U. S. /EUROPEAN ECONOMIC COOPERATION IN MILITARY AND CIVIL TECHNOLOGY. AN ISSUES-ORIENTED REPORT

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EX-IM Technology, Incorporated

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This study is one of a number done by academic and other research institutions for the Department of State as part of the Department's external research program. These studies are designed to supplement the Department's own in-house research capabilities and provide independent expert views to policy officers and analysts on key questions with important policy implications.

The idea for this study of the feasibility of non-duplicative United States-European cooperative research, development, and production of military equipment was proposed by the Bureau of Politico-Military Affairs, and developed in discussions with officers in several Department Bureaus.

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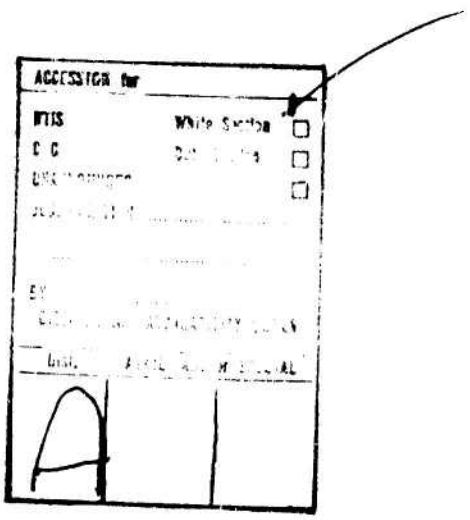

E. Raymond Platig, Director
Office of External Research
Department of State

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INTRODUCTION

This is the fourth printing of a Report first issued by the State Department's Office of External Research in August, 1974.

The first printing had but limited distribution within the U.S. Departments of State and Defense, and among the Washington Embassies of NATO countries. Interest in the Report exhausted the initial two hundred copy printing.

As requests for additional copies were received, a second printing in January, 1975 was followed by a third printing in February, 1975. To date, nearly 700 copies have been distributed upon request to the governments of our NATO Allies, within NATO itself, and to others interested in NATO affairs in both the United States and in Europe.

The need for still a fourth printing (of two hundred additional copies) would seemingly confirm a growing American and European interest in the need for more effective and efficient use of Allied defense and other resources.

Thomas A. Callaghan Jr.
President, EX-IM TECH, Inc.

April, 1975

Cooperation -- A Thing Apart

Cooperative development, procurement and support considerations have always been peripheral to the mainstream of the American weapons acquisition process.

The cost of developing and acquiring new weapon systems has received more continuing attention by the Congress, the Executive Branch, the Pentagon and the press than any other activity of the Federal Government.

In this decade alone, it has been studied by (among others):

* The Blue Ribbon Defense Panel (1970)
* The National Security Industrial Association (1970)
* The Comptroller General (1970, -71 -72 and -73)
* The House Armed Services Committee (1973)
* The Government Procurement Commission (1973)

These many studies considered every facet of the problem. Every conceivable remedy was put forward. But not one of the reports even mentioned cooperation with our Allies.

Section 6.4 of this Report

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Not by Themselves Alone

This says then that it is unrealistic to tell the Europeans to do more for themselves -- by themselves! They effectively lack the economic means to reclaim European defense resources waste.

It also says the only way the Europeans can do more for themselves -- is through cooperation (trade) with the United States.

So the United States and Europe find themselves (to use an analogy Benjamin Franklin once used in a different context) united in NATO like a pair of shears -- neither can cut without the other.

Section 6.2 of this Report

1. SCOPE OF STUDY AND REPORT

The State Department (with ARPA and Air Force funds) contracted with EX-IM TECH to study the practical potential for large-scale, cooperative defense development and production efforts between the United States and Europe.

The Study has included a review of the political-economic influence of technology upon war and post-war history; an analysis of prior American and European cooperative projects in defense, space and civil technology; an examination of the obstacles to cooperation, and the methods, costs, benefits and burdens of cooperative effort.

This Issues-Oriented report addresses only the major issues involving the utilization of European-American defense resources. It is concerned with finding how these resources can better be deployed for the common North Atlantic defense effort, through U.S./European cooperation.

The report concentrates then on the following critical issues affecting U.S./European military-economic cooperation:

* What has NATO achieved, and failed to achieve, in its first 25 years?

* What are the effects of duplication of effort on (a) American and European defense expenditures, and (b) Allied military effectiveness?

* How does NATO's performance on standardization compare with the Warsaw Pact?

* What lessons can be learned from the success and failure of prior cooperative efforts?

* Is there a practical political trade-off between American technological benefit-sharing and European financial burden-sharing in the defense area? With what effect on U.S. trade?

* Why should there be cooperation in civil as well as military fields? How? What political impact?

* Would two-way, transatlantic trade in the annual $70.0 billion government-funded procurement marketplace be in American self-interest? European self-interest? How? At what pace?

Each of the above issues have been fused into one central issue, namely: do the resource limitations of each of the countries of the North Atlantic Alliance (including the United States) now require American and European economic cooperation in military and civil technology?

What Do We Get Out of Cooperation?

The General was lecturing at the Army War College on "Cooperation With Our Allies". When he finished, a young officer asked, "What do we get out of cooperation with our Allies?"

The General answered in one word: "Allies!"

If labor or industry, on either side of the Atlantic, were to ask the same question, three more words would be needed: "Jobs, Markets and Profits."

2. SUMMARY: U.S./EUROPEAN ECONOMIC COOPERATION

The maintenance of peace for 25 years has been NATO's greatest success. But this success masks NATO's most persistent failure.

Twenty-five years ago, the combined U.S./European defense budgets totalled $18.3 billion per year. They now total $118.4 billion per year.

When NATO began, the economic means of achieving military ends was always seen as one and the same problem. It was believed that economic necessity required that all duplication of effort be eliminated. Duplication has never been eliminated. It now exceeds $10.0 billion per year.

The past quarter century has witnessed an incalculable waste of American and European defense resources -- manpower, money, energy, materials and structures -- because the North Atlantic Alliance has failed to achieve:

Common military requirements for weapons and equipment
- * Thru common tactical doctrine

Complementary research and development projects
- * Thru rationalization of development tasks
- * Thru specialization in development areas

A diversity of weapon system options and hardware
- * Thru a U.S./European technology base
- * Thru savings in system acquisition and support practices

Larger weapons inventories at lower unit cost
- * Thru rationalization of production sources
- * Thru production runs on the combined European-American scale

Mutually supporting general purpose forces
- * Thru standardization of weapons and equipment
- * Thru common spares and maintenance logistics

A balanced, collective, conventional force deterrent
- * Thru military, technological and industrial interdependence
- * Thru marshalling available economic means to achieve desired military ends

Equitable financial burden-sharing in all defense areas
- * Thru economic and technological benefit-sharing

Jobs and markets for under-employed defense industries
- * Thru non-duplicative projects on an Atlantic development and production scale
- * Thru a North Atlantic common defense market

NATO's fourteen defense departments (our own included) spend nearly $27.0 billion per year to develop, produce and acquire general purpose weapons systems for NATO's thirty-nine armed forces. At the same time, NATO's principal weapons manufacturers compete with one another for NATO country markets, and for third country markets. Consequently, duplication of effort, indeed multiplication of effort, abounds:

* Two or more systems are developed and produced for nearly every NATO mission

* No European system is produced for Europe-wide use

* No American or European system is developed or produced for NATO-wide use

Standardization means countries use the same weapon systems, the same ammunition, the same repair parts. This means economy of effort in peacetime, and the ability to support one another in wartime. Standardization (theoretically) could be achieved by all buying from one. Much more realistically, however, standardization can only be achieved by each buying from the other. Thus, standardization requires economic cooperation -- through military trade. Without military trade, there will be duplication of effort, no standardization, and a wanton waste of Allied defense resources.

The annual waste of more than $10.0 billion of Allied defense resources is approximately 40% of the $27.0 billion the U.S. and Europe spend annually on weapons and equipment investment. (see sections 3.2, 4.2, 4.3, 4.4 and 4.6)

This is not the case with the Warsaw Pact. Weapons designed and developed by the Soviet, mass-produced in Russian and Eastern European plants, are standardized throughout Pact countries.

In the decade ending in 1974 -- the 25th anniversary of NATO -- the Soviet Union achieved nuclear parity with the United States. It has become the world's second largest naval power. It has transformed the Mediterranean from a NATO lake to an open sea.

In the same ten years, the Warsaw Pact has modernized and re-equipped its conventional armed forces; has produced and exported thousands of aircraft, tanks, guns and missiles to the Soviet's client states in Southeast Asia and the Middle East. And in just five years, Pact-produced hardware has helped the Soviet build up their forces in the Far East to more than 40 divisions without (as SecDef Schlesinger recently noted) any dimunition of their capability west of the Urals.

Taken together, this is an outstanding economic, technological and industrial achievement by the Soviet Union, and its Warsaw Pact Allies.

But this achievement (or more realistically) this challenge has not been met by a common U.S./European economic, technological and industrial effort. As a consequence, and notwithstanding the hundreds of billions of dollars spent by NATO countries in the same ten years, NATO's conventional forces are:

* Qualitatively very uneven, some weak and some strong

* Inferior to the Warsaw Pact in quantity and diversity

* Unable logistically to support one another

Many Americans see the United States locked in a "technological race" with the Soviet Union. It is vitally important that we win that race. But too few Americans see the United States, as a part of NATO, locked also in a "defense resources competition" with the Warsaw Pact. And NATO is losing that competition! (see 3.2)

The consequences are not just economic. There are serious military consequences as well. In varying degrees, neither the land, nor the sea, nor the air forces of NATO can operate effectively together for any significant period of time. With different weapons and equipment, requiring different ammunition and spares, each Allied country must look to its own (rather than a NATO or Ally's) logistic support system for re-supply. When supplies are exhausted, how then shall the battle be continued? With tactical nuclear weapons? And what of the risk of nuclear escalation?

The weakest link in the entire Allied defense chain is thus this NATO vulnerability to sustained conventional attack by Warsaw Pact forces. (4.5)

Meanwhile, inflation, petroleum prices, payments deficits, unemployment, pressing civil priorities, and demands for reduced defense expenditures in the United States and Europe threaten the unilateral disarmament of NATO's conventional forces.

The apocryphal man from Mars might ask, why have the two largest, most technologically advanced industrial economies in the world, treaty-bound together for mutual security, not been able to:

* Meet the military challenge of the more backward economies of the Warsaw Pact, and (at the same time)

* Meet the energy, environmental, materials, transportation, housing and other technological challenges of the last half of the 20th century?

Why indeed! What have been the obstacles to cooperation, particularly in the military field?

Foremost, perhaps, is the latent belief that effective Allied conventional forces are neither necessary, nor possible. (see Chapter 6)

Why? Because cooperation itself is thought to be impossible. This is because the problem has been viewed through the wrong end of the telescope. Standardization is a macro-economic problem. It will not yield to micro-economic methods -- to the occasional, ad hoc, project-by-project approach.

The recurring failure of micro-economic cooperative efforts has led to a sense of futility which saps the political will <u>even to try</u> to attain Allied military-industrial cooperation on the scale that is necessary. It is unfortunately self-fulfilling, for nothing tried, nothing done.

The success, and the reasons for the success, of the U.S./Canadian common defense market are barely known at all. Our North American common defense market has succeeded for two reasons: first, the concept was sound; second, the structure was right. (5.4)

The concept is set forth in the following language from a 1960 DOD Directive:

> This Directive continues the principle of economic cooperation with Canada in the interests of continental defense.....

This "economic cooperation" concept had its beginnings in April, 1941 when Prime Minister MacKenzie King met President Roosevelt at Hyde Park. What they didn't do at that meeting is almost as instructive as what they did do.

They didn't get mired in requirements, or industrial property rights, or taxes, duties and so forth. They didn't get lost in the symbolism of a single project as an earnest of U.S./Canadian intentions.

Their object was much more practical. They sought to establish a structure whereby they could mobilize the resources of this continent. They established principles. They established economic goals. They knew that if the concept and the structure were right -- the projects, and a host of problems associated with the projects, would sort themselves out.

The Hyde Park Agreement established the principle of complementarity and specialization -- at the same time recognizing that military trade is a two-way street. Specifically (in the words of the communique):

> It was agreed as a general principle that in mobilizing the resources of this continent each country should provide the other with the defense articles which it is best able to produce....
>
> ....It is of great importance to the economic and financial relations between the two countries that payment by the United States for these supplies will materially assist Canada in meeting part of the cost of Canadian defense purchases in the United States.

To show they meant business, they committed each country, in the twelve months immediately following the Hyde Park Agreement, to purchase between $200.0 million and $300.0 million of military equipment from the other. In 1974 dollars, these military procurement goals total between $660.0 million and $990.0 million.

From these beginnings began the integration of the American and Canadian military-industrial efforts into a North American common defense market. In the past 15 years, there's been over $6.0 billion of cross-border military trade. In the past 11 years, there have been 60 cooperative development projects totalling $144.5 million. Nearly 90% of U.S./Canadian equipment is standardized. Cooperative logistic arrangements have been made for common equipment in both Europe and North America.

Given the success of the North American common defense market, what are the obstacles to mobilizing the resources of the North Atlantic Alliance?

There are two nigh-insurmountable obstacles: in structure, and in concept.

First, the European structure is wrong. Cooperation on a common defense market basis requires near-equals, unless one of the partners is prepared (as was Canada) to accept a minor system or sub-contracting role on a continuing basis. This is a role Europe will never accept. It is a role which would not effectively employ Europe's great technological and industrial capabilities.

Yet Europe lacks the institutions to be a near-equal of the United States. A Europe could carry its fair share of the NATO defense burden, and could work in harness with the United States. But twelve Europe's can't. Disparity in scale makes it impossible to structure major defense development and production programs on a bilateral basis between the United States and Britain, or France, or Germany, or any of the smaller countries. A single bilateral project, yes -- but not a second or third. (6.2 and 6.3)

Second, the American military-economic concept has been wrong. The U.S. has not heretofore considered military-industrial cooperation with Europe to be a matter of economic necessity. Our policies have been based on the premise that our resources are unlimited. This is a concept that precludes cooperation on other than an ad hoc, low economic yield- project basis. (6.4)

Self-sufficiency can be self-defeating. It makes no provision for Allied standardization, for common logistic support, for the commonality of weapons and equipment that will permit NATO's conventional forces to operate effectively together. It pits the resources of the United States against those of the Warsaw Pact, with little or no opportunity for Europe to make a meaningful contribution. It is unnecessarily burdensome, trading American quality for Warsaw Pact quantity and diversity. It requires ever-larger defense budgets just to keep pace.

Are these obstacles so insurmountable? Can the impasse be broken?

Seen through American eyes, we have borne a disproportionate share of the financial burdens of the Cold War -- and we have been wanting Europe to bear some of those burdens. Seen through European eyes, we have also reaped a disproportionate share of the economic and technological benefits of the Cold War -- and they have been wanting the U.S. to give them an opportunity to reap some of those benefits. (6.8)

Thus there is a practical, political trade-off: American technological benefit-sharing in return for European financial burden-sharing.

The economic resources are available to achieve both the military and the civil technological ends desired by the United States and Europe. They are available through trade -- trade in the annual $70.0 billion government-funded military and civil marketplace.

Today these vast markets are not only heavily protected on each side of the

Atlantic, but (for ancient historical reasons) unnecessarily fragmented in Europe. As a consequence, the governments of the United States and Europe are:

* Blocked from sharing the financial burdens of weapons development, production and support

* Blocked from sharing the research and development costs of new energy sources and new methods of using energy more efficiently

* Blocked from buying from, and selling to, the other the goods which each produces more efficiently

* Blocked from providing jobs and markets for their industries on an inter-continental scale

How can these vast markets be opened? What needs to be done? By whom?

The President of the United States, with the active participating, bipartisan support of the Congress needs to propose to Europe: (1) A North Atlantic common defense market; (2) Cooperation in civil technology; and (3) Open government procurement.

The Common Defense Market initiative (see 8.1) would propose an evolutionary, twelve-year program leading to U.S./European military-industrial interdependence. The United States would:

* Offer to match every defense dollar Europe spent in the United States with a dollar spent in Europe

* Offer to match the cost of every system developed in Europe for NATO use by an American defense development, also for joint use

The more Europe contributed to NATO's general purpose forces, the more the United States would contribute. In return Europe would agree:

* To establish an institution within the North Atlantic Alliance (provisionally called the European Defense Procurement Agency) which would permit Europe to plan, finance and manage bilateral, non-duplicative, multi-annual, multi-project defense research, development, production and support programs with the United States

* To offset fully our troop deployment balance of payments deficit through the savings Europe will realize in system acquisition and support practices

* To maintain European defense expenditures at least at current levels for as long as there is a substantial imbalance in American and European defense budgets, or until lower levels are mutually agreed

Full offset should be delayed during a transition period since many of the foreign exchange costs now borne entirely by the United States (except for the German offset) would automatically become a shared NATO cost in a common defense market.

By treaty (supported by the necessary ennabling legislation) the Congress of the United States and the Parliaments of Europe would establish the following basic principles to govern the negotiation and management of complementary weapon system and equipment projects:

* Cooperation must provide balanced collective forces for the defense of Europe

* All unnecessary duplication of effort must be eliminated

* Benefits and burdens must be equitably shared

* Cooperation must achieve maximum standardization

* Cooperation must achieve maximum joint follow-on logistic support

These principles would allay fears and suspicions. They would establish the objectives to be sought, and the rules to be followed. They would re-assure industry and labor on each side of the Atlantic.

Within these principles, and taking a cue from the Hyde Park Agreement, the United States and Europe would establish the following interim and long-range goals:

* An initial three year goal of $2.0 billion of defense procurement from one another

* A three year goal for harmonizing all defense basic research

* An initial three year goal of $4.0 billion of complementary development projects underway on each side of the Atlantic

* A four year goal for common logistic support of all common weapons and equipment

* A twelve year goal for achieving complete military-industrial interdependence in the development, production and support of general purpose forces

By the end of the twelfth year, Europe and the U.S. would each develop, produce, support -- and provide the other -- with the tactical weapons and equipment it was best able to make. This would mean specialization, long production runs, and economy of scale with its attendant lower unit costs. Military trade would be a two-way street. New jobs and markets would be created on

each side of the Atlantic. American weapons sold to Europe would provide the United States with the foreign exchange to procure weapons from Europe, and vice versa.

The ensuing standardization and interoperability would reduce the cost of spares and support equipment, the number of storage and distribution depots, test and repair facilities. Maintenance personnel, both military and civilian, American and European, could be reduced. General Andrew J. Goodpaster, Supreme Allied Commander, Europe (1969-74) estimates that through such standardization, Allied military effectiveness could be enhanced by from 30-50% for most units, to as much as 300% for certain tactical air units.

With standardization and increased military effectiveness, the general purpose forces of the Alliance would become a strong, balanced, conventional deterrent to the conventional military threat posed by the Warsaw Pact.

The Civil Technological initiative (see 8.2) complements the common defense market initiative in many ways. Bold action programs, expansive in scope and challenging in concept, are needed for their own sake, and needed to rekindle popular support for the North Atlantic Alliance. Moreover, civil technological cooperation would ease political pressures (exacerbated by inflation) to divert funds from defense, until the benefits of economic cooperation in defense technology could be realized.

An American initiative (in both civil and military technology) will capture the imagination of the young whose lack of Cold War memories may make them skeptical of the need for military cooperation alone. And civil technological cooperation would be an inducement to the Soviet Union to make detente a fearless reality.

The civil technological initiative would follow the pattern of the common defense market initiative, with priority given to the energy field. The same basic principles would apply, to the extent applicable. The following goals would be established:

* An initial eighteen month goal of $1.0 billion of complementary energy development projects underway on each side of the Atlantic

* An initial three year goal of $2.0 billion of complementary development projects underway in non-energy areas

* A four year goal for harmonizing all research projects into a broad-based program of coordinated, mutually supporting research in civil technologies

Every dollar Europe spent on an agreed civil technological project would be matched by an American dollar spent on an agreed project. The results would be shared in accordance with formulae conforming to the basic principles.

In its civil technological aspects, the U.S./European cooperative structure is not intended to be exclusive. It is a structure to which Japan, the

other OECD countries, Iran, the Arab World, and the other OPEC countries can adhere at a later date.

And in the spirit of the Marshall Plan offer which Stalin rejected, the United States and Europe would be building an interdependent technological cooperative structure to which even the Warsaw Pact could adhere when, in the fullness of time, SALT, MBFR and detente become a fearless reality.

The Soviet Union itself would thus hold the key to the western technological trade and cooperation it covets, and needs. If and when the Soviet lowers the arms expenditure level for the Warsaw Pact to a non-threatening threshold -- so NATO could reduce its military expenditures -- the Soviet would concurrently be establishing an expenditure threshold for civil technological cooperation between NATO and the Warsaw Pact.

In this way, the two largest, most technologically advanced industrial economies in the world, treaty-bound together for mutual security, would be using economic cooperation in military and civil technology:

* To forge a strong NATO conventional deterrent, and

* To structure an inducement for the more backward economies of the Warsaw Pact to turn more rapidly to detente

The Open Government Procurement initiative (see 8.3) would propose the gradual removal of the "buy national" barriers to trade between the United States and Europe in the vast government-funded marketplace for civil and military goods and services.

Government procurement markets are the last and largest frontiers of world trade. Excluding strategic nuclear weapons systems, the governments of the North Atlantic Alliance annually procure over $70.0 billion. In other words, they provide markets far exceeding the $40.0 billion annual industrial trade volume affected by the Kennedy Round.

Government procurement markets, our own included, are also the most protected markets in the Free World. Most Americans see the Buy American Act as a patriotic protective moat -- keeping them out! The evidence indicates it's a Berlin Wall -- keeping us in! (6.5)

The Trade Act of 1974 authorizes the President to bargain the removal of our Buy American restrictions for similar concessions from our trading partners, subject to Congressional approval.

* No labor or industry witness testified against the reciprocal removal of government procurement restrictions in either the House or Senate Committee hearings

* The Aerospace Industries Association (AIA), the Electronic Industries Association (EIA), the Western Electronic Manufacturers Association (WEMA), the National Electrical Manufacturers Association (NEMA) and many

corporate executives (including former DepSecDef David Packard) all supported the reciprocal removal of government procurement restrictions

Establishing a common defense market, and removing government procurement restrictions affecting military trade, are two parts of the same problem. The two should be combined into one negotiation between the United States and Europe within the North Atlantic Alliance. This is appropriate because the aim of the negotiations is two-way military trade -- removing as many of the barriers to trade in conventional weapons as the two Allies may desire.

Similarly, the end products of civil technological cooperation impinge upon government procurement restrictions. The removal of these restrictions should be negotiated within the same Alliance or U.S./E.E.C. forum where the cooperative efforts were structured, and where the financial, industrial, technological and other trade-offs are fully understood.

GATT is not an appropriate forum for this purpose. Nonetheless, the GATT non-tariff barrier negotiations should proceed, and accomplish as much as is possible on a worldwide, multilateral basis. But the North Atlantic Alliance should become an additional forum for negotiating the removal of the "buy national" barriers to Allied economic cooperation and trade in military and civil technology.

In April, 1975 -- as NATO begins its 27th year -- powerful, centrifugal economic forces are threatening the stability and cohesion of the world order the United States established out of postwar chaos. A strong, offsetting centripetal initiative from the United States is required to assure the continued stabilizing influence and unity of the North Atlantic Alliance in world affairs.

The magnitude of the problems confronting the Alliance require economic cooperation in the manner and on the scale recommended. In no other way can Europe and the United States:

* Find the economic means of sharing all of the burdens of NATO's defense (not just troop deployment costs)

* Eliminate all unnecessary duplication of military-industrial effort

* Build together a balanced, effective conventional deterrent

* Open the largest closed markets in the Western World to two-way trade on an inter-continental scale

* Meet the challenges of our times together, and together share the benefits of technological collaboration

* Give NATO a purpose and a direction to which people and politicians on both sides of the Atlantic can subscribe

NATO Then

In May 1950, the Defense Committee urged a progressive increase in defense forces based on the creation of balanced collective forces rather than balanced national forces. By this was meant a force for the defense of Europe, complete and balanced in its components when viewed as a collectivity, rather than a collection of national forces each complete with all the necessary component arms. The latter was beyond the economic means of Europe, even when supplemented by large grants of military aid from the United States....

The sole point at issue was that in raising the forces for the defense of the area, economic necessity required that all duplication of effort be eliminated.

Hon. Dean Acheson
Secretary of State (1949-53)

NATO Now

I see NATO -- and above all its European members -- entering a critical phase. The reasons can soon be found:

* Inadequate budgets
* Personnel costs and shortages
* The price explosion affecting weapon systems

Two things appear certain -- we shall not be able to preserve our old established structures and we shall have to adopt other forms of military cooperation in the Alliance.....

Vast sums could be saved, especially in Europe. Member countries, especially the continental Europeans, must realize that they are in no position to finance the broad range of weapon systems operated by modern armies, navies and air forces.....

NATO doubtlessly possesses the means of preserving the East-West balance. But it will have to consider and decide how it is to achieve a more effective and more economical means of cooperation as a result of limits in the financial and personnel sectors.

General Johannes Steinhoff
Chairman, Military Committee NATO (1971-74)

3. NATO'S SUCCESS AND FAILURE

1974 marks the 25th Anniversary of the North Atlantic Alliance -- and the beginning of the 30th year of peace in Europe.

The maintenance of peace has been NATO's greatest success. But this success masks NATO's most persistent failure.

When NATO began, the economic means of achieving military ends was always seen as one and the same problem. It was believed that economic necessity required that all duplication of effort be eliminated. Duplication has never been eliminated.

The past quarter century has witnessed an incalculable waste of tens of billions of dollars of American and European defense resources -- manpower, money, energy, materials and structures. NATO has not provided the maximum defense possible for the resources available, or the resources expended.

This is because the common Soviet threat -- channelled into a strong Warsaw Pact conventional military capability -- has not been met by a common U.S./ European economic, technological and industrial effort. The defense budget burdens we bear are therefore much larger than they ought to be, for the quantity, quality and diversity of tactical forces they provide.

Put another way, the military effectiveness of NATO's conventional forces -- the so-called "conventional deterrent" -- is far below the standard we and our European Allies should expect from the more than $90.0 billion per year that together we spend on general purpose forces.

3.1 Military-Economic Objectives: 1949

In 1948-49, a demobilized America and a still devastated Europe faced a bleak and dangerous prospect. Thirty well-equipped Russian divisions sat astride Eastern Europe. Facing them were twelve American, British and French divisions. This was not an army. This was a military police force scattered throughout western Germany on occupation duty.

The illusion that this limited military force, buttressed by the then American monopoly of the atomic bomb, could deter the subversive overthrow of a friendly state, or a hostile military move on Allied positions, had been shattered by the Communist takeover of Czechoslovakia, and the Russian blockade of Berlin. There was reason to fear a Russian march to the Channel.

The U.S. and Europe saw that something more than the atomic bomb, and something more than strident warnings, was needed to deter aggression. Clearly a strong conventional military force was required. Clearly also, the Russians (acknowledged realists) had to be made to face two realities: first,

that the nations of Europe could not be devoured one by one; and second, that an attack on any European nation directly threatened the security of the United States.

The United States had paid dearly in blood and treasure for our belated intervention in World Wars I and II to prevent Europe from domination by powers hostile to American interests. This was not to happen a third time. The basic concept of the North Atlantic Alliance was simply: an attack upon one is an attack upon all. With bipartisan Congressional support, this concept was embodied in the North Atlantic Treaty, signed in Washington in April, 1949.

As the Prime Ministers joined President Truman for the signing ceremony, the Marine Band (perceptively perhaps) played two popular Gershwin tunes of the day: "I've Got Plenty of Nothin'" and "It Ain't Necessarily So."

The American defense budget then totalled but $13.5 billion. Europe was spending on each of its many national defense forces a total of $4.8 billion. Together: $18.3 billion. Europe could do no more. European military rearmament had to proceed hand in hand with European economic recovery. Hence, American military and economic assistance had to help offset Europe's $6.0 billion balance of payments deficit.

In the early days of the North Atlantic Alliance, the economic means of achieving military ends was always seen as one and the same problem. The original principles were simple and sensible:

* Needs should be jointly considered and equipment jointly allocated.

* Forces should be developed on a coordinated and integrated basis to operate under a common strategic plan.

* Unnecessary duplication should be eliminated and maximum defense derived from available manpower, money and materials.

In September, 1949, the Russians exploded their first atomic bomb. Two months later, the North Atlantic Treaty's Defense Ministers met and agreed upon a strategic concept of military-economic specialization:

> No European nation was to attempt a complete military establishment, but rather each was to make its most effective contribution in the light of its geographic position, economic capability and population.

The concept of military-economic specialization was carried further in May 1950 when the Defense Committee recommended a steady build-up of Allied forces "based on the creation of balanced collective forces, rather than balanced national forces." In Secretary Acheson's words, balanced national forces were seen to be beyond the economic means of Europe. In raising

the forces for the defense of the area, economic necessity required that all duplication of effort be eliminated.

3.2 Military-Economic Results: 1974

Europe has come a long ways from the "Plenty of Nothin'" days of 1949. Fully recovered for more than a decade, the European Community is now the world's second largest industrial economy.

Given only these facts, the apocryphal man from Mars might conclude that the two largest, most technologically advanced industrial economies in the world, treaty-bound together for mutual security, would have been more than able to mount and then retain unchallengeable military superiority over the more backward economies of the Warsaw Pact. "It Ain't Necessarily So!"

In the past decade, the Soviet Union has achieved nuclear parity with the United States. At the same time, the Warsaw Pact has modernized and re-equipped its conventional armed forces. Taken together, this is an outstanding technological and industrial achievement.

Against NATO's Center Region, the Russians and their Warsaw Pact Allies have now deployed and could launch (with very little warning) an attack of 58 divisions, 2,800 aircraft, and more than 8,000 tanks. Citing the approximate balance between the deployed NATO and Pact forces in the Center Region, the Secretary of Defense told the Congress earlier this year that this

> ....is not to argue that we can be complacent about the situation in the Center Region as it now exists.

Given a few weeks to mobilize, the Warsaw Pact could deploy 80-90 divisions for an attack in the Center Region. The SecDef told the Congress:

> ....the probability of a successful forward defense by conventional means only is lower than I consider prudent.

In NATO's 25 years, the defense budgets of the United States and its European Allies (including France) have grown from $18.3 billion to $118.4 billion. That is to say $100,000,000,000 more per year now, than then!

More than 70% of the American defense budget ($55.0 billion) is spent on general purpose forces. Our European Allies spend over 80% of their defense budgets (nearly $35.0 billion) on similar forces. Thus, together the United States and Europe bear an annual $90.0 billion burden devoted to the research, development, production, maintenance, modification, deployment, operation and support of general purpose forces.

Approximately $60.0 billion of that expenditure is oriented towards European defense. Clearly, at these levels, a coordinated U.S./European effort in the conventional forces field would be a very significant (perhaps

unequal) challenge to the economies and technology of the Warsaw Pact. But we don't have such an effort. We never did. In fact, we've retrogressed.

The standardization achieved in NATO's early years (largely) through American Military Assistance has been lost.

Similarly, the American investment in the European military-industrial base has gone astray. With American funds, American offshore procurement, and American technical assistance, the European military-industrial base was rebuilt after the war, and technologically upgraded after Sputnik. Today, the European countries of the Alliance compete with one another, and compete with the United States, in the development, production and sale of conventional weapon systems.

At times, in fact, military export sales potential takes precedence over the common defense. In 1972, the Secretary General of NATO observed that:

> Over the past decade in particular our constant need to remain ahead of our foes has been paralleled by a growing desire to get ahead of our friends.

Competitive weapon system sales within the NATO military market contribute to NATO de-standardization. This was the point made by a retired French General, recalling a presentation he made to SHAPE thirteen years ago on what he decried as "Twelve Years of De-Standardization within NATO". He began by showing that in 1949 there were two different kinds of jeeps in NATO -- by 1961 there were six! And on and on he went, system by system (regretfully, he said) to no practical effect. He suggested we present an up-dated report: "Twenty-five Years of NATO De-Standardization".

Such a report would show that, notwithstanding the vast sums spent by NATO countries over the past 25 years, NATO's conventional forces are:

* Qualitatively very uneven, some weak and some strong;

* Inferior to the Warsaw Pact in quantity and diversity;

* Unable logistically to support one another.

The Warsaw Pact picture is quite different. Weapons, designed and developed by the Soviet, mass-produced in Russian and Eastern European plants, are standardized throughout Pact countries. The Warsaw Pact enjoys a significant advantage over NATO forces in the quantity and diversity of their conventional weapons. Quality, as the Mideast War demonstrated, is not to be scorned. And with standardization, Warsaw Pact forces have the ability to support one another to a degree not yet attained within NATO.

To offset these Warsaw Pact advantages, the U.S. -- almost by itself -- devotes ever-diminishing defense budget investment resources to achieving and maintaining American qualitative technological superiority over the Soviet.

The dilemma of American quality versus Soviet quantity was dramatically

summarized by the Army R & D Secretary in his statement to the Armed Services Committees earlier this year on the "guiding philosophy behind the Army's RDTE program." He first posed, and then answered the question:

> "Why, when the Soviet can field good, sturdy, effective, battlefield machinery, must we develop systems which seem to be vastly more sophisticated, complicated and often more costly?"
>
> The answer in part is that, within the constraints of almost any foreseeable budget, on almost any conceivable battlefield of the future, our forces will be vastly outnumbered in manpower, firepower, airpower, air defense and combat vehicles. To prevail, or indeed to survive, we must, therefore, be prepared to counter, destroy or neutralize these enemy advantages with an efficiency that requires better than sturdy basic weapons which are equally available to all our potential future adversaries. Hence, we are developing systems whose ingenuity of design will maximize the effectiveness of the forces available to us.

The United States may be winning the "technological race" with the Soviet, but NATO is losing the "defense resources competition" with the Warsaw Pact. Six arguments can be advanced to support this conclusion.

First, NATO is unable to devote as large a percentage of its defense budget resources to investment (development, production and procurement) as are the Warsaw Pact countries. NATO's manpower costs are much higher than those of the Pact. For Britain, France, Germany and the United States, manpower costs exceed 50% of the defense budget. For the Soviet, the figure is much closer to 30%.

The Soviet is credited with devoting approximately 50% of its defense resources to investment. The percentage of the British defense budget spent on equipment has fallen from 42% in 1965/66 to 37% in 1973/74. The German defense budget shows a steady decline in the investment ratio, from a peak of 46.2% in 1967 to 29.1% estimated for 1972. The American investment ratio (see section 6.4) has also fallen below 30%.

Second, Europe had to abandon the "technological race" with the Soviets in the late 50's and 60's. The race required continental-scale defense budgets, defense industries and defense markets. Without them, Europe was unable to make the heavy investment in industrial plant, production facilities, laboratory and test equipment, and high-speed quality control inspection devices, required to stay in the "technological race" with the two continental powers. We now run this race alone. Consequently, there are areas of defense technology where Europe can no longer match either the United States or the Soviet. As General Steinhoff points out:

> ....the continental Europeans must realize that they are in no position to finance the broad range of

> weapon systems operated by modern armies, navies and air forces.

But the United States must realize it also, for it has serious implications for American policy towards NATO:

* Where will our European Allies find the economic means to acquire, operate and maintain high technology weapon systems?

* Lacking the means, will NATO Europe's conventional forces progressively become qualitatively inferior to those of the Warsaw Pact?

* If a qualitative gap should develop and then widen between European and American conventional forces, can NATO mount an effective forward defense?

It would be serious indeed if -- unlike our Iranian Ally -- our NATO European Allies were unable to purchase from the United States those weapon systems which can compete qualitatively with those of the Warsaw Pact, and which Europe itself can neither develop nor produce economically.

Third, the United States is not making optimum use of the European defense industrial base. The Director of Defense Research and Engineering advised the Chairman of the Senate Armed Services Subcommittee on Research and Development in April, 1974 that:

> In the past ten years the technological competence of our NATO Allies has improved to the point that in some areas they are equal to and even surpass us.

Except for the British jet V/STOL aircraft HARRIER, however, the United States has not purchased weapon systems from Europe. Thus Europe is denied the economic means whereby it could purchase advanced technological systems from the U.S.

Fourth, the market economies of the NATO countries are far more vulnerable to worldwide inflation than the controlled economies of the Warsaw Pact. Inflation has seriously eroded the purchasing power of Allied defense budgets.

Fifth, NATO's defense budget resources are wasted through duplication (as will be detailed in the next chapter) whereas the resources of the Warsaw Pact buy standardized systems, mass-produced for all Pact members.

Sixth, the western democracies must be more responsive to conflicting claims on government funds than are the Pact countries. Public pressures are mounting in the Parliaments of Europe and the Congress of the United States to reduce defense expenditures in order to devote resources to priority civil requirements.

Thus NATO enters its second quarter century challenged to find whether and

how economic resources can be made available to achieve both the military and civil technological ends desired by the people of the United States and Europe.

There is no lack of resources. What has been lacking is a coordinated effort pitting the technological and industrial resources of NATO against those of the Warsaw Pact. This, as has been said, would be an unequal challenge. Even the uncoordinated effort NATO has made, forced the Warsaw Pact to neglect their civil technology and civil economy in order to forge a military advantage over the West. Significantly, when the strain of this defense resources competition took its toll on the Soviet civil economy, they came to the United States and Europe for civil technological assistance.

Meanwhile, Europe and the United States, burdened by inflation and sharply higher energy costs, are feeling the strains of our present, unequal defense resources competition with the Warsaw Pact.

As in the beginning, so now twenty-five years later -- necessity requires that the North Atlantic Alliance find the economic means whereby Europe and the United States can equitably share the common defense burden.

Now, even more than then, balanced national forces are beyond the economic means of Europe.

Europe today is "in no position to finance the broad range of weapon systems operated by modern armies, navies and air forces."

This report suggests that even the United States is in the same position. We too are resource-limited.

The Senate Armed Services Committee has said it somewhat differently:

> The committee must again stress, as it has in the past three years, its concern that the escalating cost of weapon systems and manpower is keeping the defense budget at a consistently high level, a high level which buys fewer weapons and less manpower with each passing year. This year the concern is expressed with a real sense of urgency, as the United States is in the grip of the worst inflation since World War II.

Now, even as much as then, economic necessity requires that all duplication of effort be eliminated.

NATO Amendments

The committee remains convinced that the United States' commitment to NATO is vital to U.S. security and interests. But it believes that at this time of a changing strategic balance, rising costs, changing technology and reduced tensions it is more important than ever that a hard look be taken at the NATO Alliance and at the U.S. participation in the Alliance. It is of real interest and concern to the Committee that action be taken to realize the following objectives:

* that the size, structure, and deployment of U.S. NATO forces be as efficient and economical as possible consistent with adequate conventional defense;

* that maximum emphasis be placed on conventional defense and deterrence to minimize the risk of nuclear confrontation; and

* that the fullest cooperation be obtained from the Allies to maximize use of resources and to equalize burden-sharing....

The three NATO amendments form a package designed to enhance the non-nuclear potential of NATO forces in Europe and start toward putting the U.S. NATO posture on more of a long term basis. Each is directed at a critical problem of the Alliance with a certainty that the problems are solvable and are worth solving because NATO is basically a strong and, in the opinion of the committee, vital alliance.

NATO Standardization Amendment

This amendment is directed at improving commonality and standardization in weapons, equipment and support systems in NATO. It directs the Secretary of Defense (a) to assess the consequences in cost and loss of combat effectiveness of failures to standardize, (b) to make specific proposals for common action and (c) to work within NATO to make standardization in research, development, procurement and support an integral part of the NATO planning process.

Senate Armed Services Committee Report
FY 1975 Military Procurement Authorization Bill

4. THE BURDENS OF ALLIED DUPLICATION

Four years ago, the Dutch Vice Chairman of Western European Union (WEU) Committee on Defence Questions and Armaments commented on Europe's defense efforts as follows:

> A detached observer of the European defence scene, his mind uncluttered with the preconceptions that have accumulated over the years, might well conclude that the present manner in which the not negligible contributions of the European countries in cash and manpower are translated into fighting units on the ground are about the least rational and least efficient that could be devised.

This same "detached observer" would also conclude that the manner in which Americans and Europeans together translate nearly $60.0 billion of annual defense expenditures into NATO conventional fighting units is equally irrational and inefficient.

The waste of Allied resources (conservatively estimated in this report to exceed $10.0 billion per year) is not recognized as an American burden. It has not received the Congressional attention accorded the more visible (but much smaller) financial burden involving our payments deficit on military account. Yet the burden of waste-sharing is borne more heavily by the United States than by any other Ally.

The European defense effort has never been seen as a complement to our own. Consequently, the cost of NATO's defense is never reviewed in its European-American totality, either by the Pentagon or the Congress. The Congress, for example, does not expect the Secretary of Defense to submit an Annual Report on the Military, Financial, Economic and Industrial Posture of the North Atlantic Alliance. The NATO Amendments could lead to such an annual NATO Posture Statement.

The NATO Standardization Amendment is the first attempt by the Congress to bring the magnitude of the waste of Allied resources to public view, to determine the effect of duplication on Allied combat effectiveness, and to begin common action towards standardization.

The facts (as has been found in preparing this report) will not be easy to acquire. None of the customary NATO statistical documents (e.g. the Defense Planning Questionnaires, the International Staff Memoranda, etc.) are designed to identify duplicative expenditures.

Nor does NATO, as a matter of course, highlight hard problems stemming from member countries' system acquisition and support practices. This is inevitable in NATO's military-industrial management structure. NATO must make do with the weapon systems acquired by fourteen national defense ministries. Logistic support, like system acquisition, is a national responsibility. Thus the military-industrial tools of Allied collective defense are the

haphazard product of a disparate (and often bazaar-like) decision-making process.

As a consequence, many of the problems of the Alliance have no home. If not NATO's problem to solve, seemingly they are nobody's problem. They are management orphans.

One cannot fully and accurately even begin to document the degree of wasteful duplication within the Alliance. But examples, and the facts that are available, do indicate the magnitude of the waste.

This chapter begins with a discussion of the resource aspects of tactical doctrine and military requirements. It then examines the duplication of resources problem sequentially from development, through production and procurement, to logistic support, and on to military effectiveness. It concludes with an estimate of the financial cost of Allied duplication.

4.1 Doctrine, Requirements and Resources.

The absence of common tactical doctrine for the defense of Europe precludes the harmonization of Allied requirements. In turn, disagreement on requirements is often cited as the cause of duplicative weapons developments. This is not entirely so. Resources, one way or another, also play a part.

For example, the U.S. Air Force favors high level attack. The Royal Air Force (with the general agreement of other European air forces) favors very low level attack. The USAF position derives from its Viet Nam experience with ground-based defense systems, reinforced by the Israeli experience in the Yom Kippur war. The RAF position derives from their assessment of potential Warsaw Pact defense capabilities, and the problems posed by Central Europe's pervasive cloud cover.

We have, therefore, a difference in requirements. Or do we? Could there not be two valid requirements? And if resources were available, would not both requirements be met by complementary developments? Wouldn't two developments enhance the effectiveness of Allied tactical air forces?

Similarly, hasn't the trend towards multi-purpose (rather than single purpose) systems been less a matter of requirements than resources? Could not a diversity of single purpose systems be produced in larger quantities, at lower unit costs, with lower support costs -- if there was a NATO-wide market for such systems? And a NATO-wide logistic support system?

Requirements are also more rigidly the master in countries with a wide development capability, than in countries which must shop for systems on the open market. A DOD Directive recognizes this fact by stating that co-production programs directly benefit the U.S. through:

> Encouraging multi-national acceptance of strategic and

tactical concepts and doctrine through the utilization of common military materiel.

Irreconcilable requirements can also be harmonized when the choice is cooperation, or do without. The Multi-Role Combat Aircraft (MRCA) development was the result (in part) of a British Cabinet decision that the budget could not support an independent military aircraft development. British defense officials were frank to admit that they never really tried to understand German requirements until told the next aircraft would either be developed cooperatively with the Germans, or it wouldn't be developed at all.

The Germans (with the second largest defense budget in NATO) have decided as a matter of government policy that they will not develop a major system by themselves. They will either procure from, or develop with, a NATO Ally. German defense officials acknowledged that this policy did present difficulties in the requirements area. In their view, however, requirements must be responsive to available resources, and the political solidarity of the Alliance.

(The German declaration of government policy on International Cooperation is printed at the beginning of Chapter 5.)

Lastly, the question is often asked, "How can we ever achieve successful cooperation with foreigners -- we can't even get our own services to agree on requirements?"

No wonder! There is nothing more difficult than trying to get domestic services to agree on a common requirement. Domestic services are competing for budget resources. The competition is ruled by roles and missions which demarcate claims to those resources. Common requirements and commonality of equipment tend to blur the dividing lines, and re-allocate budget resources in ways that are not wholly acceptable -- even when the choice is cooperate, or do without. Moreover common requirements, as the TFX demonstrated, may mean costly and unacceptable performance compromises.

Roles and missions are not at issue in international cooperation. In staking out claims on domestic budget resources, the cooperating service partners reinforce (rather than compete with) one another. Performance compromises are minimized. Can anybody imagine the Royal Navy and the U.S. Navy being as deeply divided on requirements for the TFX as were the U.S. Navy and Air Force?

This is a point that merits further examination by both the Pentagon and the Congress. Two or more armies, or navies, or air forces can harmonize requirements, and cooperatively develop equipment together with far greater probability of success than is possible through the blending of inter-service requirements to achieve bi-service or tri-service commonality.

Something was lost in the cancellation of the American-British-Canadian-Australian MALLARD field army communications system, in favor of the American tri-service TRI-TAC communications system. At the very least, MALLARD

would have linked the four English-speaking armies together with common equipment. MALLARD might even have evolved into the NATO field army communications system. The possibility of TRI-TAC serving a NATO role is much more remote. Meanwhile, there is a proliferation of national communications equipment developments, making rapid communications among Allies ever more difficult.

To summarize: common tactical doctrine for the defense of Europe would facilitate the harmonization of Allied requirements. In turn, this could minimize duplicative developments. But tactical doctrine and military requirements -- important as they are -- are not crucial. Progress towards launching the cooperative process on a transatlantic scale need not be held in abeyance until Allied doctrine and requirements are aligned. It will probably be the other way around. Progress towards cooperation in military systems acquisition will hasten agreement on requirements.

4.2 The Duplicative Research & Development Burden.

The U.S. spends $5.0 billion per year on general purpose research and development. NATO Europe spends $2.6 billion. Very little of this $7.6 billion annual expenditure is complementary. Most of it is duplicative -- some multiplicative. Seen from an economic resource (and not a military project) point of view, the entire $2.6 billion European expenditure is duplicative.

(This is not said to disparage Europe's R & D effort. All that is being said is that when two sums are being spent for essentially the same purpose, the smaller sum is the measure of the duplication.)

This annual $7.6 billion Allied general purpose R & D expenditure buys some 30% less today than it would have bought a decade ago. The few examples which follow suggest the extent to which duplicative developments burden NATO countries' ground, sea and air force budgets:

* Britain, France, Germany and the U.S. each developed and produced the current generation of Main Battle Tanks (MBTs). These four different tanks are in service in eight Allied armies.

* These four tanks will be replaced by three new MBTs: one developed by the U.S. alone; one possibly by the British and Germans together; and one probably by the French alone.

* Twelve Alliance armies have the following inventory of anti-tank weapons:

  * Thirteen different types of close-range weapons;
  * Six different types of short-range missiles;
  * Seven different types of medium-range missiles;
  * Five different long-range missile systems.

* Planned anti-tank replacement procurement over the next five years include:

  * Four different types of improved close-range weapons;
  * Six different types of short-range missiles;
  * Four different types of medium range missiles;
  * Four different types of long-range missiles.

* Four different SAM systems are currently in development to replace the NATO-standardized NIKE HERCULES system. Franco-British and German-American discussions may reduce this to two.

* The NATO navies have 100 different types of ships of destroyer size or larger, but the more significant fact is that these ships are equipped with:

  * Thirty-six different types of radar;
  * Eight different types of SAM missile systems;
  * Forty different types of guns of 30mm or larger caliber.

* The NATO Patrol Hydrofoil (PHM) will have three different anti-ship missile systems:

  * American HARPOON in the U.S. version
  * French EXOCET in the German version
  * Italian TESEO in the Italian version

  PHM fire control systems may also be different.

* The 2nd Allied Tactical Air Force (Belgian, British, Dutch and German) has eleven different types of combat aircraft for five combat missions.

* Equipment and command and control between the 2nd ATAF and the 4th ATAF (American, Canadian and German) is wholly incompatible.

* Four different short-range air-to-air missiles are in development. Efforts are being made to reduce this to one or (at the most) two separate developments.

The foregoing short inventory of the wasteful European-American development and procurement process could be expanded into each and every weapons and equipment area:

* No European system is being developed for even NATO European use, much less NATO-wide use;

* No American system is being developed for NATO-wide use; many will be used by U.S. NATO forces only.

This is a present and future problem. At current budget levels, the U.S. will spend $50.0 billion on conventional arms development in the next decade. Europe will spend $26.0 billion.

System replacement decisions are being made this year, next year, the year thereafter and so on -- in each of the twelve European defense ministries and in the Pentagon. Only thumb-in-the-dike action is being taken to hold back the wasting tide. And the tide sweeps on, with even greater waste in the next stage of the acquisition process.

4/3 The Production and Procurement Burden.

The waste which begins as duplication, becomes loss of economy of scale in the production phase, and is not as easy to estimate.

The U.S. spends $12.0 billion per year on general purpose forces procurement. Something less than this $12.0 billion will be used to procure systems that could be used in the European theatre. Europe spends $7.0 billion annually on conventional system procurement, virtually all of which will be used in Europe.

None of the combined $19.0 billion U.S./European general purpose forces procurement expenditure will produce systems on a NATO-wide scale. None of the European $7.0 billion will even produce systems on a NATO European scale.

The loss of economy of scale is particularly critical in Europe. Europe's defense industries tend to be more heavily labor-intensive. In turn, most projects are scaled to a national, or at most a bilateral, defense market. Not even the largest projects, such as the Anglo-German-Italian MRCA (Multi-Role Combat Aircraft) are scaled to a European market. This means that for every comparable European weapon system, there are at least two design teams, two production lines, two sets of tooling, and two test centers. Tooling and other start-up costs often loom large enough to curtail reliability testing. Fixes are made after systems enter service.

Short production runs mean foreshortened learning curves, and higher unit costs. In turn this leads either to cancellations, or to costly production stretchouts, or (as in the case of the MRCA) to a reduction in planned system procurement.

For quite different reasons, the U.S. also suffers from the loss of economy of scale. America's defense industries are much more capital-intensive. During the 50's and 60's over $38.0 billion of plant and equipment was put in place to broaden the contractor-owned mobilization base. Another $15.0 billion was invested in government-owned, contractor-operated plants. This $53.0 billion geared the American defense industrial base to much higher production rates than are now possible. Annual aircraft production rates have dropped from 1,800 to 500 in the past decade. Tank production is down

to 30 per month, 360 per year.

Inflation, and the reduction in defense budget purchasing power, have combined to increase unit costs. As the costs go up, the numbers procured go down. And as total project costs go up, the number of projects go down. Europe is experiencing the same vicious circle.

In the U.S., companies which used to have several major projects now only have one. The ratio of fixed to variable costs is much higher than before, and unit costs are more sensitive to variations in production rates.

The F-15 flyaway cost averages $8.5 million per aircraft. To keep the production line open longer (against a possible future emergency), the production rate has been halved. Asked by the Senate Armed Services Committee what effect this would have on cost, the Secretary of the Air Force replied:

> It depends on what else happens. If all you do is cut your production rate from 12 per month to 6 per month, it would run up the unit cost something like $2.5 million per airplane. If, on the other hand, you were able to get foreign sales, which would make up those six that you had lost, then it would not have any effect....

Cutting the F-15 production rate by 50% (from 12 to 6) has increased the unit cost by 30% (from $8.5 million to $11.0 million). It has reduced the monthly production cost by 35% (from $102.0 million for twelve @ $8.5 million, to $66.0 million for six @ $11.0 million).

But doubling the production volume (i.e. restoring the 12 per month rate) only increases the monthly production cost by $36.0 million, or 55%. This is a more favorable result than the usual learning curve formula would predict, namely that doubling the volume will only increase the cost by 80%.

Certainly the F-15 case is not entirely typical. But it does indicate the sensitivity of unit costs to changes in production rates.

Europe and the United States can only increase production runs by: (a) larger defense budgets, which are out of the question; (b) foreign sales, which are speculative and uncertain; or (c) rationalized, transatlantic military trade.

Rationalized military trade is the only course which could offer continuity of benefits for the United States, for Europe, and for the Alliance.

The European market will never restore the American defense industrial base to the production rates of a decade ago. But it would provide more stable, predictable -- and plannable -- markets for American defense production than the hoped-for foreign sales cited in the F-15 case. It would increase production runs, and reduce unit costs. Missing of course is the economic means whereby Europe can buy from the U.S., unless the U.S. buys from Europe.

What is lost by the lack of a NATO-wide defense market? For the U.S. (already producing on a curtailed continental scale) at least 10% of the $12.0 billion annual general purpose force procurement ($1.2 billion per year). For Europe the figure will be much higher. Producing now on neither a continental, much less an inter-continental, scale, the figure would have to be at least 25% of their annual $7.0 billion conventional force procurement ($1.75 billion per year).

This crude estimate of the total annual procurement loss of $2.95 billion per year probably under-states the waste by half. Better data, and better estimates are needed.

The lack of better data, and the estimated waste of $2.95 billion per year in the procurement phase, bring forth a few NATO management orphans:

* Who worries about the tanks, aircraft and missiles that will never be produced by either the United States or Europe because of the loss of economy of scale?

* Who worries about the jobs that will never be filled because nobody will be producing those lost tanks, aircraft and missiles?

* Who worries about the military impact on the quantitative inferiority of NATO conventional forces vis-a-vis the Warsaw Pact?

* Who worries about the effect of loss of economy of scale on American defense budgets? European defense budgets?

* Who worries about the downstream effect on Allied logistic support costs caused by the limited production of two or more competing Allied weapon systems?

4.4 The Logistic Support Burden

The waste which has been loss of economy of scale in the production phase, now becomes a waste of facilities, overheads and (particularly) manpower in the logistic support phase. The heaviest burdens on Allied resources begin in this phase. The waste is much more difficult to estimate, but much easier to visualize.

We begin with the fact that logistic support is a national rather than a NATO responsibility.

For the European case (including France) this means twelve defense ministries, and thirty-four armed services. It means two or more systems for

each European military requirement, each requiring logistic support. Each country devotes its own resources to supporting its own forces in accordance with its own support concepts, with little or no help from its Allies.

Thus year-in, year-out support costs are incurred in maintaining and operating non-standard weapons and equipment, and munitions of every caliber. This means a proliferation of sub-assembly and component repair parts; of repair facilities; operational and maintenance training facilities. The fragmentation into twelve national compartments with thirty-four sub-compartments means each service must procure more spares for its needs alone, than would be required if there were a European spares pool.

Each step in this multi-multinational logistic support chain must be managed and operated by costly Belgian, or British, or Dutch, or German or some other nation's military and civil personnel.

The American case includes much of the above, plus more. Deployed in the midst of an advanced industrial economy second only to our own (an industrial economy we helped rebuild), we may as well be deployed -- for industrial support purposes -- in the midst of a trackless desert. After a quarter-century, ours is still an expeditionary force, depending upon our own 3,000-6,000 mile pipeline to our own industrial heartland for almost every significant item of industrial support.

The House Appropriations Committee last year requested the Secretary of Defense to have the military departments review the current and potential capabilities of the NATO Maintenance and Supply Agency (NAMSA) to determine whether or not our forces in Europe could make economical use of the Agency. The Committee noted that:

> The United States does not participate in the organization, operation, or utilization of this agency of NATO to any great extent. Most of the materials in Europe are returned to the States for repair and/or overhaul. This is a very costly procedure in view of the fact that facilities are available for this purpose in NATO.

We need ask ourselves two questions: First, <u>is this self-reliance in American self-interest</u>? Second, how much of the foreign exchange and budgetary support costs now borne entirely by the United States (except for the German offset) might automatically become a shared NATO cost, if logistic support were to become a NATO responsibility?

What do fourteen logistic support systems for thirty-nine armed services cost the North Atlantic Alliance? This is another NATO management orphan!

Various formulae have been put forward for relating support costs to acquisition costs. In 1972 the Government Procurement Commission estimated that the cost of operating and maintaining the systems then being acquired "could easily double the direct acquisition costs although such costs cannot easily

be broken out from operating budgets." Airlines and other transportation systems often estimate the life-of-system spares cost as equal to the acquisition cost. Some defense logistics experts estimate at least a one-to-one relationship between acquisition and support costs. This tells us that the life-of-system support cost lies somewhere between 100% and 200% of the original acquisition cost. But it doesn't tell us much more.

Assuming a steady-state U.S./European general purpose forces procurement input of $19.0 billion per year, logistic support costs on a life-of-system basis would lie between $19.0 billion and $38.0 billion per year. But this doesn't tell us much about the support costs borne by NATO countries, or the degree of waste incurred annually on a NATO-wide basis.

First, not all of the American $12.0 billion procurement relates to Europe. Second, translating the European $7.0 billion procurement into a $7.0 billion to $14.0 billion logistic support cost would not account for the inefficiencies inherent in providing logistic support through thirty-four European armed services, each with its own support infrastructure, support manpower, and so forth.

Again, it is probably easier to arrive at some measure of the cost by a cruder estimating method.

Depending upon how costs are allocated, various figures have been advanced to estimate the cost of the American commitment to NATO. In FY 1974 Congressional Hearings, the following figures were used:

* $4.0 billion per year as the direct operating costs of the approximately 300,000 troops actually based in Europe;

* $7.7 billion per year, to include the above, plus their U.S. based logistic support;

* $17.0 billion per year, to include the above, plus U.S. forces committed to NATO but not in Europe, plus other costs.

As we've seen, Europe spends approximately $35.0 billion per year on general purpose forces. There is insufficient data to relate European defense expenditures to any of the three American figures and come up with a reliable estimate of the waste incurred in multiplicative logistic support.

But we won't over-estimate the waste if we take only 10% of the American direct costs in Europe ($400.0 million), and only 15% of the European general purpose forces expenditures ($5.25 billion). The total waste by this method is $5.65 billion per year.

Note that the European component of this estimate of annual logistic support waste ($5.25 billion) can be seen either as:

* 250% of the annual American $2.1 billion payments

deficit on military account, or

* 75% of the annual European general purpose forces procurement, or

* 100% of the American payments deficit plus 45% of Europe's conventional procurements, per year!

The lack of better data, and the estimated waste of $5.65 billion per year in the logistic support phase, bring forth a few more NATO management orphans:

* Who worries about the American payments deficit reduction that would follow from making logistic support a NATO responsibility?

* Who worries about the effect of logistic support waste on the manpower to investment ratios of Allied defense budgets?

* Who worries about the effect of logistic support waste on the support to combat ratios of Allied general purpose forces?

* Who worries about converting the logistic support waste into procurement (including net American payments deficit offset procurement) in order to redress the quantitative inferiority of NATO conventional forces vis-a-vis the Warsaw Pact?

* Who worries about the defense industry jobs that will never be filled in Europe or the United States until the logistic support waste is converted into weapons system procurement?

4.5 The Military Impact of the Burdens We Bear

In peacetime, the lack of a complementary U.S./European defense effort adds up to a waste of resources, and a dimunition of capability. In wartime, it would be much more serious.

The Mideast War demonstrated the scale of the airlift required to stave off Israeli defeat. Yet, as the SecDef noted in his FY 1975 Annual Report:

> ....it involved the movement of only 22,000 short tons of cargo. In contrast, the deployment to Europe of the Army and Air Force units initially earmarked for a NATO contingency, together with their essential equipment and initial supplies, would involve the movement of

> more than 500,000 short tons of cargo....
>
> Moreover, given the well founded probability that the Warsaw Pact forces are geared for a short, intense war in Europe....the first few weeks of a war in Europe could well be the most critical.

Deployment to Europe from CONUS requires the movement of 30,000 tons of equipment per infantry division, plus 86,000 tons for support units per division, plus combat consumables of 2,300 tons per division per day.

The SecDef went on to state that "it would take an average of about 19 days per division to move to Europe." Accordingly, funds were requested in the FY '75 defense budget for the first increment of a 5-year, $7.0 billion program to reduce the average deployment time to Europe of the seven CONUS divisions from 19 days per division to 7. Earlier it was noted that the Warsaw Pact could increase its Center Region forces from 58 to 80-90 divisions in a few weeks.

What could we achieve if we also worked the other side of the problem? What would be the impact on the required airlift and sealift, on deployment time, and on the cost of reducing deployment time from an average 19 days to 7, if we had a complementary European military-industrial base, producing, storing and distributing tens of thousands of tons of "essential equipment and initial supplies" that could be indigenous to Europe, and standardized for American and European forces?

Obviously there is a trade-off between the vulnerability of a European production and support base, and "the well founded probability that the Warsaw Pact forces are geared for a short, intense war in Europe." Making no use of the European military-industrial base unnecessarily tilts the factor of geography still further in favor of the attacking Warsaw Pact forces.

Making no effort to achieve Allied standardization threatens the efficacy of the NATO conventional forward defense strategy. This strategy requires the conventional forces of the Alliance to be capable of operating effectively together if attacked.

The attacking Warsaw Pact forces, with their standardized Soviet weapons and equipment, will have the ability to operate effectively together, over much shorter lines of communications and logistics. A comparable Allied capability will be limited.

Each sector of the long line stretching through Europe from Norway to Turkey is manned by an initial covering force, each with its own weapons and equipment, and its own logistic tail. This covering force may be any nationality: American, Dutch, German, Norwegian or Turkish. Nonetheless, it must be capable of holding off an initial attack for a limited time, until reinforced.

At the end of a few days, its forces outnumbered, its munitions nearly exhausted, reinforcements arrive. The weapons of (say) the Belgian covering force are incompatible with those of (say) the British reinforcements.

If guns are of different caliber, munitions can't be shared. The British reinforcements may not be able to supply munitions to the Belgian covering force, nor to supply its own guns from the Belgian stockpiles.

Standardization will not solve the entire problem. The "days of supply" problem must also be solved. But standardization is far and away the most intractable of the two. As NATO's Secretary General put it:

> Seen from a military point of view, there is....the unanswered question of how the myriads of different devices we arm our forces with are going to be resupplied if worst comes to worst and we find ourselves engaged in hostilities. A hundred different supply arrangements are complicated enough for one nation to set up and operate. If one must then multiply these by the number of allied nations having different weapons all requiring different spare parts the sum total becomes a logistics nightmare that may well prove impossible of support. (Emphasis added)

Tactical air forces should be able to concentrate wherever a major attack or breakthrough occurs. Warsaw Pact air forces have that capability, through standardization. Allied tactical air forces do not. Logistically, it is not possible.

While aviation fuel has been standardized throughout NATO, the nozzles and rapid-fueling equipment have not. Nor have aircraft munitions. And standardized auxiliary power units (APUs) have yet to be supplied to all national and NATO airfields. Thus Allied tactical air forces are tethered to their own national fields (and even some NATO airfields) unable to be refueled, rearmed or repaired at other airfields; unable to concentrate when and where required; unable to continue the battle should their own fields be knocked out.

Three years ago, the Commander in Chief, Royal Air Force Germany, told a House of Commons Committee (putting on, as he said, his Commander, 2nd Allied Tactical Air Force hat):

> If one of our airfields, or two or three, were taken out by enemy action of some sort and we had forces from those airfields airborne at the time, if we could divert them to a Dutch airfield, a Belgian airfield, an American airfield or a German airfield and they could then be re-armed, weapons put on them and guns reloaded and they could then be tasked to take off on another sortie, the operability of the force as a whole would be increased by 200 to 300 per cent.

The same problems affect Allied naval forces. If a NATO force at sea expends its fuel or weapons, it cannot be refueled or rearmed at sea unless it has its own replenishment ships.

In varying degrees, therefore, neither the land, sea or air forces of NATO can operate effectively together for any significant period of time. With different weapons and equipment, requiring different ammunition and spares, each Allied country must look to its own (rather than a NATO or Ally's) logistic support system for re-supply. When supplies are exhausted, how then shall the battle be continued? With tactical nuclear weapons? And what of the risk of nuclear escalation?

The weakest link in the entire Allied defense chain is thus this NATO vulnerability to sustained conventional attack by Warsaw Pact forces.

Inevitably, this must operate to lower the Allied nuclear threshold. Inevitably too (since the Soviets have achieved strategic nuclear parity) it makes Warsaw Pact conventional force muscle an even more effective instrument of Soviet politico-military policy.

4.6 NATO's Failure: A Summary of the Waste

Each year, billions of dollars (American and European) could be made available from existing defense budgets for the "defense resources competition" with the Warsaw Pact, if the waste identified in this Chapter could be eliminated.

In billions of dollars, the table below summarizes the estimates of annual Allied waste:

General Purpose Force Expenditures	U.S.A.	Europe	Estimated Waste	
Annual R & D	$5.0	$2.6	$2.6	(1)
Annual Procurement	$12.0	$7.0	$2.95	(2)
Annual Support, Europe	Unknown	Unknown	$5.65	(3)
Totals	$17.0+	$9.6+	$11.2	(4)

Notes: (see preceding text)

(1) Estimated at 100% of the European R & D expenditure

(2) Estimated at 10% of the American procurement expenditure ($1.2 billion) plus 25% of European procurement ($1.75 billion)

(3) Estimated at 10% of the $4.0 billion direct American annual NATO cost ($400.0 million) plus 15% of the $35.0 billion European general purpose force expenditures per year ($5.25 billion)

(4) Rounded down to "more than $10.0 billion" throughout this Report

(Note: Not all the factors contributing to the waste of Allied resources are covered in this Chapter. The waste incurred in less than optimum methods of cooperation are covered in Chapter 5. In Section 5.3, and more specifically page 49, the point is made that every European cooperative split project taxes the European defense resources effort by at least 20% per project. Add in duplication and loss of economy of scale, and the 25% estimate of European procurement waste is not out of line with the aim of this report: to estimate conservatively.)

Lacking more adequate data, every effort has been made to under-state the estimated annual waste of defense resources. Figures of $15.0 billion to $20.0 billion could probably be sustained with better data. Thus, one last NATO management orphan: who worries about how NATO can possibly win the "defense resources competition" with the Warsaw Pact, with data no better than the foregoing?

If the estimates have validity, the European waste due to (a) loss of economy of scale, and (b) national logistic support, total at least $7.0 billion per year. This sum would not only permit Europe fully to defray the $2.1 billion American troop deployment payments deficit. It would also permit Europe to make a much more significant contribution to Allied defense -- within existing European defense budgets.

With or without better data, it should be clear that defense industrial rationalization and specialization within the North Atlantic Alliance would:

* Increase the quality, quantity and diversity of Allied general purpose forces

* Enhance the military effectiveness of the Allied conventional deterrent

* Create new defense industry jobs on each side of the Atlantic, and ultimately

* Permit the gradual reduction of defense expenditures, first in the United States, and then later in Europe

German Policy on International Cooperation

The Federal Government considers co-operation with allied partners to be essential for four main reasons:

* Standardized weapon systems enable an economical employement of forces.

* Co-operation in the armaments field serves to counteract the steadily rising costs of modern weapon systems.

* A build-up of further arms production capacities in our country should be avoided.

* The combined weapons technologies of allied nations ensure the production of first-rate equipment.

It is indefensible both from a political and from an economic point of view to develop almost identical weapon systems simultaneously in several allied countries. Work-sharing therefore appears to be an advisable approach. The interdependence of the various national economies is bound to enhance political solidarity.

German Defense White Paper 1971/1972

5. PATTERNS OF ALLIED TRADE AND COOPERATION

Military trade is an economic transaction, for the buyer and the seller.

Military cooperation, on the other hand, is a matter of economic necessity. Countries don't cooperate merely to save money, or avoid waste. Waste (as NATO's first 25 years demonstrate) is politically tolerable. The political imperative that drives countries to cooperate is a simple either/or reality: either cooperate, or do without!

There can be military trade without military cooperation, but seldom the other way around. The same economic necessity that compels cooperation, compels trade as well. Military trade usually provides the economic means required for military cooperation.

Military cooperative trade can be pursued on a limited, ad hoc, project basis, with benefits limited to the single project. It can also be pursued on a program (i.e. multi-project) basis, with much larger benefits.

On a micro-economic basis, military cooperative trade is essentially a single, negotiated, bilateral make-buy transaction -- this we'll make, and you can buy from us; this we'll buy, and you can make for us. Because the make-buy transaction (or project) must be financed by the cooperating countries' defense budgets, the tendency has been to balance the financial, industrial, technological and economic accounts within the project.

But it need not be done that way. Cooperative military trade can be balanced between two projects, or among several projects. It can also be conducted on a market (or macro-economic) basis. Military trade would then follow the ebb and flow of commercial trade, and be balanced over many transactions over many years, rather than on a single or several project basis.

In this chapter, we're going to examine four basic patterns of Allied trade and cooperation:

* Military cooperation without trade -- the NATO pattern

* Military trade without cooperation -- the American pattern

* Military trade and cooperation on a project basis -- the European and American pattern

* Military trade and cooperation on a market basis -- the U.S./Canadian pattern

The Chapter will conclude with a summary of the lessons to be learned from these patterns. One lesson should be obvious: micro-economic methods will not bring macro-economic results.

5.1 Military Cooperation Without Trade

When NATO began, the economic means of achieving military ends was always treated (as we've seen) as one and the same problem.

With Europe prostrate, the economic means had to be provided by the United States. During NATO's first fifteen years, there was a continuity in American policy towards Europe. It was a policy of assisting war-torn Europe make the transition from dependence upon the U.S. to interdependent partnership within the North Atlantic Alliance.

Military assistance re-equipped Europe's armed forces. Off-shore procurement and mutual weapons development rebuilt Europe's conventional arms industry.

Following Sputnik, progress towards interdependence accelerated. Sputnik shattered American confidence that it had attained superiority in defense technology. The acknowledgement that there might be a technological gap vis-a-vis the Soviet required not only renewed efforts at home, but also a strengthening of the NATO European weapons base.

Underlining the gravity of the situation, the NATO Heads of Government met for the first time in Paris in December, 1957. President Eisenhower and Secretary Dulles made several proposals for increased technological cooperation, including coordinated programs for the research, development and production of modern weapons. Significantly, Secretary Dulles pledged that

> ....the United States would seek ways of supporting the weapons base in Europe by procurement for our own forces as well as for our military assistance programs. (Emphasis added)

With Heads of Government agreeing unanimously that the time had come for greater cooperation within NATO, a generous American initiative involving the transfer of technical assistance and know-how, plus financial launching aid, led directly to the NATO Cooperative Production Projects (F-104, HAWK, SIDEWINDER and BULLPUP).

It was hoped that the experience gained in these cooperative production projects would lead to follow-on projects beginning with a NATO requirement, and then proceeding cooperatively through design, development and on into production. To facilitate this objective, the NATO Basic Military Requirements (NBMR) procedure was established in 1959.

To over-simplify, each country tried to influence the NBMR to meet both its own national requirements and its own industrial research and development capability. If the national and NATO interests were parallel, the country would support the proposed NBMR and be prepared to fund it. If not, the result was endless discussion and procedural delay.

Delay was inevitable in the NBMR procedure, because unanimity was required

for the approval of each NBMR. Fourteen nations had to agree. The wonder is not that the system failed, but that it ever succeeded in producing the 49 NBMRs to which all of the countries agreed!

In 1966, without a single item having been cooperatively developed or produced to meet an NBMR, the procedure was abolished. Why did the NBMR system fail? Quite simply because:

* Determination of requirements (NBMRs) was a NATO function

* Funding the development of NBMRs was a national function

In other words, with or without the NBMRs, NATO lacked the economic means to achieve NATO developments, and NATO standardization. There was cooperation, but no trade.

Weapons development decisions were being made in the Planning-Programming-Budgeting Systems of fourteen national defense ministries, without regard to the NBMRs. With the abandonment of the NBMR procedure in 1966, NATO recognized this fact, and effectively abandoned any further effort to achieve NATO-wide cooperation. Instead, it established the NATO Project System.

If two or more NATO members cooperated on a project development, they could request that it be designated a NATO Project, to which other members could subscribe. Thus NATO institutionalized a system that acknowledged that duplication could not be eliminated, that standardization could not be attained.

It was a better-than-nothing decision that recognized the political realities of the 60's. Military cooperative trade had already become bilateral. The NATO Project System provided a means whereby bilateral projects might become multilateral. The NATO SEA SPARROW Missile Project (Belgium, Denmark, Italy, The Netherlands, Norway and the United States) is witness to its limited success.

5.2 Military Trade Without Cooperation

The American policy of speeding Europe's transition from dependence to interdependent partnership reached its climax in 1963.

In rapid succession, the United States concluded cooperative research and development agreements with France, Germany, Italy and the United Kingdom. These agreements signalled the end of American efforts to seek cooperation on a multilateral basis within NATO. Instead, the agreements established the overall terms and conditions for cooperative projects between the U.S. and its major NATO industrial Allies on a bilateral basis.

Then abruptly, fifteen years of continuity in American foreign policy (which might have made burden sharing a much less contentious issue) came to an end. Just as the stage was being set (and even as the agreements were being negotiated) for sharing the burdens of weapons development, there was a bruising discontinuity in American policy.

Seeking to offset the foreign exchange costs of troop deployment, the U.S. embarked upon a military export program. Interdependence gave way to competition -- in Europe's own military markets, and in all third-country markets.

Burden-sharing (in its narrow balance of payments sense) has become perhaps the single most divisive issue within the North Atlantic Alliance.

As in most human discord, there are two sides to the story. Our side we know only too well: an economically recovered Europe has to this day refused fully to offset the BOP deficit we've incurred by deploying our forces in Europe. Their side is less well known. But it must be understood if we are to appreciate Europe's attitude towards a two-way street in military trade as the basic requirement for cooperation with the U.S.

The American military export sales program was an overwhelming -- almost over-powering -- success! Seen through European eyes, the U.S. during the 60's:

* Sold $8.0 billion of the most sophisticated aircraft, weapon and electronic systems to Europe;

* Bought only $700.0 million of subsystems, components and much less sophisticated equipment in return;

* Eventually captured 20% of the European defense procurement budgets.

To understand Europe's reaction, we need only reflect upon what the political situation would be in the United States:

* If Europe were producing 20% of the most sophisticated weapon systems procured by the Pentagon, and buying little in return;

* If European firms were at the same time acquiring America's most promising growth industries;

* If European industry was producing:

  * 95% of our integrated circuits
  * 83% of our commercial aircraft
  * 80% of our computers
  * All of our communications satellites

The one-way success of the military export sales program unnecessarily

confirmed European suspicions (indeed, fears) that America intended the technological domination of Europe. We had needlessly ignored the old financial saying -- a bull can make money on Wall Street, a bear can make money on Wall Street, but a hog never can.

In military terms, it was overkill.

It was too late to repair the damage when, in 1967, the Secretary of Defense belatedly recognized that military trade (as he told the Congress):

> ....cannot, nor should it be, a one-way street. We, too, must be willing to make some reciprocal procurements abroad where foreign equipment is competitive in price, quality, and delivery schedules....we must be willing, as a nation, to make military trade a "two-way street".

The fault (as the SecDef recognized) lay not in the military export sales program, but in the failure to have had a military import program. It was trade, without cooperation.

Europe's reaction was predictable. The fear of American technological-industrial domination became one of Europe's most politically sensitive issues, particularly in Britain, France and the European Community. And these fears continue to this day!

Government development money flowed into technological industries threatened by American competition. Oftentimes it was too little to be effective. Government procurement procedures tightened against American products and services, and this was more effective.

One-by-one the European nation-states realized that they lacked the financial resources to continue to develop both tactical military weapons, and civil aircraft, computers and electronics for their own small national markets, and an uncertain export market.

Britain (as a matter of declared policy) decided it would seek cooperative development opportunities within Europe, and would buy weapons and commercial aircraft from the U.S. only when there was no alternative. Other European countries adopted the same practice. Even the Germans (committed to offset purchase from the U.S.) came under pressure from their neighbors to become "European" -- meaning "Don't buy American!"

Nine years ago, at the height of European fears of American technological domination, the then British Minister of Aviation told an American audience:

> ....interdependence must be an increasing feature of future defense procurement. But interdependence must be a two-way process. Otherwise it is just a polite euphemism for total dependence. And that is no part of our objective....If we thought we could move towards real interdependence with the United States, we should be very attracted.

This theme runs through nearly every European comment (official or industrial) on the possibility of military-industrial cooperation with the United States. Last year, the French MOD Director of International Affairs told us he would (in his own words) take "great pains to express French policy, clearly and precisely":

> It is French policy to be dependent upon no one. Contrary to the prevailing American opinion, this does not mean that France must be independent of everyone. France would strongly support a program of interdependence with the U.S., but we doubt whether the U.S. is ready for interdependence.
>
> For example, we need your A-4. It makes no economic sense to produce it in France. If we buy it, we will have political problems with our industry unless we can say that the U.S. is buying this or that from us. Is the U.S. prepared to buy something from France? Will you buy CROTALE? That is what we mean by interdependence.
>
> Some time ago, we suggested to the U.S. authorities that each government set some dollar goal for military purchases from one another over a period of years. We were told this was impossible. Why?

The Managing Director of France's largest aerospace company, Aerospatiale, welcomes what he calls inter-continental (i.e. U.S./European) cooperation, but says:

> ....the key to such cooperation is the willingness of the United States to be a true partner. Your government cannot be in charge of every project, nor can your industry always be the prime contractor.
>
> There must be a two-way street between the U.S. and Europe, but I don't see it soon -- not until Europe uses its purchasing power to deny markets to the United States.

This sentiment is echoed by the President of Germany's Messerschmitt-Boelkow-Blohm (MBB) in an address last year to the American Aerospace Industries Association (AIA):

> I believe that rather sooner than later European industry and European governments will react against....a concept of taking a one-way street. If carried to the extreme, Europe having at least one third of the U.S. military and civil aerospace market potential will react by protecting this market.
>
> Technically this approach is possible. However, I

> believe that it would help no one, and there is the high possibility that eventually your and our shareholders will have to pay the bill.

More recently, the Military Attache of one of our strongest European Allies was asked if he'd seen the Senate NATO Amendments, and particularly the NATO Standardization Amendment:

> Yes, I have and I applaud them. But I hope you won't misunderstand when I say we don't expect much. You did observe, didn't you, that the same Senate which passed the NATO Standardization Amendment also passed the Buy American Amendment.

Quotation could be piled upon quotation. President Nixon said it all in his 1970 State of the Union Message:

> Peace requires partnerships, or we will forever exhaust our resources in a vain and unproductive effort to dominate our friends and forever isolate our enemies.

Partnership with our European Allies offers an opportunity to augment, not exhaust, our limited resources. But this is not possible with a policy of trade without cooperation.

The Pentagon's current cooperative effort, now known as Interdependent Cooperative R & D, has been described to the Congress as "genuine partnership" with our Allies. It is not.

As with any project proposed to the Congress for funding, Interdependent R & D has been designed for ease of passage through the legislative mill. The potentially controversial aspects of a two-way street have been shunted aside. Reflecting (understandably) Pentagon apprehension that the Congress will not fund reciprocal purchases of Allied weapon systems, Interdependent R & D was explained last year to the House Armed Services Committee in the following terms:

> Instead of developing something here to fit the need in Europe, if they have it already developed and it is good enough for Europeans, we will license it and produce it here....It costs us less in dollars to get it this way, we get it much sooner, and we do not have to send money overseas to put European bellies to the bench. The moneys we have available stay in America and put American bellies to the bench.

Transferring production of an Allied weapon system to the United States presents problems, difficulties and trade-offs. It is not straight-forward, even if we're producing a chinese copy. The production run will have to be long enough to amortize tooling and start-up costs.

But if the Allied weapon system must be re-designed to meet American stan-

dards, specifications and production methods, and modified to incorporate American improvements, start-up costs will be high -- and very long production runs will be required to amortize those costs. Moreover, the redesigned American system will no longer be the same as the original Allied system, thereby nullifying any logistic or standardization savings.

In 1964, the British planned to acquire 292 American F-4 PHANTOMs. To maintain employment at home, and to minimize foreign exchange costs, they decided upon licensed production rather than outright purchase. Approximately 50% of the aircraft value (including the engines) was produced in Britain. As a result, the British PHANTOM has less performance than the American or German PHANTOMs, and cost twice as much to procure not the 292 they wanted, but only the 170 they could now afford. And the costs do not stop there:

* When an RAF PHANTOM with engine trouble lands at a USAF or Luftwaffe air base in Europe it is deadlined. It cannot be repaired until it is removed to an RAF base.

Outright purchase was used in the British acquisition of the C-130 HERCULES transport aircraft. No attempt was made to Anglicize the C-130. The cost of the HERCULES to Britain and Germany (which also purchased it) was the same as the cost to the U.S.

* American, British and German C-130's can be cross-serviced at Luftwaffe, RAF and USAF bases in NATO.

The economic merits of licensed production versus outright purchase were thoroughly explored by the Congress in the procurement of the British V/STOL aircraft HARRIER for the Marines. Significantly, the HARRIER purchase was the first time in 51 years that the U.S. bought an Allied combat weapon system, produced abroad, for our own Forces.

* The House Armed Services Committee had directed full production in the U.S.

* To minimize transfer costs, the House Armed Services Committee later acceded to a very limited American production plan whereby 49% of the airframe and all of the engines and other equipment would still be built in the United Kingdom -- this at a cost of $5.4 million.

* The House Appropriations Committee rejected this plan when they learned that producing the HARRIER almost entirely in the United Kingdom would reduce the unit cost to $3.4 million.

* In each of the next three years, the Congress argued the merits of the continued procurement of the HARRIER from Britain versus either licensed production or cancellation. The fact outright purchase prevailed

> each year indicates that the Congress will not support licensed production if it adds significantly to the project unit cost.

One point should not be ignored. The British and German purchase of the HERCULES, and the American purchase of the HARRIER, kept American and British "bellies to the bench", and it provided aircraft for the RAF, Luftwaffe and Marine Corps at the lowest possible cost!

Interdependent R & D is based upon the pattern of trade without cooperation. Systems developed abroad which meet an American military requirement will be adopted and, as a matter of policy, produced in the United States under license. Reciprocally, systems developed in the United States which meet a European Ally's military requirement may be produced in that country under license. Or, they may be purchased off an American production line.

Offering licensed production of American systems to our Allies in the spirit of "genuine partnership" is not realistic. It is an offer which is symmetrical in language but not in effect.

European production runs are not long enough to amortize the cost of transferring production from the U.S. to any one, or two or maybe even three European countries. Licensed production (as in the case of the RAF PHANTOMs) will far exceed the cost of outright purchase. For that reason, some Europeans see our offer as a poorly concealed effort to sell hardware to Europe without buying from them in return. A British official summarized the interdependent effect as follows:

> Interdependent R & D amounts to transferring our technology to you for licensed production to meet American needs -- while, in point of fact, you are selling American hardware to us to meet our needs. For the odd project, it will work. As a pattern of interdependence, or cooperation, it's just not on!

Our British Allies use our common language with greater precision than we do. Interdependence means (literally) reciprocal dependence -- the dependence of each upon the other.

There is no element of interdependence in Interdependent R & D, except the fees paid the licensor. The benefit is entirely American. If tooling and start-up costs are correctly estimated, and modifications are minimized, American development costs are saved. Time may also be saved. But there the benefit ends.

It is low yield (development cost saving minus tooling and launch costs). It will contribute nothing to standardization, or logistic support, unless the Allied system is faithfully re-produced. It is at best, an occasional, ad hoc method of acquisition. It is trade without cooperation -- the seller does not acquire the economic means from the transaction to purchase equipment from us.

Saying Interdependent R & D is low yield assumes it is also the low cost method of acquisition. It might not be. Outright purchase (as in the HARRIER case) might be cheaper. In its 3 August 1974 issue (excerpted in part on the inside back cover), The Economist notes that

> Germany has saved billions of pounds over the past 20 years by its practice of buying American military equipment off the shelf.

Yet Interdependent R & D commits the United States, as a matter of policy, not to purchase military equipment from our Allies regardless of cost.

It would have made better economic and political sense to have announced a policy of (a) acquiring Allied systems by purchase whenever it was economically possible to do so, and (b) by licensed production when it was not. Our Allies would have seen such a policy as intending reciprocal dependence. It is a policy that would have served our broader self-interest. It would have made it politically feasible for our Allies to contemplate further purchases from us. And if we did buy from them, it would have made it economically feasible for them to buy from us.

Thus, cooperation through trade -- with American and European bellies to the bench!

5.3 Trade and Cooperation on a Project Basis

The most common (almost exclusive) method of Allied cooperation today is the bilateral, split project. It is the pattern of nearly all intra-European cooperative efforts. It has been used most frequently between the United States and the countries of Europe.

The split project method requires that all of the conflicting financial, industrial, and technological claims of the cooperating partners be met within the project. This leads to many inefficiencies.

The financial cost-sharing in the development phase is generally determined by the numbers of the cooperatively developed item each partner requires in the production phase. If production is to be shared equally, development will be shared on the same basis.

Having decided how development will be shared, the Europeans generally invoke the principle of "just return". If, for example, development costs are to be shared 50-50, then the value of the development and production contracts to be placed in each country must also be shared 50-50. Each must receive back the same sum it invests. This is the just return. For obvious reasons, it is also referred to as cooperating on a "zero foreign exchange" basis.

Agreeing on the financial cost-sharing is fairly straight-forward. Trans-

lating cost-sharing into work-sharing becomes very difficult. Let's trace the problems involved in structuring a cooperative military aircraft project between Britain and France.

The engine will be approximately 35% of the project development, production and spares cost. In Rolls Royce, Britain has the dominant European jet engine company. Britain also has two very strong airframe companies, and several avionics companies.

Efficiency suggests that Britain develop and produce the engine. But if this course is taken, only 15% of the project remains for its aircraft system design teams, and its avionics companies. The heart of the project (less engines) would go to France.

To avoid this contingency, it may be agreed that engine development will be split between Rolls Royce and Snecma. In years past, this has meant a technology flow from Rolls to Snecma -- building up a competitor! Reluctantly, however, this is the course agreed to. There is no other alternative whereby the industrial and technological interests of the partners can equitably be balanced. The same pattern is inevitably followed in the airframe and avionics areas.

Just return is thus more than a financial concept. Each country also wants to take back technologically and industrially as much as it puts in. There is little or no room for rationalization and specialization on the one hand, and just return on the other, as practiced in Europe.

Just return presents real problems. Who is to manage the project? Who is to have technical direction of the entire project? The airframe? Engine? Avionics? Support equipment? Who is to test sub-systems? The total system? Britain only ? France only? In both countries? Will there be two final assembly lines? Or one? If so, where?

Solving these problems led, at one time, to parallel industrial and government management structures. This forced decisions to the highest level. In the German-American Main Battle Tank project, for example, the German Defense Minister alerted his American counterpart to the fact that his Chancellor was going to raise with the President the unresolved issue of metric vs. American screw threads. The problem was quickly solved, but what a flurry that touched off!

Cooperating on a project basis forces these difficult management, industrial and technological issues to be resolved within the project, while still retaining the 50-50 financial balance, just return, and zero foreign exchange cost. There can be no trade-offs with other projects. No wonder a knowledgeable European official commented that European cooperative efforts involve "methods of management which have more in common with the Congress of Vienna than the Harvard Business School."

In fairness, however, there has been a learning process in European cooperative projects, and many of the worst inefficiencies have been eliminated. Today, the prime contractors generally form a third company to provide

single project management, single technical direction, and single vendor supervision. This company may also be given the task of striking the industrial technological balance sought by the governments -- and this has eliminated some of the Congress of Vienna management methods.

In addition, as a senior British official observed:

> We and the French now recognize that there will always be another cooperative project. We are a little more relaxed about imbalances now, because they can be corrected in the next project. They accept this. We accept it.

There have been a few exceptions to the split project pattern. Three helicopters have been developed as a cooperative package by Britain and France. Two were designed and produced by France, one by Britain, and there was a reciprocal procurement. The U.S., Britain and Germany invested $35,000,000 each in the production of 9 operational evaluation models (three each) of the KESTREL jet V/STOL aircraft in the early 60's -- and all of the work was done in Britain.

The exceptions (there are others) are few because virtually all cooperative effort is ad hoc. It is easier to structure one project than two. It is easier to deal with one partner than two or more.

There is a constant kaleidoscopic grouping and re-grouping among the major industrial countries as a balance is struck on this or that project. Most development-capable countries don't trade with one another except through the cooperative project.

Countries without a full development capability generally buy on a "compensation" basis. The seller must agree to award subcontracts to the buyer in an amount nearly equal to the foreign exchange cost of the purchase. Inevitably this adds to the cost. If it entails new components, or re-design, military trade thus promotes further Allied de-standardization.

With virtually all inefficiencies removed that can be removed, split projects are estimated to cost from 20% to 30% more than a single project. The cooperative project may cost 125% of a national project, but the cost to each country is only 62½%.

The split project saves money for the national treasury, but taxes the overall European defense resources investment effort by at least 20% per project. Add in duplication, and it's easy to see that the 25% estimate of European procurement waste is not out of line.

There is general agreement among government officials and industrial executives on the following conclusions:

* The split project (even with all inefficiencies removed) is the least efficient method of cooperation

* Greater efficiency can be achieved by striking a balance between two projects, or among several projects

* The more efficient method is cooperation on a program (rather than a project basis), with the balance struck over many complementary projects

* The most efficient method is cooperation on a program basis, plus specialization in development and production tasks, with many complementary projects, balanced over a period of years

Two things should be noted. First, the principle of just return means cooperation through trade. Second, the concept of cooperation through trade (just return) is central to each of the three more efficient methods cited above.

Why then do the Europeans use the split project approach? Like the man heading for the shotgun wedding -- it's not because they want to, but because they have to!

There is general agreement that (a) cooperation on a program basis will be a long time coming in Europe, and (b) American participation will be required as a politico-economic catalyst. The U.S./German offset is seen as sequestering a significant volume of military trade that (but for the offset) would be part of a European defense market. Without American participation, the remaining market is too small to induce needed change.

American participation is seen as distant and visionary. The U.S. appears to the Europeans to be too strongly dedicated to the concept of trade without cooperation. They see no possibility of change until finally the United States recognizes that it too is resource-limited -- that even the United States must cooperate, or do without!

5.4 Trade and Cooperation on a Market Basis

The most efficient and effective method of Allied military trade and cooperation has only been tried once. It pre-dates NATO. Despite some problems, it has worked quite well. It is now in its 34th year.

Beginning with the Hyde Park Agreement of 1941, the U.S. and Canada have gradually evolved the Development/Production Sharing Program. It comes closer to being a common defense market than any other cooperative effort between the United States and its Allies.

Significantly, the concept of economic cooperation in defense (rather than the narrower concepts of cooperative research and development, or cooperative production) dominated the entire evolution of the U.S./Canadian common defense market.

President Franklin D. Roosevelt and Prime Minister Mackenzie King concluded the Hyde Park Agreement in April, 1941. It established the principle of complementarity and specialization -- at the same time recognizing that military trade was a two-way street. Specifically:

> It was agreed as a general principle that in mobilizing the resources of this continent each country should provide the other with the defense articles which it is best able to produce....
>
> ....It is of great importance to the economic and financial relations between the two countries that payment by the United States for these supplies will materially assist Canada in meeting part of the cost of Canadian defense purchases in the United States.

In both World War II, and again in Korea, U.S./Canadian military trade was encouraged by the two countries establishing dollar purchase goals for each other:

* A goal of between $200.0 and $300.0 million was set for the twelve months following the Hyde Park Agreement

* In Korea, a $100.0 million goal was established for FY 1951, and a goal of $300.0 million for FY 1952.

By the late 50's Canada realized it could no longer be its own arsenal. The cost of complex, modern weaponry and equipment required for their part of the North American Air Defense (NORAD) Project was beyond their means. Their only choice was to buy American developed weapons already in production for NORAD. But on what terms?

The negotiations continued through much of 1958-59. If Canada was to share one-third of the cost, Canada insisted on a fair share of the production. The U.S. disagreed -- Canadian firms would have to win the contracts in competition with American firms. The Canadians insisted this was politically and economically impossible. Canada could not cancel their own projects and buy from the U.S. unless Canadian firms received an offsetting share of the production not only for NORAD, but for other weapons systems being developed in the U.S. for the common U.S./Canadian defense. The U.S. finally agreed. Canada cancelled its own air defense projects in 1959.

The Canadian action went further. As a matter of policy, they decided that all their major weapons systems would be procured from the U.S., unless American systems would not meet Canadian requirements. How was Canada to pay for these systems? The NORAD offset concept was superseded by a much broader common defense market concept. Canada would be afforded an opportunity to compete for a fair share of the production of military equipment of common interest on a continuing basis.

The pertinent parts of the 1960 DOD Directive (with emphasis added) follow:

> Positive steps have been taken by the United States and Canada during and since World War II to coordinate their economic efforts in the common defense.
>
> This Directive continues the principle of economic cooperation with Canada in the interests of continental defense....
>
> ....it is the policy of the Department of Defense to seek the best possible coordination of the materiel programs of Canada and the United States, including actual integration insofar as possible of the mobilization efforts of the two countries.
>
> As a corollary, it is the policy of the Department of Defense to assure Canada a fair opportunity to share in the production of military equipment and materiel involving programs of mutual interest to Canada and the United States and in the research and development programs connected therewith.

To accomplish these objectives, the U.S. government waived the Buy American Act for all defense supplies made in Canada, waived the DOD gold flow directives, and waived customs duties on most Canadian defense supplies entering the U.S. Canada was thus given the opportunity to compete with U.S. industry on a wide range of defense supplies and services on a continuing basis.

American companies were not accorded the same symmetrical access to the Canadian defense market. Since Canada would be purchasing its major systems from the U.S., the concept of economic cooperation required greater opportunity for Canadian firms in the U.S. than for American firms in Canada:

* American companies were permitted to bid on Canadian contracts but (if there were competing Canadian sources) the American content of the American bid was increased by 10% in evaluation.

* American contracts under $250,000 bear Canadian customs duties. Contracts over $250,000 are duty free.

In providing different access to one another's defense market, the two countries recognized the principle that the symmetry of the result should dictate the terms of the agreement, and not vice versa.

In 1963, the Secretary of Defense and the Canadian Minister of Defense Production established the Development Sharing Program. This provided for cost-sharing (in which the U.S. share would be not less than 25%) on projects (a) performed by Canadian prime contractors; (b) to meet specific DOD research and development requirements; (c) in which a Military Department would be the design authority. Canadian firms were also accorded the right to bid on R & D contracts funded solely by the U.S., and were assured their proposals would be evaluated on a parity with American firms.

The U.S. also agreed not to engage in research and development work duplicating work being done by Canada, unless the Defense Department considered such R & D to be in the U.S. national interests.

* In 11 years there have been 60 Development Sharing Projects with Canada totalling $144,500,000 -- with only one project undertaken by DOD which the Canadians consider duplicative.

The thirty-three year evolution of the U.S./Canadian Development/Sharing, Production/Sharing Program has effectively integrated the two countries' efforts into a single technological and industrial base. The common procedural aspects are significant:

* Security arrangements which facilitate the interchange of classified visits and information at both the government and industrial level

* Common military standards and specifications

* Similar priority, expediting and allocation systems

* Reciprocal government quality assurance arrangements

* Cooperative logistic support arrangements for common equipments in both North America and Europe.

The U.S./Canadian common defense market is the only area of American military trade where there are accurate statistics showing both prime and sub-contractor imports and exports. Since 1958, these statistics have been maintained by the Canadian government. The statistical function is vital. It permits:

* The Canadian government to determine whether Canadian firms are getting adequate bid opportunities;

* Both governments to monitor the foreign exchange implications of cross-border military trade.

Significantly, no effort has been made to balance foreign exchange costs on either a project basis or an annual basis. Military trade between the two countries thus follows the same ebb and flow pattern of commercial trade. Minor imbalances from year to year are expected. There have been two major imbalances, and a third is developing:

* In the years 1959-61, Canada was in a re-equipment cycle. Canada incurred a peak deficit of $95.5 million, when she procured the F-104 STARFIGHTER, the C-130 HERCULES, and the M-113 Personnel Carrier from the U.S.

* In the Vietnam build-up years, 1965-71 (when Canadian equipment needs were minimal), the U.S. incurred a peak deficit of $544.3 million. This was because

Canadian companies were the planned mobilization producers for the Defense Department in critical munitions areas

* Canada is once again in a re-equipment cycle. From 1972 thru the first half of 1974, Canada has incurred a deficit of $149.5 million, reducing the Vietnam induced American deficit to $394.8 million

* The planned Canadian award of its $700.0 million Long Range Patrol Aircraft to one of two competing American prime contractors will wipe out the American deficit

In the years 1958-73, cross-border military trade between the United States and Canada has totalled $6.0 billion. The peak American deficit of $544.3 million was just under 10% of the then total military trade ($5.5 billion).

American policies in Vietnam were never popular in Canada. Yet Canada saw its Development/Production Sharing Program obligations to the United States as part of a much larger North Atlantic security concept -- and honored every production obligation to the United States. Nothing was shipped to Vietnam. Every American purchase from Canada entered our military inventories in the United States.

American-Canadian cooperation has had its problems. They've been annoying, rather than serious -- so far! They could become troublesome. Specifically, legislative riders have curtailed some of the inter-governmental agreements governing cross-border military trade, particularly the sole sourcing of Development Sharing projects to Canadian prime contractors.

This is part of a much larger problem involving the neglected role of Congress in Allied Cooperation -- and will be dealt with fully in Section 6.7.

Canada and the United States have rationalized their development and production tasks in a manner that would not be applicable to Europe. The U.S. develops the larger, high unit cost weapons systems, and Canada buys them from the U.S. Canada concentrates on lesser systems, sub-systems and components, and the U.S. buys from Canada.

One last point is worth noting. In 1972, there was a Congressional complaint that the American purchase of a Canadian Marconi radio relay system was affecting employment at a Fort Wayne Magnavox plant. It was not pressed further when Pentagon authorities cited the large dollar value of Canadian TOW missile purchases from a Tucson Hughes Aircraft plant -- and explained the two-way nature of military trade between Canada and the U.S.

5.5 Lessons Learned

There are many lessons to be learned from the experience gained in the four

different patterns of Allied military trade and cooperation. The most important lessons are the following:

* There can be no significant Allied military-industrial cooperation if the economic means are separated from the military objectives

* The economic means can only be found through trade -- trade in the North Atlantic defense market

* NATO tried cooperation without providing the economic means (trade), and failed

* The U.S. pattern has been trade without cooperation -- denying our Allies the economic means to purchase equipment from us

* The Defense Department, as a matter of policy, will not purchase Allied military equipment outright, regardless of cost

* Transferring production from one country to another is not always economical, and will not contribute either to Allied standardization or common logistic support, unless the Allied system is re-produced as is -- without re-design or modification

* The most common method of cooperation -- the bilateral split project -- is the least efficient, and costs at least 20% more than a national project

* If the cooperative split project costs 125% of a national project, the cost to each of the national treasuries may only be 62½%, but the tax on European defense resources is 25%

* The least common method of cooperation -- the complementary, multi-project, multi-annual program basis -- is acknowledged to be much more efficient

* The common defense market (as evolved by Canada and the United States) is the most efficient

* The best way to launch a common defense market is to establish annual military procurement goals to be met by each country -- this was done three times by the U.S. and Canada

* The common defense market achieves rationalization and specialization in development tasks, eliminates duplication, achieves economy of scale, promotes standardization, and makes common logistic support possible

* The U.S. and Canada agreed not to undertake duplicative developments -- with one possible exception, there has been no duplication for 11 years with 60 development projects totalling $144.5 million

* The assembly, maintenance and publication of accurate statistics is absolutely essential to the success of a common defense market, so that the governments, industry and public may know the market is functioning as intended

* In the U.S./Canadian common defense market, no attempt has been made to balance foreign exchange costs on either a project basis or an annual basis -- military trade thus follows the pattern of commercial trade, with balance achieved over a period of years

* The U.S./Canadian cross-border military trade has totalled $6.0 billion in 15 years, with payments imbalances never exceeding 10% of total trade

* The U.S./Canadian pattern would work with Europe in all respects but one: Canada cannot afford a major system development or production role -- Europe's combined defense budgets and technological-industrial capability would require a major systems role

* A common defense market provides jobs for labor, and markets and profits for industry -- a fact generally understood by legislators in both countries

Obstacles To Cooperation

There are only four obstacles to Allied cooperation -- the Americans, the British, the French and the Germans!

General Lauris Norstad
Supreme Allied Commander, Europe (1956-1963)

...year by year the technological threshold gets higher so that no one in Europe can undertake the research, the development, and financial risks of research and development on a continental scale unless they have a potential market going far beyond the limited 50 million or so represented by the purchasing power of a single nation state in Europe.

Prime Minister Harold Wilson
Guildhall Speech, London, 1967

You can't have cooperation except among equals. For one European country to try cooperating with the U.S. is like a poor man accepting an invitation to go to the Palace to have dinner with the Queen, in anticipation that she will come to his house for dinner at a later date.

G. C. I. Gardiner
Former Managing Director
Hawker Siddeley Dynamics, Ltd.

6. OBSTACLES TO ALLIED MILITARY-INDUSTRIAL COOPERATION

There are many obstacles to Allied cooperation. Some are formidable and transcendant, some very difficult, some major -- others important, negotiable or manageable, and hence not so critical. This Chapter addresses only the most critical obstacles.

Foremost among the critical (but not the more formidable) obstacles is the belief that effective Allied conventional forces are neither necessary, nor possible.

NATO and American policy statements disclaim any support for the "tripwire" concept of conventional forces. But the concept is deeply imbedded in the thinking of many officers and officials.

One view is that the existence and visibility of Allied (and specifically American) conventional forces are much more important than their effectiveness! Soviet bloc countries are assumed to recognize that an attack on American air or ground forces in Europe would trigger a nuclear response. Hence, NATO's conventional forces have only to hold out long enough to determine whether the attack is an incursion or aggression.

The other view is held by those who arrive at a "tripwire" conclusion through indirection -- through a not illogical form of inductive analysis. They argue that if Allied conventional forces were "seriously intended" to operate effectively together, then positive action would have been taken long ago on standardization, rationalization, logistic support and force maldeployment.

Both views are critical not only because they are erroneous, but more importantly because they sap the political will to take the necessary steps to provide a strong Allied conventional deterrent.

The prevalence of the something would have been done long ago argument is in turn matched by a pervasive inertia here and in Europe -- an oft-expressed feeling of the futility of trying to secure Allied cooperation for a more effective conventional defense. The past quarter century supports those who maintain "it can never be done".

The success, and the reasons for the success, of the U.S./Canadian common defense market are barely known at all. Few people believe cooperation can be successful.

This too saps the political will even to try to attain Allied military-industrial cooperation on the scale that is necessary. It is unfortunately self-fulfilling, for nothing tried, nothing done.

Nonetheless, there is some logic in the argument for U.S./European inaction based upon past U.S./European failure -- with one exception. The Warsaw Pact's overweening conventional forces were not sheltered under Soviet strategic nuclear parity during those past 25 years. That is why those who now argue the need for successful Allied cooperation believe so strongly, that "there's no other way!"

So far, this Report has shown that (1) the North Atlantic Alliance has the economic resources (within current defense budgets) to produce strong Allied conventional forces, providing (2) the waste of Allied defense resources is eliminated through Allied cooperation, and that (3) there is a tested 33-year precedent for successful Allied cooperation within a common defense market.

This Chapter looks at the obstacles that must be overcome. It identifies the substantive and important (but negotiable or manageable) obstacles to cooperation.

It then examines two very formidable obstacles. The first is the fragmented European defense industrial base, and the absence of European defense institutions. The second is whether U.S. military-industrial cooperation with Europe is a matter of economic necessity for the United States.

The Chapter then examines the effect of government procurement restrictions on a common defense market -- and, more broadly, on the loss of potential American export trade in the world's technologically-intensive marketplace funded by government procurement.

The Chapter moves on to the Pentagon, where efforts to achieve Allied cooperation have not been an All Hands job. The Chapter then turns to the neglected role of the Congress in the field of Allied military-industrial cooperation, and the effect this has had on the credibility of American cooperative initiatives.

Lastly, we discuss benefit-sharing and burden-sharing. This is a central concept of this Report. It is, in our opinion, the key to U.S./European Economic Cooperation in Military and Civil Technology.

6.1 Substantive, but Negotiable or Manageable Obstacles

The surmountable obstacles to cooperation involve some that are emotional, some that are more substantive.

Some argue that cooperation is impossible. They cite General Norstad's pithy epigram as proof.

Not all comments on this subject are as even-handed as General Norstad's. The obstacles to cooperation are often seen in emotional terms -- with the mote always in the other fellow's eye. Suspicions, misunderstandings and sheer bloody-mindedness often beset cooperative efforts. Insensitivity to national feelings, to domestic political objectives, to technological or industrial ambitions, can also breed irrational obstacles. These emotional obstacles are real, and must not be ignored. Diplomatic knowledge and skill are required in negotiating cooperative agreements.

There is a natural and human tendency to prefer a national rather than an international program. The working environment is familiar. The formal

and informal patterns of organization, the channels of communication, and the decision-making processes are well-known. The language (whether colloquial or technical) is relatively clear and unambiguous. Management and engineering methods are accepted without serious question. From the personal point of view, the standards for measuring success or failure are fully understood.

A cooperative project, on the other hand, involves adjustment to something very different, something foreign. Government and industrial organizations (not unlike the human body) develop antibodies which tend to reject and repel anything foreign. Thus, cooperation between groups which do things differently, by reason of different experiences and different backgrounds, is difficult.

Many of the substantive obstacles involve differences between domestic and foreign practices. These include: different military requirements; the human role in the operation and maintenance loop; different standards and specifications; public information practices; national disclosure policies; proprietary rights; export restrictions on the flow of technology; import restrictions on government purchases; taxes, duties and so forth. These obstacles are negotiable.

Other substantive obstacles involve the purpose and objectives of the cooperative project, such as: development and acquisition plans out of phase; cost-sharing; development sharing; production sharing; and balance of payments. These are the obstacles that are concerned with the organization and management of projects. Most of them are manageable, though out-of-phase developments are not, without cancellations.

There is also the oft-heard American military query, "But what have they got we can use?" And the offsetting European complaint that "We can't afford your complicated systems!" Cooperation might (indeed, must) strike a balance between these divergent views.

None of these many substantive issues will present non-negotiable or non-manageable obstacles between the prospective cooperative partners, <u>if</u>

* There is a need and a will to cooperate;

* The benefits to be gained by cooperation clearly outweigh the burdens involved;

* The will to cooperate includes a will to share benefits and burdens equitably.

Cooperation is not a game that is won or lost. There must only be winners. Losers are reluctant to play again.

That is why the agreements which bind the participating governments and industries must not merely be symmetrical in their terms. They must also be reciprocal in their application and effect. This has been a key to U.S./Canadian success, as we've seen. If symmetrical terms achieve asymmetrical results (like Interdependent R & D), then the terms of cooperation must be adjusted to achieve equality of benefits and burdens.

The cooperative aims and the methods of cooperation must also satisfy legitimate self-interest. Indeed, it must readily be seen that one's self-interest is better served by cooperation than by going it alone. Otherwise political and industrial self-interest will opt in favor of national programs.

6.2 The European Defense Industrial Base

One of the problems Americans face in devising a military-industrial policy for cooperating with Europe is the fact that there are two Europes, and there is no Europe.

It's easy to be confused about the two Europes. And to think the one we know is the one we don't know.

The Europe we know is the Community -- a commercially strong Europe united within its customs union behind its common external tariffs. This is the Europe that competes effectively with the United States in our own commercial markets, their commercial markets, and the commercial markets of the world. This is the world's second largest industrial economy.

And then there is the Europe most Americans don't know, the Europe of the government marketplace. It is many Europes in fact. Each is huddled behind its own government procurement restrictions, trying to protect as much of its own national markets as possible, while trying by competition or cooperation with its neighbors to seek the broader markets it desperately needs. It is the Europe that is the despair of the European Community, because it is unable to unite on a European basis and thereby realize its technological-industrial potential. It is the Europe that is the despair of American policy-makers for failing to carry its fair share of the NATO defense burden. A Europe could carry that burden -- could work in harness with the United States, and pull its fair share of the load. But twelve Europes can't.

This is the Europe we've been hesitant to cooperate with, because we confuse it with the other Europe, and take counsel with our fears.

Why are there two Europes? Alastair Buchan provides part of the answer:

> The fact that European technological strength does not match its overall economic strength is largely due to the circumstances that, in the general postwar hunger for traditional products, Western Europe was slow to rebuild its technological industries, while military necessity, including the protection of Western Europe, forced the United States to satisfy both requirements, developing educational and managerial strategies to enable her to do so....

Prime Minister Wilson provides another part in the quotation at the beginning of this Chapter -- the lack of continental scale markets.

The third part is simply the relatively small size of the European military-technological industrial base. In the 50's and 60's as we've seen, over $53.0 billion of facilities and equipment were put into place to broaden the American mobilization base. Europe made not a fraction of that investment in their mobilization base.

The disparity between the U.S. and any one European country in the scale of military requirements, of defense budgets, of resources, of companies, of markets -- is one of the most intractable problems affecting European-American cooperation.

The smallest American flying service (the Marines) procured more HARRIER jet V/STOL combat aircraft from Britain than did the RAF, the single British flying service. German requirements for the F-4 PHANTOM aircraft (both combat and reconnaissance versions) are less than 10% of the total produced for the U.S. Navy, Air Force and Marine Corps. The 1973 defense expenditures of all our European NATO Allies (including France) equal but 49.5% of American defense expenditures for the same year.

Disparity in scale makes it impossible to structure major development programs on a bilateral basis between the United States and Britain, or France, or Germany. A single, bilateral project, yes -- but not a second or third. For example, let us assume a Franco-American requirement for 1,000 units of a sophisticated major system (800 American and 200 French) to be cooperatively produced. How should development work and costs be shared?

* If shared 50-50, the ratio of development costs to production costs will be much higher for France than for the United States;

* If shared 80-20, the development work to be undertaken by France might not be technologically significant or politically attractive;

* If offsetting complementary projects of the same sophistication and value were to be undertaken, with France developing and producing the entire 1,000 units for both countries (and we doing the same for them), at least half, perhaps more, of French technological and industrial resources would be committed to this single project for the next 10-12 years.

Thus a second or third major project between the United States and any single European nation-state will so completely distort the financial, economic, technological and industrial balance within that nation-state as to make bilateral cooperation virtually impossible on other than an ad hoc, project basis.

The occasional ad hoc cooperative project between the United States and any one European country will not achieve the economies of scale indicated earlier. Economic yield will be very low. Standardization will not be advanced.

Logistic support will continue a nightmare. Burdens will not be shared. Military effectiveness will not be enhanced. There will be no strong Allied conventional deterrent.

Earlier we noted that the economic means to achieve these ends can only be attained through trade -- trade in the North Atlantic defense market. Let's examine the component parts of that market, as a market.

Adding Canada's R & D and Procurement to the table of U.S./European waste on page 35, shows the potential North Atlantic general purpose common defense market would total at least $37.0 billion per year:

North American R & D and Procurement	$17.3 billion
European R & D and Procurement	9.6 billion
U.S./European waste	10.0 billion
Total	$36.9 billion

Assuming all Allied waste were converted into either development or procurement, this would be a market 40% larger than the present market. But the waste can only be converted by trade. In turn, this requires that the entire North Atlantic defense market be aggregated. This because the largest volume of waste (European) is in the smallest part of the market (residual European).

To illustrate: the North American (U.S./Canadian) component has already been aggregated; a significant piece of the European component (the German offset procurement) has been annexed to the American market.

The combination of Europe's cooperative and competitive defense efforts have splintered the residual European component into the following less-than-optimal sub-markets:

* Bilateral, trilateral and multilateral defense project markets -- some as large as some national markets

* The twelve remaining European national defense markets, augmented by intra-European military trade

Europe cannot aggregate these many residual markets (accounting for an estimated $7.0 billion of the waste) for at least a decade, if not longer.

The European defense resources locked up in each of those sub-optimal project markets will only gradually come available, year by year, as projects are completed. If every one of the three major system-developing countries should be in phase in a given year, it is conceivable that they might agree on a European-scale development-production project, and re-invest their funds in such a project. And it is conceivable the same thing could happen the next year. And the year thereafter.

And it is conceivable that in each of those three years, the majority of the non-system-developing countries would agree (in exchange for subcontracts) to purchase the European-scale project when it went into production.

If this process continued inexorably, Europe by the late 80's may have aggregated its residual market on a near-European scale. That is, $100.0 billion of Allied waste later.

But even aggregating the residual market would not make it possible to begin eliminating the waste on any substantial scale. That requires military agreements with the United States to eliminate duplicative development effort, trade with the United States to achieve economy of scale, and common logistic support within NATO to reduce the burden of national support.

This says then that it is unrealistic to tell the Europeans to do more for themselves -- by themselves! They effectively lack the economic means to reclaim European defense resources waste.

It also says the only way the Europeans can do more for themselves -- is through cooperation (trade) with the United States.

So the United States and Europe find themselves (to use an analogy Benjamin Franklin once used in a different context) united in NATO like a pair of shears -- neither can cut without the other!

Can they cut at all? A Europe that doesn't exist? A United States that may not see cooperation with Europe to be an economic necessity?

6.3 The Absence of a European Defense Institution

There can only be cooperation, as Mr. Gardiner noted, among equals. No European country is the equal of the United States.

But the Europeans know they could come close, in time, if they tried -- hard enough. Studies by the countries themselves and by the European Community show what needs to be done:

* Europe's defense and advanced technological industries must merge into cross-border combinations, bringing together the management, the design teams, the laboratory facilities, the production plant and equipment, into a few European-scale companies capable of developing and producing for continental and inter-continental markets.

* Europe's governments must aggregate their government markets as they have aggregated their commercial markets. They must remove internal government procurement restrictions, as they have removed internal tariffs.

* They must create a European defense market. They must support Community civil technological projects instead of national projects.

And there the whole effort bogs down. There is little disagreement on WHAT. It's WHEN and HOW.

* Industries say: first create the markets, and then we'll merge

* Governments say: merge first, and then we'll create the markets

The press encapsulates the problem succinctly: markets before mergers versus mergers before markets.

And the markets, as we've seen, cannot be created -- not for a very long time. Just as the combination of Europe's cooperative and competitive efforts have locked the needed defense resources into a myriad of sub-optimal project markets, so also in the civil technological field, though in a somewhat different way. The seemingly lower risk and more promising civil technological projects are undertaken on a national basis. The more difficult, higher risk projects tended to be offered up as European endeavors, but with limited national funds to support them. Space is a recent exception, and more about that later.

So we see another facet of the same dilemma: the Europeans can not do more for themselves -- by themselves.

Would the Europeans respond to an American initiative? If we offered a common defense market to Europe on the condition that they establish within NATO a European Defense Procurement Agency, would they respond favorably? Could they? Let's look first at EuroGroup.

As its name implies, the EuroGroup is a grouping of the European Defense Ministers of the North Atlantic Alliance member Governments within the NATO framework. It held its first meetings in 1968, and formally came into being in 1969. It is open to all European members of NATO. Regretably, France is not a member. Nor is Portugal.

In December, 1972, the EuroGroup agreed upon six Principles of Equipment Collaboration. They further agreed to disseminate the Principles within their Defense Ministries and Defense Procurement Organizations, and to instruct all staffs responsible for defense procurement to act in accordance with the Principles. Mixing both policy and procedural guidance, the EuroGroup Declaration of Principles provide for:

* Regular exchange of information on future equipment intentions -- with annual meetings to identify and exploit opportunities for joint action;

* Systematic review of the possibilities for collaborative development or procurement -- before formulating a military requirement;

* Maximum cooperation in procurement -- even when the development or production may have been initiated outside the EuroGroup;

  * Witness the five-nation decision to procure LANCE from the United States;

* Maximum standardization -- of systems, where militarily essential; or at least characteristics and components, where joint operation or support is likely;

  * Including modifications after equipment has entered service;

* Maximum joint follow-on support -- in both production logistics (spares) and maintenance logistics (storage and distribution of spares);

* Management and cost controls -- so that acquisition costs are within the budgets of participating countries, particularly the smaller ones.

The EuroGroup Declaration of Principles was adopted for NATO-wide application at the February, 1973 meeting of the Conference of National Armaments Directors (CNAD).

Meanwhile, the EuroGroup has established a series of sub-Groups which support the EuroGroup Principles in the following areas:

EURONAD	Group of National Armaments Directors of EuroGroup countries
EUROSCHED	Joint comparative study of national schedules for replacing major defense equipment
EUROLOG	Sub-Group on cooperation in providing logistics support for NATO-declared forces
EUROCOM	Sub-Group on cooperation in tactical communications systems
EUROLAND	Sub-Group on cooperation in aircraft approach and landing systems
EUROMED	Sub-Group on cooperation in military medical services
EUROTRAINING	Sub-Group on cooperation in training

The EuroGroup sponsored the European Defense Improvement Program (EDIP) which increased European defense expenditures by 37% from 1970 to 1973.

(For the United States, the increase was 1%.) As a result, the EuroGroup members of the Alliance have scheduled the following major items of equipment to enter service in 1974:

> 474 main battle tanks, 1,079 other armored vehicles and 199 anti-armor weapons; 195 modern combat and maritime patrol aircraft, 140 land-based helicopters, 820 anti-aircraft guided missiles and 853 anti-aircraft guns; 5 destroyer-escorts, 15 submarines (including 1 nuclear-powered), 10 fast patrol boats and 33 maritime helicopters

The EuroGroup's efforts demonstrate two things: first, and within the limitations previously noted, the Europeans are doing many things on a European basis, to help themselves; second (though unfortunately without France), the Europeans have the will to find the mechanisms whereby they can do more for themselves.

With much higher petroleum prices, the United States must face the fact that higher European defense budgets are very remote. The problem is to hold the line (if possible) at present levels.

The offer of a common defense market would make a still greater defense effort possible, within existing defense budgets. Except for the problem of France, the requirement that they establish a European Defense Procurement Agency within NATO, would probably be welcomed. The Agency would be required to:

> Plan, finance and manage bilateral, non-duplicative multi-annual, multi-project defense research, development, production and support programs with the United States.

The nucleus of what would be required already exists in the EuroGroup's EURONAD, EUROSCHED, EUROLOG and EUROTRAINING sub-Groups, as well as the other more specialized sub-Groups.

The maximum use would be made of the normal NATO machinery, including the NATO Maintenance and Supply Agency (NAMSA). The EuroGroup could use the Defense Procurement Agency to aggregate the European defense market -- to give NATO the economic means to achieve bilateral U.S./European cooperation.

What of France? Could France as a political (and not a military) member of the Alliance, find membership in a defense procurement agency to be more of a political-economic than a military function? Would France welcome the opportunity it would afford her industry to help Europe make the transition from national and bilateral markets to assured inter-continental markets? Only the French can decide. One can say that without France's dynamic technological-industrial leadership and capability, the European effort would be less than optimum.

Europe's response to the American Post-APOLLO initiative might indicate

what could happen. For nearly 13 years Europe had had a completely uncoordinated space effort, with resources divided between competing national and European projects.

Against this backdrop, the United States made an extremely vague offer in 1970 to the Europeans (separately or together) to join our Post-APOLLO space effort.

The American initiative provoked bitter controversy among the Europeans on many counts: whether they were being "used" to sell Post-APOLLO to the Congress; whether the U.S. intended they become subcontractors to American industry; whether it was an attempt to wreck the European independent launch vehicle development; whether they could rely upon an American offer to launch satellites for them on a reimburseable basis; and whether they could have a uniquely European role in the Post-APOLLO program.

They were then offered a uniquely European role -- the Space Tug. While they were moving towards accepting the Space Tug offer, the U.S. withdrew it, observing that it was beyond Europe's management and technological capability. They were offered the distinctly European SPACELAB instead.

The Germans wanted the SPACELAB, the French the L III S launch vehicle, and the British the MAROTS maritime satellite. No one country had the means to undertake the favored project by itself, and there was substantial disagreement among them on related matters as well.

Finally, in September, 1973, eleven European countries agreed to accept the American Post-APOLLO offer and build SPACELAB. At the same time, they agreed to establish the European Space Agency in 1974, and to assign to the Agency the SPACELAB, L III S launch vehicle, and the MAROTS satellite. Funding formulae were evolved whereby Germany, France and Britain had the majority interest in each of the three projects they desired, but with funds provided by the ten others as well.

Importantly, all future European space projects would be offered first to the European Space Agency, before being undertaken on a national basis. It is generally agreed this effectively ends national projects.

In three years, in response to a vague, changing and poorly crafted American initiative, the Europeans did something they had never been able to do themselves, by themselves -- establish a European Space Agency, and Europeanize their national space programs.

One can only be optimistic about a well-crafted, clear (though not rigid) common defense market initiative.

Would such an initiative be in our self-interest?

6.4 Cooperation with Europe: An Economic Necessity?

For most of NATO's 25 years, military-industrial cooperation with Europe has not been seen by the U.S. to be a matter of economic necessity. Yet most transatlantic cooperative defense initiatives were ours.

Our whole approach to cooperation with our Allies has been strangely ambivalent. It is a fact too little known to Americans -- too well known to our Allies.

This ambivalence is so little recognized by Americans, that some take offence, while others find it incredible when told that most Europeans consider the U.S. to be the biggest obstacle to European-American cooperation. The Europeans don't doubt our devotion to cooperation, nor our dedication to interdependence. Rather they think we've not yet seen the need for the one or the other.

For example, we took the lead in NATO's early years in urging balanced collective forces for the defense of Europe. We were the ones who argued that all duplication of effort be eliminated. But our own military planning and budgeting were undertaken aloof and apart from Europe.

We were generous beyond belief in economic and military assistance. We espoused collective security, deployed our forces all over the globe, opened the arsenal of democracy to all in need. With money and know-how we helped rebuild Europe's weapons technology base. But having done so, we didn't look to that base as an economic resource which, if added to our own, could reduce the defense burdens Americans bear.

In 1963, the Defense Department issued two directives: one dealing with harmonizing requirements with our Allies, the other with cooperative development of defense equipment. In rapid succession, Cooperative R & D Agreements were concluded with Britain, France, Germany and Italy. But the policies prescribed by the directives were never made part of the systems acquisition process or the Planning-Programming-Budgeting System.

The Cooperative R & D results were mixed: one research project, one exploratory development, and one aircraft operational evaluation completed; three systems development projects terminated. Of the latter, the US/FRG Main Battle Tank (MBT-70) was so poorly managed, and the US/FRG Advanced V/STOL Fighter (AVS) so poorly conceived, that they would have been cancelled if they'd been domestic projects. The third, the MALLARD Field Army Communications System with Australia, Britain and Canada, profited from all the mistakes made in the MBT-70 project, but ran into internal domestic conflicts and was cancelled.

The pox wasn't on poor project planning but on cooperation itself. The DDR&E International Programs Directorate was abolished in 1968, and Cooperative R & D went into limbo.

Two years later, we were back in business with Interdependent R & D, a new DDR&E International Programs Office, and a recognition that:

> Clearly, in a period of such fiscal austerity, it makes sense not to have several competing weapon systems in this country, several competing weapon systems in several of our ally countries, and each of us being in a position not to be able to develop them successfully.

In a magazine interview describing the aims of the new American initiative, the then Director of Defense Research & Engineering perceptively acknowledged the on again, off again ambivalence of our approach to Allied cooperation:

> ....Foster and others fight another problem: apprehension overseas about whether the U.S. "really means it this time"....

Four years later, there are twelve projects underway with Europe, plus agreement with Britain and Germany on a common gun for the next generation of tanks. According to a recent Comptroller General Report, the twelve ongoing research and development projects between the United States and Europe total but $265.0 million. This is not the annual total of non-duplicative development effort. It is the total cost of projects begun as far back as 1968. In the intervening six years (at current expenditure rates) Allied duplication of development resources totalled $15.6 billion.

The achievement doesn't match the magnitude of the problem. Nor is this the fault of the few people in the Pentagon working the problem. Cooperative development, procurement and support considerations have always been peripheral to the mainstream of the American weapons acquisition process.

For example, the cost of developing and acquiring new weapon systems has received more continuing attention by the Congress, the Executive Branch, the Pentagon and the press than any other activity of the Federal Government. It has been studied by (among others) the Blue Ribbon Defense Panel (1970), the National Security Industrial Association (1970), the Comptroller General (1970, -71, -72, -73), and the Commission of Government Procurement (1973). Every conceivable remedy has been put forward -- except cooperation with our Allies!

In February, 1973, as we've seen, the EuroGroup Declaration of Principles was adopted for NATO-wide application at the meeting of the Conference of National Armaments Directors (CNAD):

* This decision is not viewed as formally binding upon the United States;

* The United States supports the concepts set forth in the EuroGroup Principles, and will abide by them when appropriate;

* There will be no DOD Directive implementing the Declaration of Principles.

The House Armed Services Committee recently expressed its concern over a specific tank procurement problem. But their more general observations merit consideration. They specifically repeated the following statement from the earlier subcommittee report made after a visit to the Middle East just after the October War:

> What the Soviets gave the Arabs was not sophistication, but proliferation. It was the vast number of weapons provided the Arabs rather than any exceptional technical capability that took a toll.
>
> It is important to ask ourselves what the lesson is for our military. In a confrontation of equal tactical, technical and fighting ability, at what point does a great advantage in quantity overcome an advantage in quality?
>
> We have continued to develop technically superior conventional weapons.....but we have not supplied U.S. forces with conventional weapons in quantities matching Soviet forces.

The Committee then urged the Army and the Defense Department to "give a great deal of thought" to the production needs for tanks and other conventional weapons systems whose needs might prove critical on tomorrow's battlefield. The committee added:

> As part of this reexamination, the committee believes that consideration should be given to developing <u>additional sources</u> for the production of tanks and possibly other systems. (Emphasis added)

The Committee never mentioned additional Allied sources. Nor did the Committee focus on what would be the burden on the American defense budget if by ourselves we were even to begin to try to match the weapons quantities produced by the Soviet's Warsaw Pact production base.

In the twenty years form FY '54 to FY '74, the Defense Budget has increased by 44.8% -- from $43.6 billion to $79.0 billion. Inflation in pay and operating costs have accounted for nearly all of the increase. Consequently, the investment ratio of the budget (RDT&E, Procurement and Construction) has diminished from:

* 48.4% of the $43.6 billion DOD spending in FY '54, to
* 44.5% of the $50.8 billion DOD spending in FY '64, to
* 29.9% of the $79.0 billion spending planned for FY '74.

In the same two decades, the average research and development cost of thirteen typical replacement systems has increased by 540%, and the average unit cost by 420%. Performance has also increased significantly -- but the combination of reduced investment spending and skyrocketing unit costs have drastically curtailed both the number of systems under development, and the number of units procured.

During the course of the 1973 House Armed Services Committee Hearings on Cost Escalation in Defense Procurement Contracts, the DOD Deputy Comptroller for Program/Budget explained the problem as follows:

> Technology has multiplied and re-multiplied the unit costs of weapons. We have accomodated to this by diverting the falloff in strategic forces investment, and by reducing the quantities procured. And these expedients are now exhausted:
>
> In....1956-59, strategic force investment was about $13.0 billion per years. In fiscal year 1973 and fiscal year 1974 less than $4.0 billion per year. It's obvious the cutback in strategic forces will not provide the cushion that it has in the past.
>
> Quantity cutbacks cannot go on indefinitely. Having cut aircraft quantities from 1,800 to 500 over roughly the past decade, we have substantially run out the string.

Is cooperation with Europe an economic necessity? With defense budgets approaching the $100.0 billion mark? And predicted to increase by 6% per year?

With Allied waste exceeding $10.0 billion per year? Converted into development and procurement, this would increase current Allied defense investment efforts by 40%. And only longer production runs will bring down unit costs.

Without cooperation with Europe, we may have run out the string.

6.5 Government Procurement Restrictions

Just as the United States has not seen cooperation with Europe to be in our own self-interest, so also we've not seen open government procurement to be in our self-interest.

Yet the whole panoply of government procurement restrictions the world over, discriminate against American industry more effectively than tariffs, in precisely those high technology areas where we enjoy a significant trading advantage. Consider the following:

* The government procurement mix (here and in Europe) includes more high technology-intensive products than the commercial mix.

* Through nationalized industries, European governments generally control many high technology markets (e.g. airlines, telecommunications, utilities) which are open commercial markets in the U.S.

How has the United States fared in the tariff-protected commercial markets of the world? In the export of high technologically-intensive products?

* The United States has enjoyed a trade surplus in the tariff-protected commercial markets of the world in every year in this century, except 1971 and 1972.

* In the 17 years the Commerce Department has kept the figures on technology-intensive exports and imports, the smallest surplus has been $6.6 billion. There's never been a deficit. In 1973 there was a record $10.7 billion surplus!

The overwhelming majority see the Buy American Act as a patriotic protective moat -- keeping them out! The evidence indicates it's a Berlin Wall -- keeping us in!

A senior EEC official was asked what would be the European reaction if the United States were to propose the complete elimination of all government procurement restrictions between the U.S. and Europe. There was a long pause before he answered:

> That would present major difficulties for every country in Europe. You see, your Buy American Act has been used as a shibboleth to justify our own government procurement restrictions. To suggest the reciprocal elimination of all restrictions would force our countries to face up to a problem they don't even want to face within the Community.

The latter was a reference to efforts being made by the EEC Commission to eliminate "buy national" policies in favor of a "Buy European" policy.

A sales executive for France's largest electronics company said:

> Your companies would have no problem competing in our government markets. For us it's quite different. With our relatively small production runs, we couldn't possibly compete for American government contracts on price or deliveries.

Nonetheless, the Buy American Act stands as an unfortunate symbol abroad that the Government, as a matter of policy, will not buy from anybody else.

The Europeans have reacted with protective measures of their own. The intra-European cooperative project agreements don't specifically exclude American subsystems and components. But they do provide procedures requiring Ministerial review whenever "non-participating" (a euphemism for American) subsystems

are proposed. Despite these hurdles, American equipments still find their way into European cooperative projects:

* The British acknowledged that one of the "problems" they had with France on CONCORDE was French insistence upon including American, rather than British, subsystems and components;

* The "European" AIRBUS has American jet engines;

* The Anglo-German-Italian Multi-Role Combat Aircraft (MRCA) has an American radar at German insistence, despite strong British objections;

* The French MOD Director of International Affairs said American components were in every French military and civil system -- and the French would buy more American high technology products but for our munitions control restrictions on third-country sales.

The foreign reaction to the Buy American Act probably costs American industry more sales abroad in the high technology area, than the Act could bar in sales to the U.S. Government. As long as the U.S. mistakenly believes the Buy American Act is protecting American industry, Europe and the other trading areas can justify their "buy national" restrictions on the basis of doing nothing more nor less than the world's most technologically advanced country.

Clearly, it has not been in our self-interest in this century to have had:

* Our own government market so heavily protected, from a taxpayer's point of view

* Other government markets so heavily protected, from a trading point of view.

A strong case can be made for the fact that the American high technology industries would prosper if all government procurement restrictions were removed between the U.S. and Europe. The situation in the low technology industries is much less clear. At the very least, they should not fare worse than they do in the tariff-protected world commercial markets. Woolen and synthetic textiles, footwear, and other industries which have lost their competitive edge in the American commercial market, would undoubtedly lose part of their American government markets as well.

Section 103 of the President's proposed Trade Reform Act of 1973 (the Trade Bill) authorizes the President to enter into agreements to reduce, remove or harmonize non-tariff barriers (including government procurement restrictions) -- subject to Congressional disapproval.

In submitting the Trade Bill to the Congress, President Nixon laid down the general principle that:

> It is in the best interest of every nation to sell to others the goods it produces more efficiently and to purchase the goods which other nations produce more efficiently. If we can operate on this basis, then both the earnings of our workers and the buying power of our dollars can be significantly increased.

The principle should have particular applicability to governments, accountable as they are for spending the taxpayer's money wisely.

In accordance with this principle, the Trade Bill would authorize the President to bargain the removal of our Buy American Act restrictions for similar concessions from our trading partners. During the House Ways and Means Committee hearings on the Trade Bill:

* No labor or industry witness testified against the reciprocal removal of government procurement restrictions, though some witnesses did testify against the Trade Bill as a whole;

* The Aerospace Industries Association (AIA) urged the government to work toward the reciprocal elimination of <u>all</u> tariff and non-tariff barriers confronting aerospace products. They cited directed domestic procurements by foreign governments which cost the aerospace industry $2.0 billion in exports in the last eight years;

* The Electronic Industries Association (EIA) and the Western Electronic Manufacturers Association (WEMA) supported the Trade Bill particularly because of its emphasis on removing non-tariff barriers against high technology companies, which frequently have no difficulty overcoming tariff barriers but have had severe problems with non-tariff barriers;

* The National Electrical Manufacturers Association, representing an industry which bears the brunt of almost the entire $150.0 to $250.0 million annual foreign penetration of the American government market (as well as heavy foreign competition for American private utility business), <u>argued not for greater protection</u> but for the elimination of the nationalistic procurement policies followed by utilities owned or controlled by foreign governments.

* The Chairman of the Board of IBM World Trade Corp. characterized the "Buy National" barrier as the <u>number one barrier</u> to the high technology industries.

During the floor debate, nobody argued against reciprocally bargaining for the removal of the Buy American Act restrictions, though one Representative did object to this provision in his extended remarks. The Trade Bill passed the House by a vote of 272-140 last year, and is pending in the Senate.

A common defense market will require the gradual removal of government procurement restrictions in the conventional hardware area. Section 406 of the Trade Bill excludes any article from the non-tariff negotiations if the President determines the removal of import restrictions would threaten to impair the national security.

The Trade Bill negotiations will be conducted in a GATT forum, on a global, multilateral basis. It is not clear whether any military items will be included in such a wide open negotiation. Presumably not. Nor is it clear whether and to what extent munitions control items will be included.

The Trade Bill aside, then, government procurement restrictions on each side of the Atlantic remain a very critical obstacle to a common defense market, and must be removed. Similarly, the Pentagon gold flow directives which add 50% to the price of a foreign defense item for procurement evaluation purposes, will have to be abrogated, as they have with Canada. Customs duties and tariffs on military items will also have to be harmonized.

Nonetheless, these are negotiable obstacles, and need not present insurmountable difficulties.

6.6 The Pentagon: Cooperation is an "All Hands" Job

Military-industrial cooperation with our Allies crosses nearly every major functional area in the Pentagon:

* Negotiations with our Allies, an understanding of their domestic problems, and insuring that agreements are symmetrical in both language and effect -- this is an International Security Affairs (ISA) area

* The budget economies (through cooperation) that may be realized across the entire military acquisition and support spectrum, and the many economic trade-offs involved -- these are areas in which both the Comptroller and Program Analysis and evaluation (PA&E) have vital interests

* Minimizing duplication of development effort is a Defense Research and Engineering (DDR&E) function

* The trade-offs between outright purchase and licensed production, production unit costs, economy of scale, logistic support, and countless related procurement problems belong to Installations & Logistics (I&L)

* The impact of NATO versus national logistic support on ever-increasing manpower costs, and the military combat-to-support ratios of our forces, enters the Manpower & Reserve Affairs area

Without belaboring the point further, military-industrial cooperation with our Allies is an "All Hands" job. Because the United States has not seen U.S./European cooperation to be a matter of economic necessity, the Pentagon has not organized itself for the effort required.

For the past 15 years (but for the 1968-70 lapse) DDR&E has provided the principal Pentagon leadership in (a) promoting cooperative developments between the United States and Europe, and (b) minimizing Allied duplication of effort. Indeed, there were times when DDR&E provided almost the only leadership in the broad area of Allied cooperation.

Their efforts must be augmented. The potential savings from cooperative development are not as great as the savings to be realized in the follow-on production and logistic support. Indeed (as we've seen) in the case of Interdependent R & D, savings achieved in the development phase may actually increase costs in the follow-on phases, and (by de-standardization) cause reduced Allied military effectiveness. Yet the ASD(I&L) has always been the junior partner in both Cooperative R & D in the 60's and Interdependent R & D in the 70's.

Similarly, in a period of continuing inflation, and continuing pressure from the President and the Congress to increase the effectiveness of defense spending, the DOD Comptroller seems never to have been called upon to examine the economies that may be realized through much greater cooperation with our Allies. The ASD(PA&E) has made an excellent start in this area with its study of rationalization and specialization. But much more needs to be done.

The need for accurate, timely information on a comparable statistical basis is particularly critical. As was asked earlier: who worries about how NATO can possibly win the "defense resources competition" with the Warsaw Pact, with the inadequate data concerning NATO investment activities?

Lastly, U.S./European technological cooperation is essentially an exercise in diplomacy. One is not long into a discussion with the Europeans before receiving an item by item litany of insensitive American actions. And soon thereafter there surfaces some grotesque suspicion of American motives. At times, unfortunately, the Europeans give us undue credit for intending the consequences of everything we do. Our sneezes do give them pneumonia. And decisions taken by the U.S. <u>solely</u> for domestic reasons sometimes affect Europe's interests adversely, without anybody in the Pentagon aware of that fact when the decision is taken.

In any event, the combination of American insensitivity and European suspicion often makes cooperation extremely difficult. Political, economic and human factors often loom larger than military or technical considerations. Unfortunately, American cooperative efforts have tended to subordinate (if not ignore) the politico-economic aspects while emphasizing the techno-military. The ASD(ISA), which is charged with being sensitive to the political factors affecting America's relationships with our Allies, has not played a significant role in transatlantic technological cooperation since the 50's.

It is not that one or the other should dominate. Cooperation is an "All Hands" job. Each should have its proper input into the making and execution of cooperative policy. And in the team effort, all negotiations with our Allies should be captained by ASD(ISA).

6.7 The Neglected Role of Congress in Allied Cooperation

Twenty-five years ago, the Congress played a major, bipartisan, creative and sustaining role in the building of the North Atlantic Alliance. Given the opportunity, they would play a similar role in revitalizing the Alliance.

They've not had the opportunity. The case for U.S./European Military-Industrial Technological Cooperation has never been presented to the Congress. Projects, yes -- but never a program.

Neither Cooperative R & D in the 60's or Interdependent R & D in the 70's was presented to the Congress for specific legislative authorization. The Congress has only been consulted through the authorization and appropriations process when specific projects are presented for funding.

As a consequence, there has been no opportunity for the Congress to explore the complete political, military, finarcial, economic, industrial or technological consequences -- both foreign and domestic -- of Pentagon cooperative policies.

Nor has the Pentagon itself (as it would if legislation were involved) had to subject its cooperative policies to full internal and external Executive Branch review.

Thus a most fragile and sensitive area of American politico-military relations with its most important Allies has been handled on an ad hoc, project basis, without the scrutiny so serious a subject deserves.

The conflicts involved in simultaneously negotiating Cooperative R & D Agreements with our Allies while launching a one-way military export sales program might have come into focus much earlier if both efforts required specific legislative authorization.

The Pentagon is not entirely to blame. Legislative riders are rarely as visionary as the NATO Amendments which (as noted) were applauded by an Allied military attache who nonetheless couldn't reconcile them with a Buy American Amendment -- passed (as he said) by the same Senate. The signals the Congress sends the Pentagon through legislative riders are generally protectionist. It's not surprising then that they respond with an Interdependent R & D Program emphasizing "American bellies to the bench".

Since Interdependent R & D is examined on only a project (and not a legislative) basis, the Congress denies itself the opportunity to ask some of the questions posed in this Report, such as:

* Where will our European Allies find the economic means to acquire, operate and maintain high technology weapon systems?

* Lacking the means, will NATO Europe's conventional forces progressively become qualitatively inferior to those of the Warsaw Pact?

* If a qualitative gap should develop and then widen between European and American conventional forces, can NATO mount an effective forward defense?

* How many tanks, aircraft and missiles will never be produced by either the United States or Europe because of the loss of economy or scale?

* How many jobs will never be filled because nobody will be producing those lost tanks, aircraft and missiles?

* What is the effect of the loss of economy of scale on the quantitative inferiority of NATO conventional forces vis-a-vis the Warsaw Pact? What effect on American defense budgets? European defense budgets?

* How much could the American payments deficit be reduced if logistic support were made a NATO function?

* What effect would this have on the manpower to investment ratios of Allied defense budgets? The support to combat ratios of Allied general purpose forces?

* If the annual $10.0 billion of Allied waste were converted into development and production, what effect would this 40% increase in Allied investment expenditures have on bellies to the bench -- here and in Europe?

These and other questions would have had to have been considered had Interdependent R & D been subjected to full Pentagon and Executive Branch legislative review, and to Congressional scrutiny, as an item of legislation.

Larger issues would have surfaced, The low economic yield of Interdependent R & D would have come into focus. The whole general purpose force burden-sharing problem would probably have come out into the open. This would have been all to the good.

The absence of substantive legislation in the area of Allied cooperation, together with the occasional ill-considered rider, have a substantial adverse effect on our relationships with our Allies.

Most Europeans are dismayed that Executive or Departmental Agreements made in good faith with the United States can be completely overturned by legislative rider. This just could not happen in Europe. In their parliamentary systems, the word of the executive is the bond of the legislature. It is hard for Europeans to understand that this is not the case in the American system of separation of powers.

Similarly, the Executive and Inter-Governmental Agreements which have laid the foundation for the U.S./Canadian common defense market are now being eroded by rider. As in other cooperative areas, this 33-year old program has not been specifically authorized, and is thus vulnerable to legislative riders.

Consequently, if we are to achieve North Atlantic Technological Collaboration, the arguments therefor must be put to the test of Congressional scrutiny, either by legislation, or by treaty, or possibly both. Nothing less will suffice.

This has its advantages, however. North Atlantic Technological Collaboration, properly presented to the Congress, approved by legislation and (if necessary) by treaty, will have political support at home, and inspire political confidence abroad. The North Atlantic Alliance was built that way. Technological collaboration within the Alliance must have the same foundation.

6.8 Benefit-Sharing, and Burden-Sharing

The Europeans see American technological predominance in a somewhat different light than we do. Much of what we perceive almost entirely as the just rewards of our ingenuity and industry, they see partly as the accident of history and geography. Their perceptions must be understood if we are to grasp the key to burden-sharing.

In 1936, Europe and the U.S. each spent perhaps $150.0 million on research and development. In the years before the war, the European aircraft and advanced technological industries were fully competitive with their American counterparts.

This balance was never to be restored. The forced exodus of continental Europe's most creative scientists, nuclear physicists and engineers enriched American technology. World War II vastly expanded and modernized

the American industrial base. The Cold War, which followed, caused an explosive government investment in research and development, production facilities, manufacturing and management research.

In a little more than a decade (while Europe was still recovering from the ravages of World War II) the Cold War completely restructured the American technological base. By 1965, the United States government had created the world's largest marketplace for technology. In that year, the Federal Government alone spent more than twice as much R & D money as was provided by:

* The entire American private sector, or

* The public and private sectors of all other OECD countries combined.

The end result was not merely the goal of superiority in defense-oriented technology. The American aerospace, electronic and computer industries had acquired a significant competitive advantage in the world's export markets. In Europe's view:

* The accident of history and history's challenges (to which only we could respond) gave the U.S. a position of technological predominance;

* The accident of geography gave us a vast, homogenous domestic market in which we could exploit our technological predominance on a scale no European country could hope to match.

In our eyes, we have borne a disproportionate share of the financial burdens of the Cold War -- and we have been wanting Europe to bear some of those burdens. In their eyes, we have also reaped a disproportionate share of the economic and technological benefits of the Cold War -- and they have been wanting the U.S. to give them an opportunity to reap some of those benefits.

There are no military technological benefits to be shared with Europe as long as the United States believes it has the resources to continue to be committed to:

* A policy of military-industrial self-sufficiency, dependent upon no Ally for tactical weapons development, production or logistic support;

* A concept of burden-sharing which looks to Europe primarily to defray the foreign exchange costs of our troops -- and then to do more for themselves.

This is a policy and a concept that precludes cooperation on other than an ad hoc, project basis. Interdependence means (literally) reciprocal dependence. It means mutually sharing both benefits and burdens. It means a two-way street.

Self-sufficiency can be self-defeating. It makes no provision for Allied standardization, for common logistic support, for the commonality of weapons and equipment that will permit NATO's conventional forces to operate effectively together. It pits the resources of the United States against those of the Warsaw Pact, with little or no opportunity for Europe to make a meaningful contribution. It is unnecessarily burdensome, trading American quality for Warsaw Pact quantity and diversity. It requires ever-larger defense budgets just to keep pace.

This has been at the heart of the impasse in burden-sharing. Our policies have made it difficult for Europe either to defray our troop costs, or to do more for themselves.

The paradox is that partly because of resource limitations, we accept parity rather than superiority in the strategic nuclear area. Can interdependence with Europe in the tactical military area, because of the same resource limitations, seem somehow a more fearsome choice?

Europe needs markets to amortize both her military and civil development costs. No single European country can provide markets large enough to achieve acceptable unit procurement costs for a combat aircraft, a missile system, a tank -- or to amortize the development cost of a commercial airliner, or a large data processing system. Intra-European cooperation is based upon sharing a European Government market smaller than the U.S. government market. Disagreements and jealousies further fragment that market.

Unable at any early date to make the great structural changes in their institutions of government, industry and education which must be made if Europe is fully to enjoy the fruits of the technological revolution, the individual countries of Europe are faced with the near insoluble dilemma of whether, when and how they can create a marketplace for technology comparable to that which the United States government created in less than two decades.

That is why cooperation with the U.S. offers the countries of Europe something none of them can offer to one another -- markets and projects on the combined European-American scale. Benefit-sharing on this scale offers Europe an inducement fully to share our BOP troop support costs, as well as our other tactical military burdens.

This means embracing an entirely new concept of interdependence -- one which emphasizes "economic cooperation" between the U.S. and Europe through military trade. It means a return to the first principles of the North Atlantic Alliance, when the economic means of achieving military ends was always seen as one and the same problem.

Aesop's fable concerning the man with the overcoat puts the concept quite clearly:

> We have been pursuing burden-sharing like the cold north wind, failing to see that Europe would remove its non-cooperative overcoat immediately if we used benefit-sharing like Aesop's warm sun.

7. THE PROBLEM, RE-STATED

Why have the two largest, most technologically advanced industrial economies in the world, treaty-bound together for mutual security, not been able to:

* Meet the military challenge of the more backward economies of the Warsaw Pact, and (at the same time)

* Meet the energy, environmental, materials, transportation, housing and other technological challenges of the last half of the 20th century?

The economic resources are available to achieve both the military and the civil technological ends desired by the United States and Europe. They are available through trade -- trade in the annual $70.0 billion government-funded military and civil marketplace.

Today, these vast markets are not only heavily protected on each side of the Atlantic, but (for ancient historical reasons) unnecessarily fragmented in Europe.

As a consequence, the governments of the United States and Europe are:

* Blocked from sharing the financial burdens of weapons development, production and support -- and troop deployment foreign exchange costs

* Blocked from sharing the research and development costs of new energy sources and new methods of using energy more efficiently -- and other civil technological needs

* Blocked from buying from and selling to the other the goods which each produces more efficiently

* Blocked from providing jobs and markets for their industries on an inter-continental scale

How can these vast markets be opened? What needs to be done? By whom?

The solution proposed overleaf requires an American Presidential initiative. It requires also the active, participating, bipartisan support of the Congress.

Through trade and cooperation in the government marketplace, the bonds of the North Atlantic Alliance could be tightened by economic self-interest, perhaps never to be sundered.

8. THE SOLUTION, SUMMARIZED

The pages which follow describe a three-pronged American initiative:

* A North Atlantic common defense market
* Cooperation in civil technology
* Open government procurement

Recognizing the basic imbalance in European-American defense expenditures, the common defense market initiative would:

* Offer to match every defense dollar Europe spent in the United States with a dollar spent in Europe
* Offer to match the cost of every system developed in Europe for NATO use by an American defense development, also for joint use

In return, Europe would agree (a) to offset our troop deployment balance of payments deficit, (b) to establish a European Defense Procurement Agency within NATO, and (c) to maintain European defense expenditures at current levels, until lower levels are mutually agreed.

The civil technological initiative would follow the same dollar-matching pattern. Open government procurement would be negotiated in a NATO forum.

Basic principles governing Allied cooperation would be established either by legislation or possibly by treaty. This would allay fears and suspicions. Demanding interim goals would be set which demonstrate the commitment by each partner to make cooperation work. Above all, program pressure must be high.

Europe will not make the extensive institutional changes and investment which U.S./European cooperation entails if cooperation is made to proceed at a cautious, hesitant pace. Small programs and great change don't go together. This is one of the reasons why the thrust towards European political and economic union has stalled. With small programs, the benefits are too few and (unlike the disruption) not widely distributed. Without program pressure, the commitment to the status quo remains strong, and obstructive. Large programs on the other hand facilitate institutional change, particularly if change comes to be seen as merely a means to a desired and desirable end.

This three-pronged initiative would put strong, firm flesh on the skeletal NATO Declaration on Atlantic Relations -- signed at the Heads of Government Meeting of the Alliance in Brussels in June, 1974. It would set NATO's course for the next quarter century.

It would give NATO a purpose and a direction to which people and politicians on both sides of the Atlantic can subscribe.

We Face A Historic Opportunity

So let there be no mistake about it: International cooperation is a vital factor of our lives today....

At the end of World War II, we turned a similar challenge into a historic opportunity; and, I might add, a historic achievement. An old order was in disarray; political and economic institutions were shattered. In that period this Nation and its partners built new institutions, new mechanisms of mutual support and cooperation. Today, as then, we face a historic opportunity. If we act imaginatively and boldly, as we acted then, this period will in retrospect be seen as one of the great creative moments of our Nation's history.

President Gerald R. Ford
State of the Union Address, 1975

The Best Negotiating Tool

....the best negotiating tool the United States has in seeking an open and nondiscriminatory trading world is access to the U.S. market.

House Ways and Means Committee
Report on Trade Act of 1974

8.1 The Common Defense Market Initiative

With duplicative Allied efforts exceeding $10.0 billion per year, pilot projects will accomplish little. Project lead times are such that pilot efforts will merely nibble at $100.0 billion of Allied duplication in a decade.

For much the same reason, cooperation can not be limited to new development projects only. And for political and military, as well as economic reasons, short-term results must be sought. This means procurements from one another, and a start made on common logistic support. Employment and other political benefits should begin to appear within the terms of incumbent Congressmen and Parliamentarians.

This means non-duplicative cooperation across the entire procurement spectrum: basic research, exploratory development, advanced development, engineering development, production and follow-on logistic support.

Interim goals must be set which demonstrate the commitment to make the common defense market work. Principles must be agreed which allay fears and suspicions.

Above all, program pressure must be high. This may mean co-production projects during the early transition period.

The ultimate goal would be a fully operating common defense market by the end of the twelfth year. By that time, Europe and the U.S. would each develop, produce, support -- and provide the other -- with the tactical weapons and equipment it was best able to make. This would mean specialization, long production runs, and economy of scale with its attendant lower unit costs. Military trade would be a two-way street. New jobs and markets would be created on each side of the Atlantic. American weapons sold to Europe would provide the U.S. with the foreign exchange to procure weapons from Europe, and vice versa.

The ensuing standardization and interoperability would reduce the cost of spares and support equipment, the number of storage and distribution depots, test and repair facilities. Maintenance personnel, both military and civilian, American and European, could be reduced. Combat to support ratios could be increased.

Senior SHAPE officers estimate that through such standardization, Allied military effectiveness could be enhanced by from 25% for some ground units to as much as 300% for tactical air units.

With standardization and increased military effectiveness, the general purpose forces of the Alliance would become a strong, balanced, conventional deterrent to the conventional military threat posed by the Warsaw Pact. The umbrella of nuclear parity would be less likely to encourage the Soviets to use the Pact forces' conventional muscle for political mischief or political blackmail in Europe. A strong NATO conventional deterrent would raise the nuclear threshold, and diminish the danger of nuclear war.

The common defense market initiative would recognize the basic imbalance in European-American defense expenditures. The United States would:

* Offer to match every defense dollar Europe spent in the United States with a dollar spent in Europe

* Offer to match the cost of every system developed in Europe for NATO use by an American defense development, also for joint use

The more Europe contributed to NATO's general purpose forces, the more the United States would contribute. In return Europe would agree:

* To offset our troop deployment balance of payments deficit fully

* To establish an institution within the North Atlantic Alliance (provisionally called the European Defense Procurement Agency) which would permit Europe to plan finance and manage bilateral, non-duplicative, multi-annual, multi-project defense research, development, production and support programs with the United States.

* To maintain European defense expenditures at current levels for as long as there is a substantial imbalance in American and European defense budgets, or until lower levels are mutually agreed.

Full offset might be delayed during a transition period since many of the foreign exchange costs now borne entirely by the United States (except for the German offset) would automatically become a shared NATO cost in a common defense market. It is not unlikely that the eventual deficit could be halved. Requiring a 50% offset initially might speed the transition.

Deferring full offset until the actual requirement is known would recognize that Europe might have to invest in plant and equipment, as well as re-structure her defense industry. It would recognize also the heavier petroleum price increases Europe has experienced, and would indicate the priority we attach to sharing defense development, production and support burdens.

If (say) 50% offset were initially required, it could be met through a wide variety of methods and combinations of methods:

* Through full or partial funding of jointly agreed American development projects;

* Through European funded and furnished sub-systems for American systems;

* Through reimbursed use of American weapons test facilities which Europe lacks;

* Through procurement of American systems and equipment;

* Through up-grading weapon systems of American origin by modification to the current American standard in Europe;

* Through assuming American basing chores and costs;

* Through asymetrical logistic support formulae.

There must be agreement, however, that whatever offset is required shall always be of measurable military-economic value (per the above examples).

The ennabling legislation, or possibly a treaty, would establish the following basic principles to govern the negotiation of complementary weapon system and equipment projects:

* Cooperation must provide balanced collective forces for the defense of Europe.

* All unnecessary duplication of effort must be eliminated.

* Benefits and burdens must be equitably shared.

* Cooperation must achieve maximum standardization.

* Cooperation must achieve maximum joint follow-on logistic support.

These principles combine the early aims of the North Atlantic Alliance with the more recently stated EuroGroup Principles, already adopted by NATO. They also accept the principle of "just return", but on an inter-continental basis.

The key to the success of this initiative will be American sensitivity to what Europe will understand by the phrase "equitable benefit-sharing". Seven years ago, the then and now Prime Minister of Great Britain set the standard Europe will expect when he said Europeans did not wish to be "left in industrial terms as the hewers of wood and drawers of water".

The ennabling legislation (or possibly a treaty) would establish the following procedural principles:

* Benefits and burdens need not be shared on a project basis

Negotiators must be permitted to emphasize project efficiency, and achieve balance among many projects. The principle of "just return" will not be recognized on a project basis.

* Costs need not be balanced on an annual basis

Foreign exchange and cost-sharing considerations are balanced over several years, rather than being forced into balance (often at the expense of management effeciency) year by year.

* Reliable statistics must be developed and maintained.

The endless arguments over the true measure of American troop deployment costs, or the American budgetary commitment to NATO, are indicative of the disruptive disputes that are possible when there is no agreement on basic statistical data.

The statistical function is vital. Great care must-be taken at the very beginning to insure that adequate statistics are developed, maintained, and accepted as fully valid and credible by both the United States and Europe. This we've done with Canada. In no other way can governments, industries and public be certain that cooperation is working as intended. This also means the statistical data must be public information.

* Security policies and procedures must facilitate cooperation.

The interchange of classified visits and information at both the government and industrial level must be facilitated. For all practical purposes, security considerations govern the extent and pace of possible military-industrial cooperation. So also do munitions control policies and procedures in the U.S., and their equivalent in Europe.

This is a difficult area. In the United States, considerations of cooperative project potential have not always loomed large in the decision process affecting the release of classified information, or the authorization of classified visits. Europe has the same problem, further complicated by the fact that in its relations with the United States, military security is often invoked as a mask to cover commercial security.

If benefits are to be shared, security and munitions control matters must be given priority consideration on each side of the Atlantic.

(NOTE: These first four procedural principles have been successfully followed in the U.S./Canadian common defense market. See Section 5.4)

* Cooperation must be by methods appropriate to the project.

There is no single best method of managing collaborative effort. Some methods are better than others, depending upon the project.

Even the split project can be efficient if (as in the normal American project teaming arrangements) subcontractors are selected for management and engineering reasons, not for politico-economic balance.

* Cooperation must eventually become competitive

This is stated as a procedural, not a basic principle. This is because the competitive procedure must always be subject to the principle that benefits

and burdens are equitably shared -- the principle of "just return".

The need for competition should be stated, but care should be taken not to insist upon it at any early date.

Intra-European cooperation usually achieves development-sharing and production sharing between countries by sole source awards. The system is not without its critics. Some European government officials and industry executives believe the lack of competition adversely affects Europe's high technology industries in world markets. But change will come slowly.

The current structure of the European defense industry (and its likely structure after transnational mergers) make it unlikely that there would ever be widespread competition at either the prime contractor, or first tier subcontractor level. They (no more than we) would award all contracts to the single most efficient prime. And it is not at this level that it is needed.

It is at the second tier subcontractor level and below that U.S./European competition is both possible, and probably to American advantage. Competition at the second tier level may come naturally -- it would not be in American interest to try to force it prematurely.

There are useful precedents in our experience with Canada, as we've seen. Insisting on the politically indefensible principle of competition at the time the Canadians were considering cancelling their NORAD projects to buy American, almost wrecked the negotiations. It took time with the Canadians. It will take more time with the Europeans.

* Military trade between the United States and Europe will not be balanced financially <u>below</u> the second tier subcontractor level.

To attempt to balance military trade at the minor sub-system, component part and raw material level runs counter to the open government procurement initiative. It also gives visibility to transactions which have not heretofore been politically sensitive. One of the unfortunate aspects of the Jackson-Nunn Amendment's application is that these transactions have had to be dredged up for offset purposes.

This practice should be abandoned as soon as practicable. Balancing military trade below the second tier subcontractor level unnecessarily reduces competition, and may impose onerous book-keeping procedures. Indeed, many components and parts won't even know whether they're military or commercial, unless we tell them.

Within the basic and procedural principles set forth above, the United States and Europe should agree to the following interim and long-range goals:

* An initial three year goal of $2.0 billion of defense procurement from one another

* A three year goal for harmonizing all defense basic research

* An initial three year goal of $4.0 billion of complementary development projects underway on each side of the Atlantic

* A four year goal for common logistic support of all common weapons and equipment

* A twelve year goal for achieving complete military-industrial interdependence in the development, production and support of general purpose forces

These goals are extremely important, particularly the interim monetary goals. They follow and extend the pattern first used so successfully in the early days of the U.S./Canadian common defense market. It is the same pattern used to make the U.S./German Offset Agreements work. It was used in the U.S./U.K. F-111 Offset Agreement. It is a procedure suggested in an interview last year by the French MOD Director of International Affairs.

But more important, these goals though demanding, are attainable. They thus establish high program pressure, and create:

* A political climate in which otherwise unthinkable trade-offs can be considered;

* A political climate in which flawed projects may be cancelled, so more favored projects can be continued or begun;

* A political climate which might, for example, foster military agreement on one Allied main battle tank for the 80's -- and so on, system by system.

The one possible brake on the pace of progress towards these goals is the relatively small size (as we've seen) of the European military-technological industrial base. The shift from production runs on a national or bilateral and less-than-European scale to production runs on the combined European-American scale will have a profound impact on Europe's industrial structure.

Production sources on each side of the Atlantic may be necessary to speed the transition. In turn, this means design to common standards and specifications, thereby enhancing standardization and military effectiveness.

Commenting upon the production base problem, a French industrialist suggested prototype development competition (employing design teams on each side of the Atlantic) with shared but rationalized production of the winning system. This may have merit.

There is no reason for American industry or labor to take counsel with their fears. We can afford to be generous, for we will be giving nothing away!

8.2 The Cooperative Civil Technology Initiative

As in defense, so also in civil fields, the governments of the North Atlantic Alliance are spending vast sums unnecessarily duplicating one another's efforts in seeking technological solutions to common problems.

Basic research is being squeezed for funds on each side of the Atlantic. Unnecessary duplication is hard to measure because there is no inventory of one another's efforts, and inadequate exchange of information.

There is one exception. Operating under the Nixon-DeGaulle Agreement of 1969 that the two countries should expand their technological collaboration, the United States and France have developed a broad-based program of coordinated, mutually supporting research in civil technologies.

The cost thresholds are relatively low in basic research -- very high in the pre-commercial development areas where only governments can underwrite the financial and technological risks.

The cooperative civil technology initiative would complement, and follow the pattern of the common defense market initiative. The same basic and procedural principles would apply, to the extent applicable. The following goals would be established:

* Harmonization of research projects into a broad-based program of coordinated, mutually supporting research in civil technologies by 1978

* An initial three year goal of $2.0 billion of complementary development projects underway on each side of the Atlantic

Every dollar Europe spent on an agreed civil technological project would be matched by an American dollar spent on an agreed project. The results would be shared in accordance with formulae conforming to the basic principles.

European mission-oriented institutions would be required. Existing institutions such as Euratom and the soon-to-be-established European Space Agency would serve for some purposes. Newly formed institutions would be required for others.

Unnecessary duplication could be eliminated in government-funded civil development efforts seeking solutions to common problems. This includes new non-fossil energy sources, the more efficient use of energy, new transportation methods, environmental control, cheaper housing materials, better medicine, synthetic substitutes for short supply materials, the exploration of space, and so forth.

The energy field is a timely example of what is needed. The President had proposed a five-year, $10.0 billion (largely nuclear) R & D program. The Senate by a vote of 82-0 would authorize a ten-year, $20.0 billion (largely

non-nuclear) R & D Program. The proposed American nuclear and non-nuclear energy R & D would total $30.0 billion over a ten-year period. Senate data showed the combined programs peaking at a $3.4 billion expenditure rate in 1980.

Energy is a many-sided problem: political, economic, monetary, trade and security. The rush for assured energy sources became a divisive issue between Europe and the U.S. earlier this year. Though the critical supply problem has abated, the new petroleum price levels have thrown every country in Europe into payments deficits except Germany.

There is a need for cooperation in energy. Secretary Kissinger recognized this in his address to the Pilgrim Society in London in December, 1973 when he proposed an initial four point effort, including action:

> To coordinate an international program of research to develop new technologies that use energy more efficiently and provide alternatives to petroleum.

The proposal was well-received. The New York Times quoted one European official as saying, "There is a little of the excitement of the Marshall Plan in all this."

The Marshall Plan allusion is relevant for two reasons. In the first place:

* Bold action programs, expansive in scope and challenging in concept, are needed for their own sake, and needed to rekindle popular support for the North Atlantic Alliance

* Civil technological cooperation would ease political pressures (exacerbated by inflation) to divert funds from defense, until the benefits of economic cooperation in defense technology could be realized

* An American initiative, in both civil and military technology, will capture the imagination of the young whose lack of Cold War memories may make them skeptical of the need for military cooperation alone

* Civil technological cooperation would be an inducement to the Soviet to make detente a fearless reality

This latter point is the second reason why the Marshall Plan allusion is relevant.

The Soviet Union is bound to react harshly to a program limited to Allied cooperation in defense technology. Every effort towards European unity and especially common European defense efforts (as far back as the European Defense Community in the 50's and as recently as French proposals for com-

mon defense within the Western European Union) have sparked Soviet resistance.

Their expected opposition should not intimidate Europe. This is a defensive step. It is an attempt by Europe and the United States cooperatively to achieve the same success in creating a strong conventional deterrent, as the Soviet has attained in marshalling the resources of the Warsaw Pact to create this massive conventional threat.

Their expected opposition can be turned to advantage. This is because civil, as well as military cooperation is planned. In its civil technological aspects, the U.S./European cooperative structure is not intended to be exclusive. It is a structure to which Japan and the Arab world can adhere at a later date. And in the spirit of the Marshall Plan offer which Stalin declined, the United States and Europe would be building an interdependent technological cooperative structure to which even the Warsaw Pact could adhere when, in the fullness of time, SALT, MBFR and detente become a fearless reality.

The Soviet Union itself would hold the key to the western technological trade and cooperation it covets, and needs. If and when the Soviet lowers the arms expenditures level for the Warsaw Pact to a non-threatening threshold -- so NATO could reduce its military expenditures -- the Soviet would concurrently be establishing an expenditures threshold for civil technological cooperation between NATO and the Warsaw Pact.

In this way, the two largest, most technologically advanced industrial economies in the world, treaty-bound together for mutual security, would be using economic cooperation in military and civil technology:

* To forge a strong NATO conventional deterrent, and

* To structure an inducement for the more backward economies of the Warsaw Pact to turn more rapidly to detente.

8.3 The Open Government Procurement Initiative

The open government procurement initiative would propose the gradual removal of the "buy national" barriers to trade between the United States and Europe in the vast government-funded marketplace for civil and military goods and services.

Government procurement markets are the last and largest frontiers of world trade. Excluding strategic nuclear weapons systems, the governments of the North Atlantic Alliance annually procure over $70.0 billion. In other words, they provide markets far exceeding the $40.0 billion annual trade volume affected by the Kennedy Round.

Government procurement markets, our own included, are also the most protected markets in the Free World. The restrictions on foreign trade with

governments are so pervasive that in a market generating over $70.0 billion trade volume annually in civil and military goods and services, virtually no statistics exist as to the volume of non-indigenous trade with any government -- the U.S. included.

Change in government procurement practices can not, will not and should not come quickly. The near total protection accorded these markets over the years, argues against precipitous change, which would have severely disruptive effects here and abroad. Whatever economics may dictate, European governments are no more ready to purchase only American computers than the Pentagon is prepared to shod our forces in European shoes.

Nor is it entirely clear that the subject of government procurement restrictions, in all its ramifications, is properly dealt with in a trade negotiation. Had we been able to convince our Allies and trading partners to combine trade, monetary and defense matters into one grand negotiation, it might have been different. But the fact that these matters will be separately negotiated, makes it much more appropriate to conduct the defense and government procurement negotiations in the same forum.

Government procurement is not merely a matter of trade. It encompasses technology decisions vital to a nation's security. It is a tool of public policy (here and abroad) in matters as disparate as agricultural research, small business, reducing medical costs, aid to distressed areas, environmental standards, and -- critically now, new energy sources. The procurement of technology, goods and services is one of the most effective means available to governments to achieve economic objectives. It is thus an area of high political sensitivity. It is not an area in which significant progress can be expected if it is approached entirely as a trading matter -- the mere removal of barriers.

Yet these barriers must be removed if the governments of the North Atlantic Alliance are to achieve the interdependent goals that are possible through economic cooperation in military and civil technology.

Establishing a common defense market, and removing government procurement restrictions affecting military trade, are two parts of the same problem. The two should be combined into one negotiation between the United States and Europe within the North Atlantic Alliance. This is appropriate because the aim of the negotiations is two-way military trade -- removing as many of the barriers to trade in conventional weapons and hardware as the two Allies may desire.

Section 406 of the Trade Bill (national security reservations) will undoubtedly be invoked on many military and munitions control matters in a global trade negotiation. The U.S. is not likely to insist upon the same reservations in negotiations with Europe in a forum primarily convened to promote military trade. Moreover, the Allies can meet in a secure or open forum, as the military or civil technological trade matters may dictate.

Similarly, the end products of civil technological cooperation impinge upon government procurement restrictions. The removal of these restrictions should be negotiated within the same Alliance forum where the

cooperative efforts are structured, and where the financial, industrial, technological and other trade-offs are fully understood.

This is not an argument that the negotiation of the reduction of government procurement restrictions between the United States and Europe should be removed from the GATT non-tariff barrier negotiations contemplated by the Trade Bill. Those negotiations should proceed, and accomplish as much as is possible on a multilateral basis.

But much more can be accomplished on less than a multilateral basis, if the North Atlantic Alliance is made an additional forum for negotiating the bilateral removal of government procurement restrictions between the United States and Europe in all areas, including those affected by military and civil technological cooperation.

8.4 Economic Cooperation: An Eclectic Synthesis

This report recommends economic cooperation between the United States and Europe in a manner, and on a scale, not heretofore contemplated since the early days of the North Atlantic Alliance.

Yet, there is nothing new in the methods proposed. The recommendations are an eclectic synthesis of earlier precedents. This is demonstrated in the following table. The numbers in parenthesis refer to relevant sections of this Report.

Initiative	Precedent
Common Defense Market	The U.S./Canadian common defense market, established in 1941 (see 5.4)
European Defense Procurement Agency	EuroGroup (regrettably without France) has established nucleus of Agency (see 6.3)
	In responding to a 1970 American initiative, eleven European countries agreed in 1973 to establish the European Space Agency; to cooperate with the U.S. as Europe in the Post-APOLLO Program; and to Europeanize their national space programs (see 6.3)
NATO Logistics Support	Nucleus in NATO Maintenance and Supply Agency (NAMSA) (see 4.4)
Basic Principles	The 1950 NATO Defense Committee recommendations on balanced collective forces (see 3.1)

	The 1950 North Atlantic Council conclusion that all unnecessary duplication of effort must be eliminated (see 3.1)
	The EuroGroup Principles, adopted in 1973 for NATO-wide application (see 6.3)
	The European principle of "just return" (see 5.3)
Procedural Principles	The U.S./Canadian common defense market (see 5.4 and 8.1)
Initial Monetary Goals	The U.S./Canadian common defense market (see 5.4 and 8.1)
	The U.S./FRG Offset Agreements (see 8.1)
	The U.S./UK F-111 Offset Agreement (see 8.1)
Cooperative Civil Technology	AEC Program for International Cooperation in Peaceful Uses of Atomic Energy (now nearing 30th anniversary)
	NASA's International Cooperative Programs, specifically authorized and directed by Congress in the National Aeronautics and Space Act of 1958
	The Nixon-DeGaulle Agreement of 1969 on Franco-American technological collaboration (see 8.2)
	Secretary Kissinger's 1973 proposal for international cooperative energy development (see 8.2)
Open Government Procurement	Section 103 of the Trade Bill would authorize the President to negotiate the reciprocal removal of government procurement restrictions -- passed House of Representatives in 1973 by vote of 272-140 (see 6.5)

8.5 Economic Cooperation: Reprise

Two years ago, the Secretary General of NATO, Dr. Joseph M. A. H. Luns, observed:

> While our military muscles have greatly developed over the past twenty years, and our research establishments have been revitalized and strengthened; while our industries have been rebuilt, and the products of our genius have multiplied; and while we speak proudly about cooperation, and exchange of views in forums such as this and in the Armament Committees of NATO, the fact is that we have spawned literally thousands of military devices that duplicate or overlap each other in their function. In an era of escalating costs and skyrocketing technology, our vaunted spirit of unity is threatened by the specter of wasteful competition.

The world economic situation has worsened in the two years since Dr. Luns spoke. The unity of the Alliance if threatened by many other forces, as well as the continuing "specter of wasteful competition".

These are troubling and troublesome times. Powerful centrifugal forces -- inflation, high energy prices, spreading payments deficits, mounting international liquidity and monetary problems, pressing civil priorities, and demands for reduced defense expenditures -- are threatening the stability and cohesion of the world order the United States established out of post-war chaos.

A strong, offsetting centripetal initiative from the United States is required to assure the continued stabilizing influence and unity of the North Atlantic Alliance in world affairs. The magnitude of the problems require economic cooperation in the manner and on the scale recommended. In no other way can Europe and the United States:

* Find the economic means of sharing all of the burdens of NATO's defense (not just troop deployment costs)
* Eliminate all unnecessary duplication of military-industrial effort
* Build together a balanced, effective conventional deterrent
* Open the largest closed markets in the Western World to two-way trade on an inter-continental scale
* Meet the challenges of our times together, and together share the benefits of technological collaboration

* Give NATO a purpose and a direction to which people and politicians on both sides of the Atlantic can subscribe

The recommendations contained in this Report require a Presidential initiative; the active, participating, bipartisan support of the Congress; and a vigorous cooperative response from the European members of the Alliance.

Should that come to pass, the bicentennial President on July 4th, 1976 will be able to acknowledge that Europe has taken the first steps towards making it possible to redeem President John F. Kennedy's pledge fourteen years earlier:

> I will say here and now, on this Day of Independence, that the United States will be ready for a Declaration of Interdependence, that we will be prepared to discuss with a united Europe the ways and means of forming a concrete Atlantic partnership, a mutually beneficial partnership between the new union now emerging in Europe and the old American union founded here 175 years ago.
>
> All this will not be completed in a year, but let the world know it is our goal.

BUYING NATO'S ARMS — A View From London

War may be politics by other means, but the nationalist politics of the individual members of Nato are not much help to defence. Every Nato country has an economic problem. This has produced inexorable demands to cut defence budgets at a time when many of these countries should very likely be spending more.

The cost of modern weaponry is rising at an unprecedented rate, driven both by inflation and by the increasing sophistication of the arms. At the same time the Soviet Union is not only expanding its operations into new areas — the South Atlantic and the Indian Ocean — but is also improving the quality and effectiveness, and even numbers, of its arms on the central European front, the most critical front of all for Nato. The Nato countries spend about the same amount on defence as the Warsaw Pact countries do. Even so, Nato is weaker in almost every area except its strategic nuclear forces. And even here Russia is catching up rapidly. If Nato is to avoid drifting into a situation where increasing costs make it weaker year by year — or being thrust rapidly into weakness by budget cuts — it must somehow reform the way it spends its money.

It can do this by increasing the cooperation among its members in arms development and production. There is another very large benefit from this: standardisation of equipment. The cost saving is the driving force, but standardisation brings in a lot more advantages than are generally realised. These include the possibility of common maintenance facilities, which could reduce the amount of money the United States pays out and thus lessen the American demand for European countries to make offset payments and purchases equal to the Americans' military balance-of-payments costs in Europe. Even a common Nato logistics system is not impossible. And these savings would be in addition to the obvious advantage of having the same weapons and ammunition in armies that might have to fight side by side...

The United States and, to a lesser degree, France are the villains of this piece. Both have highly-developed industries for developing and producing arms; both put maximum pressure on their friends to buy without being willing to buy much in return. But France has taken part in a number of Nato collaborations, and shows every sign of being willing to join in more. The United States has a settled policy that any item used by its armed forces must be produced in America, even if it is developed overseas. (The purchase of British Harrier aircraft was a rare exception; the next lot of Harriers will be made in the United States.) The usual reason offered for this policy — that a rapid Russian advance could cut off vital weapons supplies — does not hold water. The weakening of Nato's forces by the inefficiency of the present system is a much greater danger than the possibility of America being cut off in war.

But the United States is the giant of the Nato world, in research and development as in everything else. In non-nuclear weapons alone America spends as much as all the rest of Nato together. It offers a wide variety of high-technology equipment, and the long production runs its own forces require mean lower unit costs and reliable supplies of spare parts. That is a powerful attraction for buyers abroad. In addition, the United States needs to recover up to £1,000m a year in military offset payments and purchases from European countries. All this gives its arms salesmen tremendous leverage.

Yet for all this Nato Europe, if France is included, is a good match for the United States. It spends as much, it has as much interest in the result, and its technology is every bit as good. It has a better background in arms cooperation and joint management. If Europe could present a united front on at least some of the big projects of the near future, self-interest would probably make the United States join in. The cohesion of the Atlantic alliance in the 1980s may depend on whether Europe can get its houses in enough order to show America the way.

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