widely acknowledged deficiencies in NATO's conventional forces and the strain on national resources necessitate increased defense cooperation to redress the NATO/Warsaw Pact military imbalance. Outfitting NATO forces with advanced weapons systems may compensate for the Pact's quantitative advantage. Sophisticated technology has placed the national development and production of many weapons systems beyond the reach of individual countries. Costly advanced systems dictate cooperative development and production.

The existence of similar and sometimes identical operational concepts facilitates collaboration in weapons acquisition. However, NATO operational concepts have been established largely according to national criteria and by national defense ministries and services. National military concepts and operational requirements sometimes differ. The unsuccessful efforts of Great Britain and Germany to reconcile contrary tactical concepts of tank mobility in order to collaborate on tank design and production is an example of differing national concepts. NATO nations are driven by economic imperatives toward greater collaboration and are willing to bend national military requirements in the interest of successful collaboration.

Keith Hartley (NATO Arms Co-operation, p. 162) believes collaboration on the Tornado might have saved the British between 700 million and 1.56 billion British pounds (expressed in 1982 prices), or between 35 million and 78 million British pounds per annum over a twenty year period. His estimates provide an indication of the budgetary savings of collaboration compared to independence.

In recent years the USA, France and the UK-German-Italian consortium have developed and produced eight different modern combat aircraft (the F-14, F-15, F-16, F-18, Mirage, Tornado, Harrier and Jaguar). There would have been major cost savings if NATO had developed fewer aircraft rather than eight types. Military effectiveness would increase if NATO forces used fewer and identical weapons and equipment with common spares, maintenance, and training. The answer to inefficiency in the NATO armed forces is commonality in tactics, weapons, training, and logistics. Changes and resulting payoffs will take time and demand a "turn about" in NATO member national practices.

There are signs suggesting that interdependence is an increasing necessary goal of national policy among NATO nations. Collaborative programs have provided for the acquisition of a number of advanced systems and the meeting of national mission needs. NATO now must allocate for increased defense spending, presenting the member nations with difficult choices. NATO has the potential to check Soviet advances without intolerable economic strains. All NATO nations must move continually toward sharing the same strategic objectives and defense burden, commensurate with individual economic wealth.

The impact of interdependence on NATO weapons systems is increasing military effectiveness within budget constraints and a significantly redressed East-West military imbalance.

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