

Policy Jolts in U.S. Arms Transfers: The Post Cold War Security Environment

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(ABSTRACT)

This research addresses the subject of conventional arms transfers in the Post Cold War Era. ("Conventional arms" herein are defined as high cost, state-of-the-art weapons systems in aerospace, land vehicles, missiles and naval vessels. ") The rapid and startling changes in the international political environment that took place in the late 1980's forced the U.S. and her Western Allies to reexamine their national defense budgets. The Bush Administration responded to the situation with new policy initiatives or "jolts" that aligned the annual U.S. Department of Defense's budget with Post Cold War realities. (A "jolt" is defined here as a sudden "shock" to a system that has the *potential* to alter radically one or more of its established structural components or behavioral patterns.) The word "jolt" is specifically used because while the policies reducing force strength and decreasing defense spending had been introduced on earlier occasions since the end of World War II, these particular jolts were driven by different circumstances than previous drawdowns. The Cold War that had dominated and shaped international affairs was over; the Post Cold War era promised to be a radical departure from the 50-year long status quo.

Some phases of the policy jolts were directly related to U.S. Department of Defense operations, such as base closings and reductions in force, while others affected the U.S. defense industrial base through the weapons acquisition process. Domestic acquisition programs have important linkages to transferable weapons systems. Such linkages were so deeply embedded that despite severe reductions in weapons acquisition programs, most prime defense contractors did not conceptually redefine or reconstitute themselves although they went through a long period of mergers and acquisitions. This research explores how U.S. governmental stakeholders interpreted the utility of conventional arms transfers in managing the "aftershocks" of the policy jolts experienced by defense contractors. Their behaviors indicate that U.S. policy-making institutions, for the most part, tried to direct favorable outcomes for U.S. sales in the world market. Ultimately, the policy initiatives undertaken to assure favorable outcomes for defense

corporations and their unforeseen consequences could lead to new policies or issue transformation.

Dedicated
to
Philip S. Kronenberg,
Steve Klonsky
and
to the memory of
Charles Terry Angelo

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CHAPTER I

THE STAKEHOLDERS AND THE POLICY JOLTS

Introduction

This research explores the Post Cold War policies and their outcomes that reshaped U.S. participation in the international system of conventional arms trading and transfers. "Arms trading and transfers" are defined as government-sanctioned activities by which the exporter (the seller) of conventional military weapons expects *some measure of compensation* from the transaction. Compensation may include, but not be limited to, financial benefits to the seller, the promise of political alignment between seller and buyer, an opportunity for the seller to enjoin the buyer in a military force coalition or increase the seller's intelligence gathering capabilities. The buyer, of course, expects to get what it paid for with or without the political strings attached. "Conventional arms" are defined herein as high cost, state-of-the-art weapons systems in aerospace, land vehicles, missiles and naval vessels; "conventional arms" in this research paper excludes any reference to weapons of mass destruction, hand guns and land mines.

Conventional arms trading is a complex process, but one in which the United States has been an eager participant. During the Cold War years, the United States was a powerful hegemon in an arms race and a "fight-to-the-finish" ideological dominance duel--Democracy versus Communism--with the former Soviet Union. U.S. foreign policy making institutions used arms transfers to achieve foreign policy objectives (particularly political and military) that they believed to be in the United States' national interest. According to Andrew Pierre, for decades arms transfers were considered a tool of U.S. foreign policy. In 1982, he wrote,

Arms sales have become, in recent years, a crucial dimension of international affairs. They are now major strands in the warp and woof of world politics. Arms sales are far more than an economic occurrence, a military relationship, or an arms control challenge--*arms sales are foreign policy writ large*.¹

Many arms trade observers in the Post-Cold War environment make a case for the rise of the economic "occurrence" over the "warp and woof" of world politics and military "relationships" (to use Pierre's words). What we see presented in contemporary arms trade literature to explain the growth of the economic occurrences can be characterized as a "then" and "now" approach, i.e., "The United States traded arms during the Cold War to align recipients with the Western Bloc but now she exports weapons to keep jobs in the Defense-Industrial Base." What we do not find in the literature is any description or explanation based on organization theory that helps us understand what transpired between the "then" and "now," how

¹ Andrew J. Pierre, *The Global Politics of Arms Sales* (Princeton, NJ: Princeton University Press, 1982), 3.

the "now" may be related to the way in which organizations and their stakeholders reacted to their changing environments and how the "now" may have been forged by relationships among the governmental and economic stakeholders. [A "stakeholder" is defined as an organization or individual(s) with a vested interest in the status quo of a single program, multiple programs, services, entire organizations, legislation and laws if the latter are perceived to enhance its own current and future self-interests.]

Scientists and engineers might think of this "between" process as a "black box"--a generic machine wherein inputs are transformed into outputs. What this research paper attempts to explore is what happened inside this unexamined "black box" with respect to the behaviors of certain stakeholders and stakeholder organizations in the U.S. international arms trading system. Organization Theory in discontinuous change is provided by Elaine Romanelli and Michael Tushman (1994, 1986, 1985) and Alan Meyer (1990, 1982); international arms trading theory is based on Robert E. Harkavy (1975).

The Current Status of Arms Trading

The Figures

Readers might be inclined to think that if the economic rationale for arms trading has predominated in the Post-Cold War environment, the volume and value of international conventional arms trading would increase. However, this has not been the case. There has been a downward trend in world-wide sales since the demise of the Warsaw Pact. The latest figures from the U.S. Arms Control and Disarmament Agency² ("ACDA") indicate that from an all time high in 1987, the value of world-wide exports and imports has decreased considerably. For example, the total dollar value of world exports have decreased by approximately 46 percent or from \$76 billion in 1986 to \$52 billion in 1996. The total dollar value of arms exports from developed countries³ declined 43 percent or from \$70 billion in 1986 to \$50 billion in 1996. Developing countries⁴ exported approximately \$5 billion in arms in 1986 compared to \$3 billion in 1986, a 50 percent decrease overall.

² The U.S. Arms Control and Disarmament Agency ceased to exist on March 31, 1999. Its functions were assumed by the U.S. Department of State on April 1, 1999.

³ See Appendix C, Statistical Notes, p. 185. ACDA's 33-country *developed* group includes all Western Europe except Malta and Turkey; in Eastern Europe, all former Warsaw Pact members (including Czechoslovakia's successor states and Russia) except Bulgaria, Romania, and the successor states to the Soviet Union other than Russia; in East Asia, Japan, Singapore, South Korea, and Taiwan; in Oceania, Australia and New Zealand; and Israel and South Africa.

⁴ See Appendix C, Statistical Notes, p. 185. All other countries not cited in note 2 are classified as *developing*.

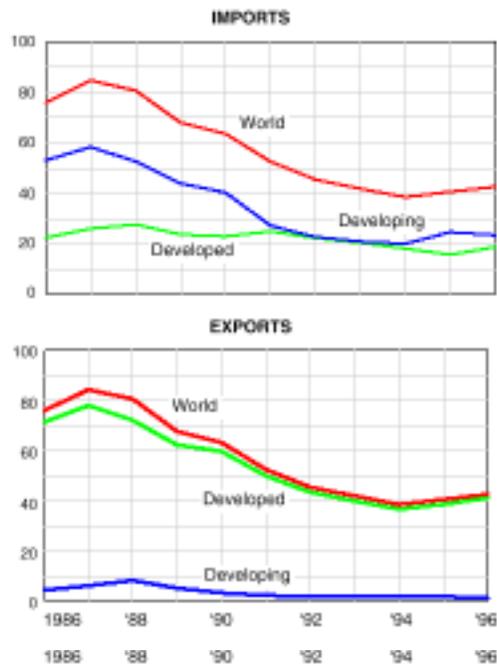


Figure I.1
World Arms Trade, 1986-1996
(in billions of constant 1996 dollars)

Readers should also not jump to the conclusion that a sales slump is indicative that today's conventional arms buyers and sellers are apathetic absent Cold War politics. There were many factors that contributed to the decline in trading:

- Many foreign governments were near the end of their force modernization programs when the Cold War ended.
- There was a global recession, roughly 1990-1994.
- The Soviet Union faded as a power.
- National defense budgets had no basis for justifying continued spending at high Cold War levels.
- The unit cost of weapon systems rose immensely.
- The popular demand for social programs over military expenditures increased in developing democracies.

Worldwide trading has declined, but ACDA data indicate that the United States jumped to the position of the world's leading arms exporter in the decade after the end of the Cold War.

The US became the leading arms exporter in 1990, with a 39% share of the world total. This share reached 60% in 1992-1993 (with the demise of the Soviet block and the aftermath of the Gulf War), dropping to 55% in 1996.⁵

We shall see later in this paper how and why U.S. stakeholders attempted to retain the lead after 1991. However, in addition to her proactive posture, the U.S. arms trading was favorably positioned *de facto* at the end of the arms race:

- Russia's empire had crumbled and her economy fell into a tailspin. Her Third World arms shipments began to fall immediately because she was unable to supply arms at reduced or heavily subsidized rates.
- The 1991 Gulf War further boosted the international prestige of U.S. conventional weapons. U.S.-manufactured arms became the weapons of choice worldwide and particularly for many Middle Eastern Countries who sought to update their respective arsenals in the aftermath of the war.
- The U.S. was able to offer state-of-the-art weapons at competitive prices. The size of U.S. government "buys" allowed for economies of scale which is the prime factor contributing to competitive pricing.
- In the early 1990's the dollar's decline against major world currencies gave U.S. exporters of military goods a financial edge. The Western European nations experienced currency gyrations exacerbated by the agreement to create a single European currency (the "Euro" which was finally realized in March 1998).

The proactive stance of the U.S. stakeholders and the four factors listed above set the United States well above her nearest competitor. The following table illustrates total market share:

⁵ *World Military Expenditures and Arms Transfers, 1997* ("WMEAT, 1997") (Washington, DC: Arms Control and Disarmament Agency, 1998, accessed 25 January 1999; Highlights, p. 2; available from <http://www.acda.gov>; Internet (not available in print).

Table I.1⁶
 Top 10 Exporters, 1996

		Billion \$	% of total
1	United States	23.50	55
2	United Kingdom	6.10	14
3	Russia	3.30	8
4	France	3.20	8
5	Sweden	1.20	3
6	Germany	.83	2
7	Israel	.68	2
8	China-Mainland	.60	1
9	Canada	.46	1
10	Netherlands	.34	<1

The "Stakeholders"

There are many stakeholder organizations with diverse and sometimes competing interests involved in arms trading and transfers at many levels in the public and private sectors. In the United States, for example, public organizations have policy making, fiduciary, implementation, regulatory and advisory roles. Private organizations encompass a diverse set of roles which range from non-profit, arms trade monitoring groups to the publicly-held corporations that produce weapons systems under contract to the U.S. Department of Defense.

Frederic S. Pearson in The Global Spread of Arms, Political Economy of International Security (Boulder, CO: Westview Press, 1994) provides readers with a valuable summary table of stakeholders--who Pearson refers to as "actors"--and their objectives in arms transfers.

⁶ Ibid., 4.

Table I.2
International Arms Market: Actors and Objectives

Actors	Objectives
National actors Nation-states and national governmental authorities	Security, political influence, economic growth, solvency, full employment, budgetary allocations
Subnational Actors Industrial and corporate units Techno-scientific centers (research groups, universities, institutes) Separate governmental bureaucracies Financial institutions (banks, etc.)	Maximum economic gain--profits in market economies or budgetary allocations in controlled economies Service for military and private sector, new knowledge, techniques, products, and funding Surveillance and control of other subnationals, budgetary allocations Return on loans, government influence
Transnational Actors Multinational corporations and banks Revolutionary movements	Maximum economic gain, political influence Political change/power
International Actors Military alliances Economic or political communities (e.g., EC) World and regional organizations	Deterrence, collective influence, protection of dependent states Trade and technological competitiveness, political coordination Regional order, development, arms control

Source: Pearson, p. 31, adapted from Christian Catrina, *Arms Transfers and Dependencies* (New York: Taylor and Francis/UNDIR, 1988), p. 69.

Table I.2 provides a frame of reference for delineating arms trade stakeholders. This research will focus primarily on the "National" and "Subnational" level of actors. In order to avoid confusion, Pearson's term "actors" will henceforth be dropped. Instead the term "National Governmental Stakeholders" will be substituted for "National Actors." Since two sets of stakeholders can be derived from Pearson's "Subnational actors," these can be thought of as "Subnational Governmental Stakeholders" and "Subnational Economic Stakeholders" will be substituted. These substitutions have been made because governmental and economic stakeholders more closely reflect the sense of the conceptual framework described in Chapter V.

Readers should take note of the omission of arms control advocates from Pearson's list of actors. In the Post-Cold War environment, their presence has become more visible, their

definition of "arms" more encompassing and they often dispute the necessity of the United States exporting both offensive and defensive weapons. (The impact of arms transfers is debated at length. Some scholars claim there is no correlation between the onset of war and arms shipments;⁷ doubt the correlation;⁸ claim arms shipments increased cooperative behavior⁹ or claimed they did not.¹⁰) In 1992 *Defense News* reported, "In the Post-Cold War world, academic and analytic organizations have joined with anti-nuclear groups to curb conventional arms exports."¹¹ By 1997 the legitimacy and credibility of the arms control advocates was such that the Nobel Peace Prize was awarded to the grass roots International Coalition for the Ban against Land Mines (ICBLM), sponsored by the Vietnam Veterans of America Foundation. Arms control organizations are privately funded or have non-profit status, monitor arms sales and related topics and present their interpretation of events in press releases, press conferences, newsletters, on internet sites and in scholarly publications.¹² The U.S. Arms Control and Disarmament Agency (ACDA) was an independent government agency that monitored arms production, sales and deliveries and negotiated treaties. ACDA traditionally took a "pro disarmament" posture but it should not be thought of as an arms control "advocate."

⁷ Jeffrey S. Milstein, "American and Soviet Influence, Balance of Power, and Arab-Israeli Violence," in *Peace, War and Numbers*, ed. Bruce M. Russett (Beverly Hills, CA: Sage, 1972).

⁸ William H. Baugh and Michael J. Squires, "Arms Transfers and the Onset of War," Part II: Wars in Third World States, 1950-1965, *International Interactions* 10 (1983): 129-241.

⁹ Philip A. Schrod, "Arms Transfers and International Behavior in the Arabian Sea Area," *International Interactions* 10 (1983): 101-127.

¹⁰ David Keifer, "Interstate Wars in the Third World: A Markov Approach," *Journal of Conflict Management and Peace Science* 10 (1988): 21-36. Also, Ronald G. Sherwin, "Controlling Instability and Conflict through Arms Transfers: Testing a Policy Assumption," *International Interactions* 10 (1983): 65-99.

¹¹ Theresa Hitchens and David Silverberg, "Activists target conventional arms," *Defense News* 7, no. 30 (July 27-August 2, 1992): 4.

¹² Several arms control advocacy organizations maintain informative internet sites such as the Center for Defense Information (www.cdi.org), publisher of "America's Defense Monitor," the Federation of American Scientists Arms Trade Project (www.fas.org), publisher of the "Arms Trade Monitor," and the Council for a Livable World (www.clw.org), publisher of "Arms Trade News."

U.S. Governmental Stakeholders

The U.S. national-level stakeholders are the institutions and individuals which either initiate governmental arms-transfer policy or implement it at the national level and are also the focus of this research effort.

Congress

Congress is a primary governmental stakeholder in arms trading because of its high involvement and visibility in all aspects of Pearson's Actor/Role (security, political influence, economic growth, solvency, full employment, budgetary allocations) listed in Table I.2 above.¹³ At the close of the Vietnam War, Congress assumed an oversight role with regard to conventional arms transfers and legislated an important role for itself in an effort to curb the perceived excesses of Executive power. Legislation was enacted (the Arms Export Control Act of 1968 and the Export Administration Act of 1979, as amended) that restricted economic assistance for the purchase of arms and gave Congress the power of veto over arms exports, both for government-to-government and commercial sales. This resulted in increasing Congressional participation in foreign policy formulation and implementation, especially with respect to conventional arms sales. This practice continues into the Post-Cold War environment, suggests James Scott, because the absence of international tensions allows for closer scrutiny of the policy process, i.e., agenda, formulation, legitimization, implementation and evaluation, "thereby allowing for a greater range of Congressional involvement and influence."¹⁴

Larry Mortsof agrees with Scott when he writes in the *DISAM Journal* that "Congressional interest has spread to the policy rationale behind arms sales as well as the very process by which such decisions were made."¹⁵ For many lawmakers conventional arms transfer

¹³ Many Congressional Committees are involved in arms transfer policy, but not all committees at the same time because of the changing nature of the issues involved. In the House of Representatives, the most active are the Authorizations Committee; Appropriations Committee, Foreign Operations, Export Financing and Related Programs, National Security Subcommittees; Commerce Committee, Banking and Financial Services Committee, Government Reform and Oversight Committee, National Economic Growth, International Affairs and Criminal Justice Committee, International Relations Committee; National Security Committee; Ways and Means Committee, Trade Subcommittee. In the Senate we find the Appropriations Committee, Defense Subcommittee; Armed Services Committee and subcommittees; Banking, Housing and Urban Affairs Committee, International Finance Subcommittee; Finance Committee, International Trade Subcommittee; Foreign Relations Committee, International Economic Policy, Export and Trade Promotion Subcommittee.

¹⁴ James M. Scott, "In the loop: Congressional Influence in American Foreign Policy," *Journal of Political and Military Sociology* 25, no. 1 (Summer 1997): 62.

¹⁵ Larry A. Mortsof, "Only Yesterday: Security Assistance over the Past Twenty Years," *The DISAM Journal* 19, no. 3 (Spring 1997): 25.

issues were a balancing act between "restraint" and promotion" in the economic and security policy implications of arms transfers. Now, promotion and restraint are not only considered for their economic and security implications but in their process and policy roles. An example of the process role would be informal meetings to determine whether or not a proposed arms sale of an advanced system will pass in Congress after the mandatory 30-day notification period; an example of a policy role would be an effort to block a proposed sale on the basis of humanitarian concerns. The increasing involvement of Congress in conventional arms transfers oversight has created an adversarial relationship with the President as it usurps his prerogative in making foreign policy.

No Member of Congress advocates unrestricted arms transfers but some are more motivated by the need to "promote" when major defense contractors or bases are located in their districts. "Promotion" becomes more likely when constituents' jobs are threatened by defense budget cuts. However, as an institution, Congress has clearly stated its position on restraint:

It shall be the policy of the United States to exert leadership in the world community to bring about arrangements for reducing the international trade in implements of war and to lessen the danger of outbreak of regional conflict and the burdens of armaments. United States programs for or procedures governing the export, sale, and grant of defense articles and defense services to foreign countries and international organizations shall be administered in a manner which will carry out this policy.¹⁶

Defense spending is a perennial debate in Congress during budget sessions. Just as some representatives and senators, especially those on the Armed Services committees, sponsor legislation regularly that will favor a range of defense issues, or if their districts or states are highly dependent on defense programs, others oppose high levels of defense spending and oppose spending vast sums on weapons acquisition programs they deem redundant. The debate carries over to arms transfer issues which in the Post-Cold War era has centered more on human rights issues as a litmus test for license approval.¹⁷ Some legislators (Rep. Cynthia McKinney, D-GA, Rep. Dana Rohrabacher, R-CA, Sen. John Kerry, D-MA), acting on personal conviction, have proposed legislation such as trade bans to countries with human rights violations and international codes of conduct in arms transfers.

¹⁶ Arms Export Control Act, US Code: Title 22, Chapter 39, § 2751.

¹⁷ See, for example, Keith B. Richburg, "Indonesia Drops Plans to Buy U.S. F-16s," *The Washington Post*, 7 June 1997, sec. A, p. 1.

The President of the United States

It is generally considered within the Constitutional purview of the President of the United States to set the direction of foreign policy and domestic economic policy. After World War II, arms transfers become useful "bargaining chips" for Presidents in achieving favorable diplomatic outcomes in foreign policy issues. The Presidential efforts in foreign policy and arms transfers are often developed in collaboration with advisors from other offices, agencies and departments such as Departments of State, Defense and Commerce, the National Security Agency, the International Trade Representative and the Office of Management and Budget. However, Congress gives specific guidance to U.S. Presidents in the AECA:

It is the sense of the Congress that the President should seek to initiate multilateral discussions for the purpose of reaching agreements among the principal arms suppliers and arms purchasers and other countries with respect to the control of the international trade in armaments. It is further the sense of Congress that the President should work actively with all nations to check and control the international sale and distribution of conventional weapons of death and destruction and to encourage regional arms control arrangements.¹⁸

The linkage between U.S. arms transfers and favorable diplomatic outcomes is more apparent than between U.S. arms transfers and domestic economic policy. At the end of the Cold War, environmental "events" shifted the relevancy of the public-policy strings attached to arms sales from foreign policy to domestic economic policy as the centers of power in the world moved away from bipolar (United States-USSR) toward multi-polar. This shift to a multi-polar world dominated by economic competitiveness issues opened up the possibility of a new forum for arms transfers as a useful tool to the President in domestic economic policy insofar as using arms transfers to maintain the health of the Defense-Industrial Base and to retain high paying jobs. Although the idea of a President overtly "promoting" transfers in the sense of an "arms bazaar" might be politically unsound, the guise for support in the Post-Cold War world could be attached to domestic policies.¹⁹

U.S. Cold War and Post-Cold War Presidents, with the exception of Jimmy Carter, have not been adverse to exporting conventional arms as tools of foreign policy and to facilitate military alliances with friendly nations. It is the nature of their differences in willingness to export that distinguishes U.S. Presidents from each other. While arms transfer doctrines of American Presidents since Nixon are discussed in Chapter VIII, what readers should bear in mind is that Presidential promotional efforts for conventional arms exports usually involve sales to the western and NATO allies and have traditionally been restrained in sales to Third World nations. *World Military Expenditures and Arms Transfers, 1997* ("WMEAT, 1997"), Washington, DC: Arms Control and Disarmament Agency, 1998, states that,

The pattern of US arms exports to the world is markedly different from that of most other arms exporters. Figure 2 shows that the US is primarily a supplier of

¹⁸ Arms Export Control Act, US Code: Title 22, Chapter 39, § 2751.

¹⁹ "Arms Sales in the Sunlight," *The Washington Post*, 21 October 1997, sec. A, p. 18.

arms to developed countries. US exports to developed countries in 1996 were 30% of world trade and 61% of total US arms exports. Most of this amount, 80%, went to fellow NATO members and other close allies Japan, Australia, South Korea, and Israel. Developed countries got 75% of their arms imports from the US.²⁰

The following three stakeholder organizations--the U.S. Departments of State, Commerce and Defense--can actually be placed in two categories in Pearson's Table I.2 above. All three have national governmental level type roles as well as subnational governmental. For example, the Department of Defense at the national level is charged with maintaining the defense and security of the nation and at the subnational level has departments examining the compliance of vendors who supply consumer goods to post exchanges on military bases. At the national level, the Department of State, advises the President on foreign policy and approves or disapproves arms deals through it's licensing issuing mandate. At the subnational level, the Office of Defense Trade Controls meets with corporate representatives on export procedures and collects forms from the U.S. Customs Service on export shipments. However, for the purposes of this research effort, we will consider the three departments as national governmental stakeholders.

U.S. Department of State

The State Department affects in arms transfers through its regulatory and administrative functions mandated by the Arms Export Control Act of 1968 (AECA), as amended. The Secretary of State is the most visible public official of this Department. He or she advises the President on foreign policy decisions and in turn conveys U.S. policy positions to other nations. In this role, the Secretary can influence foreign policy directions by the message carried to and from the President both at home and abroad. The Secretary also gives testimony before Congress and presents the annual Foreign Aid budget. The Under Secretary for Arms Control and International Security Affairs Group reports to the Secretary of State. In this Group is the Bureau of Political-Military Affairs (PM). This Bureau acts in an advisory capacity to the Under Secretary on security and defense issues worldwide including arms control negotiations, non-proliferation of weapons of mass destruction and regional security arrangements.

Many offices in the U.S. Department of State are involved in the arms transfer process but the principal administrative one is the Office of Defense Trade Controls (DTC) located in the Bureau of Political-Military Affairs. This Office controls the export of conventional arms by taking action on license applications and other requests for transfers authorized under the Arms Export Control Act and the International Traffic in Arms Regulations (ITAR) (22 C.F.R. Parts 120-130). It issues export licenses under the United States Munitions List ("USML") in collaboration with the Department of Defense; it registers all U.S. manufacturers and exporters of defense articles and/or services; it notifies Congress of sales according to mandated guidelines; provides guidance to industry regarding export law and works closely with other agencies to ensure appropriate compliance with U.S. regulations.

²⁰ WMEAT, 1997, Highlights, 2.

The State Department sponsors two trade groups. The first is the Defense Trade Advisory Group (DTAG), which has three working groups made up of private citizens appointed and chaired by the Assistant Secretary of State for Politico-Military Affairs.²¹ Established in 1992, DTAG has members drawn from the U.S. defense industry, associations, academic and non-profit agencies. Also included are military and technical experts and other government observers. DTAG working groups are--

- Policy--advises on issues of defense trade, technology transfer and commercial arms sales in order to assist State in regulating commercial munitions exports.
- Regulatory--advises on possible changes and improvements to regulations and procedures.
- Technical--advises on technical issues related to the U.S. Munitions List.

The second of the two trade groups is the Defense Trade Working Group comprised of government officials who coordinate intra-agency policies and resources. The Defense Trade Working Group (DTWG) has officials from Commerce, Defense State and the U.S. Trade Representative. This working group coordinates agency policies and resources, works with industry to identify ways to target industry needs and identifies government impediments in trading practices. The DTWG working groups are--

- Defense Exports Working Group--chaired by Commerce, gives support U.S. defense exporters.
- European Defense Cooperation Group--chaired by State, coordinates with U.S.-NATO International Staff for the NATO Council on National Armaments Directors study on defense trade.
- Technology Transfer and Third Party Reexport Group--chaired by a representative from the Defense Department, works within the limits of national security and industrial competitiveness interests and with industry to define a technology transfer regime.

U.S. Department of Commerce

The Bureau of Export Administration, U.S. Department of Commerce, regulates defense-related trade, i.e., "dual-use" products. It interfaces with the Departments of State and Defense and the Office of the President with respect to commercial and "dual-use"²² items that also have military application and where there are technology transfer implications. The Bureau of Export

²¹ The work of the Defense Trade Advisory Group is reported in *Defense Trade News* (Washington, DC: U.S. Department of State) beginning with Volume 3, number 4 (1992), p. 3 (also available from the U.S. Department of State internet web site www.state.gov). See also David Isenberg, "We Arm the World," *The Washington Post* (18 February 1996), sec. C, p. 5; and Sumner Benson, "National Security and Economic Considerations in U.S. Conventional Arms Transfer Policy," *The Nonproliferation Review* 2, no. 1(Fall 1994): 16-29.

²² Linda Brandt, "Defense Conversion and Dual-Use Technology: the Push toward Civil-Military Integration," *Policy Studies Journal* 22, no. 2 (1994): 360.

Administration (BXA) promotes U.S. national and economic security and foreign policy interests by managing and enforcing the Commerce Department's security-related trade and competitiveness programs. It has two principal operating units: Export Administration and Export Enforcement. One of its primary responsibilities is to implement the Export Administration Act (EAA) of 1979, as amended, through Export Administration Regulations (EARs) that provide for export controls on dual use goods and technology "not only to fight proliferation, but also to pursue other national security, short supply, and foreign policy goals (such as combating terrorism)."²³ [Although the EAA has technically lapsed it is renewed periodically by the President invoking the International Emergency Economic Powers Act (50 U.S.C. 1701 et seq.).]

Not only does the Commerce Department Bureau of Export Administration (BXA) have regulatory and administrative functions similar to those of the State Department, it also represents an important constituency--U.S. business. The Bureau of Export Administration is said to be more responsive to industry needs, i.e., less bureaucratic and quicker turn around times on export license applications, than the State Department's Office of Trade Controls.²⁴ (They may be too responsive if the Loral-China satellite sale issue is any indicator.²⁵) Defense firms entering into offset agreements connected to Foreign Military Sales or Direct Commercial Sales of defense products or services must report them to the Bureau which provides an annual interagency report on their impact on U.S. Defense preparedness, industrial competitiveness, employment, and U.S. trade. (There will be further discussion of offsets in later chapters. Offsets are defined as "commercial arrangements demanded by a buyer and agreed to by a seller that obligate the seller to perform actions that will "offset" the outflow of money required by the contract for sale."²⁶)

²³ Excerpted from the Bureau of Export Administration's Mission Statement.

²⁴ See, for example, Barbara Opall, "Industry, Government Gird for Third Year Without Export Law," *Defense News* (9 June 1997): 38.

²⁵ See, for example, Pierre Thomas, "Justice Department Investigates Commerce's China-Satellite Decision," *CNN/Washington* (June 23), accessed 28 February 1999; available from <http://europe.cnn.com/ALLPOLITICS/1998/06/23/china.satellite/>; Internet.

²⁶ Leo G. B. Welt and Dennis B. Wilson, "Offsets in the Middle East," *Middle East Policy* 6, no. 2 (October 1998): 36.

U.S. Department of Defense

The role of the Department of Defense (DoD) in arms transfers cannot be underestimated. As the Executive Department charged with defending the Country, the Department of Defense lends its expertise to helping craft military policy consistent with its defined mission. As such, it recommends the types of weapons it believes necessary to develop and retain domestically that will give the United States a state-of-the-art advantage over actual or potential enemies and determines what weapons are exportable without risking national security. Many offices and agencies within the U.S. Department of Defense engage in arms sales activities. The Secretary of Defense (SECDEF) has primary responsibility for security assistance functions relative to military equipment. He or she is advised by the Under Secretary of Defense (Policy) [USD(P)] for all matters concerning national security objectives. The Assistant Secretary of Defense (International Security Affairs) of USD(P) is responsible for the supervision, direction and overall DoD management of the Defense Security Cooperation Agency.

The Defense Security Cooperation Agency (DSCA) as the successor to DSAA handles all aspects of government-to-government conventional arms sales. DSCA was established on May 20, 1998 by Secretary of Defense William Cohen in Defense Reform Initiative Directive No. 40; it replaced the Defense Security Assistance Agency on October 1, 1998. DSCA acquired more responsibility than its predecessor agency. According to DoD Directive 5105.38, the Defense Security Assistance Agency (DSAA) serves as the "DoD focal point and clearinghouse for the development and implementation of security assistance plans and programs, monitoring major weapon sales and technology transfer issues, budgetary and financial arrangements, legislative initiatives and activities, and policy and other security assistance matters through the analysis, coordination, decision, and implementation process." According to Secretary Cohen's Directive, DSCA now has responsibility for the program management of humanitarian assistance and demining, armaments cooperation, export loan guarantees, and foreign cooperative testing functions. Within the Department of Defense, the remaining key players and organizations are the Assistant Secretaries for Acquisition and Logistics; the Under Secretary of Defense (Comptroller); the Under Secretary of Defense (Acquisition & Technology); the Joint Chiefs of Staff, the unified commands and the military service departments themselves.

Conventional arms transfers are important to the Department of Defense because of the advantages they provide both internationally and domestically. By helping our allies defend themselves against aggressors,²⁷ they can have the effect of lessening the need for U.S. troop intervention. Weapons transfers usually involve collaboration and training overseas that enable the U.S. military to provide expertise and gain opportunities for intelligence gathering. Exports also increase our military leverage and provide a crucial interoperability, especially among the NATO allies. In addition, by providing for economies of scale, prices of domestic acquisitions are lower than they might otherwise be. Also, in the absence of domestic buys, exports can keep production lines open for possible national emergencies. Until recently, exports offered an opportunity of recouping some research and development expenses as they were included in the price charged to foreign buyers.

²⁷ This concept is consistent with the Arms Export Control Act (U.S. Code: Title 22, Chapter 39, §2751).

The Economic Stakeholders

Table I.2 above contains two types of stakeholders (Pearson's actors) at the subnational level: economic and governmental. This research project focuses on one of the subnational economic stakeholders—the Defense-Industrial Base (Pearson's Industrial and corporate units).

The Defense Industrial Base

The Defense-Industrial Base is made up of many thousands of corporations spread over three tiers. The first tier is made up of "prime contractors." The "primes" typically derive over half of their revenues from government contracts. They are the key players, the major stakeholders; some of their names are high profile (in many instances for their non-defense products as well) while others would not draw a sign of recognition. The prime tier is followed by a second and third tier consisting of subcontractors and suppliers. One reason that a count of the corporations comprising the defense industrial base is so difficult is that among the second and third tiers, the percentage of revenue derived from defense contracts varies quite widely. A list of the Top 10 companies is presented below:

Table I.3
Top 10 Defense Prime Contractors

Rank		Company Name	Awards (in Billions)	
1997	1996		1997	1996
1	1	Lockheed Martin Corporation	11.6	12.0
2	8	Boeing Company, The*	9.6	1.7
3	6	Northrop Grumman Corporation	3.5	2.6
4	5	General Dynamics Corporation	3.0	2.7
5	4	Raytheon Corporation	2.9	3.0
6	3	General Motors Corporation	2.8	3.2
7	7	United Technologies Corporation	1.8	2.6
8	10	General Electric Company	1.7	1.5
9	9	Litton Industries Incorporated	1.6	1.7
10	13	Textron Incorporated	1.4	1.2

*McDonnell Douglas Corporation, ranked second in FY 1996 with awards of 9.9 billion, was acquired by The Boeing Company during FY 1997.

(Source: Extrapolated from annual report, "One Hundred Companies Receiving the Largest Dollar Volume of Prime Contract Awards, Directorate for Information Operations and Reports, The Office of the Secretary of Defense, U.S. Department of Defense; available from U.S. GPO.)

To illustrate the scope and size of the Top 10 Companies, a list of each one with its subsidiaries is attached as Appendix A.

With respect to conventional arms exports, it is usually the Defense-Industrial Base that has been "perceived" as the national arms exporter. Frequently, corporations have been seen in a less-than-favorable light concerning organized anti-proliferation efforts. While one could not dismiss all claims of corporate excess, it should be noted that many governmental stakeholders directly benefit from corporate actions. For members of Congress, exports may mean jobs for constituents. For the President, they can mean improving U.S. international trade accounts. For the Department of Defense, the benefits are numerous. Exports extend production runs and lower the cost of domestic procurement. Long production runs in turn create economies of scale without compromising quality.²⁸ In the Post-Cold War environment, corporate planners have been able to use exports to protect shareholders' investments, maintain manpower expertise and keep certain programs, such as the F-15 and the F-16, alive. Exports can bridge the gap between the phase down of existing programs and the future start-up dates of new ones.

The Policy Jolts and U.S. Conventional Arms Trading

Let us turn our attention now to the international events of the late 1980s and early 1990s, the "policy jolts," and the governmental stakeholders' reactions. (A "policy jolt" is defined as a sudden "shock" to a system that has the *potential* to change radically one or more of its established structural components or behavioral patterns.) Governmental stakeholders responded differently than the economic stakeholders whose reactions are discussed in Chapters VII-IX.

Environmental Events Fueled the Policy Jolts

Astonishing events hastened the end of the Cold War; years of poor economic performance, followed by reforms coming too little too late, led the Soviet Union [then] to economic collapse. The year 1989 signaled many changes in international affairs. The world witnessed the disintegration of the former Soviet Union and the Communist Party as her economy ground to a standstill. Her all-encompassing production systems--from agriculture to military weapons to zippers--just could not deliver the goods. Abbott and Johnson write,

In the final analysis, the Cold War, in large part, turned out to be a contest between the superpowers' productive and technological bases. While the United States experienced steady growth, the declining Soviet productive base could not support both the demands of the military establishment and those of the Soviet people. Probably more than any other single factor, this poor economic performance led to the demise of the Soviet Union as a superpower and its subsequent dissolution as a state. Had the gross domestic product (GDP) of the

²⁸ See David A. Fulghum, "Lack of Firm Bush Administration Policy on Arms Exports Hurts Sales Efforts," *Aviation Week & Space Technology*, 136, no. 9 (2 March 1992): 20.

Soviet Union expanded at a rate of 3 percent annually instead of declining, the superpowers might still be waging the Cold War.²⁹

Russia was forced to relinquish the "command economy" that had allowed her to maintain superpower status in military affairs and set about repairing internal problems. The possibility of Communism's eventual failure was recognized by Mikhail Gorbachev who attempted to initiate reforms by the privatization of industry and property ownership, turning to democratic and capitalistic institutions for solutions to his country's problems. The reforms were too late in coming to fend off the Soviet Union's economic collapse. When it became apparent that the Communist system had failed, one by one the nations of the Warsaw Pact broke away from Soviet dominance and began to look westward. Students tore down the Berlin Wall, and the Federal Republic of Germany began plans to integrate East Germany into a unified democratic nation. Soon thereafter, the former Soviet Socialist States of the Soviet Union (now the "Newly Independent States") declared their autonomy from Moscow, and many have since sought economic, military and political assistance from the West.

With its empire in shambles, its economy in ruins and political unrest at home, Russia had neither the ways nor means to maintain the arms race. In addition, it had lost its manufacturing capabilities that were located in the break-away republics. Russia had little choice but to reduce its weapons programs and armed forces and set about repairing its internal problems. The 50-year Cold War was over, the United States emerged as the world's last superpower--Democracy and Capitalism had prevailed.

The Policy Jolts

The dramatic international events in the late 1980's produced an environment that fostered change. The governmental stakeholders were required to respond to "the New World Order" that emerged from these events. They found it necessary to re-examine and to change the bases of their policy-making decisions that had guided the nation throughout the Cold War years. Some new policies that emerged, among others, were revised spending levels in the annual defense budget submissions, in particular in the area of defense acquisition. These new fiscal policies can be conceptualized as the "jolts." (We earlier defined a "jolt" as a sudden "shock" to a system, in this case a policy system, that has the *potential* to change radically one or more of its established structural components or behavioral patterns.) The policy jolts, this research paper premises, were such that they could cause discontinuous change at the economic stakeholder level. Alan D. Meyer et al. suggested that discontinuous change can be brought about directly by "environmental jolts;" but in the case of defense production, it is necessary to add the "policy jolts" to the effects of the environmental ones given the nature of the interdependent relationship between the public and private organizations involved.³⁰

²⁹ Gerald Abbott and Stuart Johnson, "The Changing Defense Industrial Base," *National Defense University, Strategic Forum*, no. 96: 1 (November 1996, accessed 1 April 1999); available from [1.http://www.ndu.edu/inss/strforum/forum96.html](http://www.ndu.edu/inss/strforum/forum96.html); Internet.

³⁰ See Alan D. Meyer, "Adapting to Environmental Jolts," *Administrative Science Quarterly* 27 (1982): 515-537.

"Policy jolts" lend themselves to comparison with energy waves illustrated in introductory Physics textbooks. The word "illustrated" is stressed; the use of the wave analogy that follows is *not intended to be a Mathematical model* but merely an illustrative tool. The initial "policy jolts"--budgetary decisions and Executive Orders--can be thought of as the source (S) of a three-dimensional wave (earthquake, sound and light waves are three-dimensional). In a Physics text,³¹ an illustration shows the wave cresting at " r_1 ." The greatest intensity of impact will be there (r_1). Thus, the "policy jolts," in this wave metaphor, can be imagined as having their maximum impact at the r_1 wave crest. The wave analogy is not linear. Other events and policies produce their own waves and not all sources originate from the same place. The Physics text tells us that interference can happen when two waves pass through the same region of space at the same time. When the crest and trough of one wave meet the crest and trough of another in phase, the constructive interference causes greater amplitude than either wave separately; when the crests of one wave meet the troughs of another, destructive interference occurs--they cancel each other out. For most waves, their relative phases are intermediate between the two extremes which result in partially destructive interference. A new wave pattern will result from the latter. (The wave metaphor is illustrated in detail in Chapter V, Conceptual Framework.)

The prelude to the policy jolts began with budget cuts to defense procurement beginning in 1985 as a result of the rising Federal deficit. However, the first round of real policy jolts was actually a series of jolts but so close together in time that they can be counted as one. The first round was made up of the Omnibus Budget and Reconciliation Act of 1990 (OBRA-90) because it reduced the defense budget by 36 percent, \$180 billion from a total budget reduction of \$500 billion over the 1991-95 period. The actual first round of policy jolts included the Omnibus Budget Reduction Act of 1990 (OBRA-90) that took \$180 billion or 36 percent from the defense budget of \$500 billion total reductions over the period 1991-1995. The Bush Administration responded to the OBRA-90 budget cuts in the cumulative 1992-1997 Future Years Defense Program, submitted in February 1991. In order to meet the goals set for defense spending under OBRA-90, the Bush Administration proposed reduction in force legislation that reduced active-duty military personnel strength by 561,217 positions (26 percent), from the post-Vietnam peak strength of 2.174 million positions at the end of fiscal year 1987³² and submitted budget figures that envisioned by 1995 the real defense budget about 18 percent below its 1990 level and that procurement spending would decrease by 23 percent. Altogether the Future Years Program called for a "real reduction in defense outlays of 20 percent between 1991 and 1997."³³ The reductions in force strength signaled additional base closings above the 145 scheduled for 1989 and 82 for 1991. The 1991 Defense National Defense Authorization Act called for the Base Closure and Realignment Commission to reconvene in 1993 and again in 1995.

³¹ With apologies to Douglas C. Giancoli author of *Physics, Principles with Applications* (Englewood Cliffs, NJ: Prentice-Hall, Inc.), 1980.

³² U.S. General Accounting Office, GAO/NSIAD-93-241, "Military Downsizing, Balancing Accessions and Losses is Key to Shaping the Future Force," by N. Rabkin et al., (September 1993), 4.

³³ Congress of the United States, Congressional Budget Office, "The Effects of Reduced Defense Spending," (Washington, DC: GPO, 1991), ix.

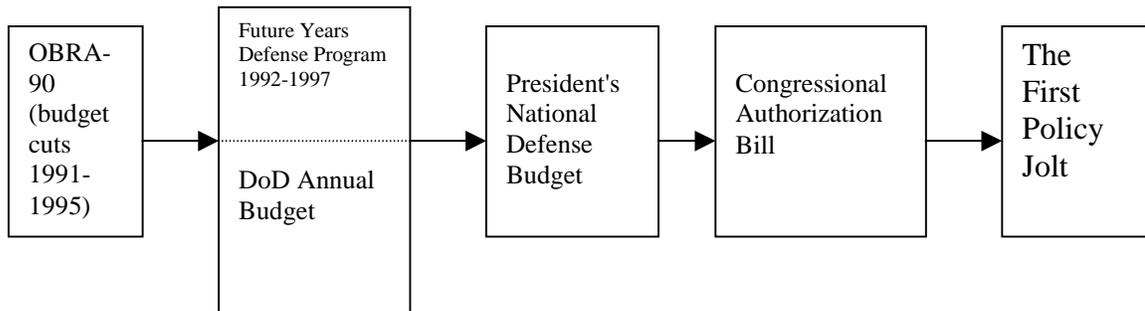


Figure I.2

The First Policy Jolt

Definitions:

Future Years Defense Program--An annual strategic planning document for the next five years out; FYDP informs the annual DoD budget submission.

President's National Defense Budget--The Administration's annual spending request outlined for the Department of Defense, the national security programs of the Department of Energy and civil defense.

Authorization Bill--Congress provides the DoD with authorization for its programs, recommended funding levels and policy guidelines. It is reviewed by the House National Security and Senate Armed Services committees and must be approved by the full House and Senate before being signed by the president.

Appropriations Bill--An allocation of funds approved by an authorization bill as considered by the defense subcommittees of the House and Senate Appropriations committees. An appropriations bill must be approved by the full House and Senate and signed by the President.

The first policy jolt was not realized for what it was at the time. When the figures were drawn up in 1989-90 for the reductions in force, base closings and budget cuts, the collapse of the Warsaw Pact and the withdrawal of Soviet forces from Eastern Europe created an expectation that the United States defense budget could be cut but with uncertainty over how deep the cuts would go and for how long. After all, Russia for all intents and purposes was still intact and still perceived by many observers to be the world's largest military power. With respect to arms transfers, Russian arms deliveries in 1990 were higher than for the United States, although her sales agreement figures had fallen.³⁴ In addition, in the United States over the duration of the Cold War, there was historical precedent for a build-up, scale-back cycle in defense spending. It would not be irrational to assume that defense budget cuts were business-as-usual and such that

³⁴ For example, ACDA's *WMEAT 1996*, Table IV indicates that Russia's (Soviet Union's) Deliveries for 1990 were 15.0 (billions of current dollars) compared to the United States with 14.2. Agreements for the former Soviet Union in 1990 totaled 11.6 (billions of current dollars) while agreements for the United States totaled 18.3.

some organizations dependent on defense spending could take a wait-and-see approach (as they had in the past).

One more small but intense policy jolt whose wave crest fell "into phase" with the wave crest of the earlier OBRA-90 jolt was yet to come. Together jolts one and two produced a new wave of greater amplitude and intensity. The source of the second wave was President George Bush's FY 1993 National Defense Budget presented in February 1992. Since any Cold War type threats from the former Soviet Union were fading fast at that point, the President cut total defense spending from \$279.8 billion as provided in the 1992-1997 Future Years Defense Program to \$267.6 billion; the procurement portion of the budget was cut from \$58.5 billion in FY 1992 to \$54.4 billion in FY 1993. The reality of the situation was that now defense/procurement spending was not going to rise until the end of the decade; and even then, it would not be anywhere near Cold War highs. The FY 1993 budget cuts coupled with the acknowledgement that the Cold War was over produced the policy jolts' wave crest that signaled the end of an era.

It appeared that with defense procurements slashed and in the absence of an "enemy," some portion of the defense industrial base would have to be dismantled and converted to commercial or "dual-use" enterprises. While observers could offer no rational arguments for returning to 1984 military spending levels (\$368 billion in FY 1985), valid concerns existed about the fate of the Defense-Industrial Base. Three of the concerns were--

- (1) The hastiness of many policymakers to assume the United States had no enemies left-- Although the Cold War was over, could the United States completely discount a lack of enemies? What about China? Political instability in certain regions of the globe such as North Korea,³⁵ the Pacific Rim³⁶ and the former Soviet Republics³⁷ still had the potential to ignite into armed confrontations.
- (2) The level of U.S. military force preparedness-- At what level of preparedness should the country maintain troops to meet national defense challenges and at what level of conflict should we participate? The preparedness concerns quickly led to a series of internal Pentagon program reviews that served to generate "blueprints" for acquisition programs, among other items, in future budget submissions. Of course, they subsequently produced their own "jolts" within the defense arena, although none of the same magnitude as discussed earlier.

³⁵ David. E. Sanger, "U.S. Gets Warning From North Korea," *New York Times* (late NY ed), 1 December 1993, sec. A, p. 9; Steven A. Holmes, . "U.S., in Stern Terms, Warns North Koreans on A-arms," *New York Times* (late NY ed), 18 November 1993, sec. A, p. 12.

³⁶ See David A. Fulghum and Paul Proctor, "Chinese Coveting Offensive Triad," *Aviation Week and Space Technology* 137 (September 21, 1992): 20-21.

³⁷ Bruce W. Nelan, "Fighting off Doomsday," *Time* 141 (June 21, 1993): 36-38; Michael R. Gordon, "Nuclear Arsenal: A Huge Ex-Soviet Legacy Hard to Remove," *New York Times* (late NY ed), 1 December 1993, sec. A, p. 16.

The two most significant inside-the-Pentagon reviews included the September 1, 1993 Bottom-Up Review and the Quadrennial Defense Review (QDR) in 1997. The Bottom-Up Review's purpose was to identify potential infrastructure savings and how to go about streamlining the infrastructure without harming readiness. The latest, the Quadrennial Defense Review, was legislatively required by the Military Force Structure Review Act which was included as part of the National Defense Authorization Act for Fiscal Year 1997 (Sections 921-926, P.L. 104-201, 23 Sep 96). The QDR was designed by the Department of Defense as a fundamental and comprehensive examination of America's defense needs from 1997 to 2015, to include potential threats, strategy, force structure, readiness, posture, military modernization programs, defense infrastructure, and other elements of the defense program. Both reviews have earned much criticism--from both hawks and doves--and scant praise.

- (3) A potential for serious erosion of the Defense-Industrial Base--What did the policy jolts mean at the military-industrial industrial base level? This third area concerns arms transfers most significantly because they are products of the domestic military-industrial base whose foundation rests on annual defense budgets. Diminished federal spending levels meant uncertainty about sustaining production lines for several products that had enjoyed lucrative export sales. Along with decreasing budgets would come job loss. The Congressional Budget Office predicted that more than 800,000 jobs in the civilian economy that would be lost³⁸--49,000 in aerospace alone³⁹--along with high levels of technical expertise.⁴⁰ Alarms sounded that industrial infrastructure would become archaic, dismantled and difficult to rebuild should the country need to rearm. Vital technologies would go stale. If too many corporations failed, a reduction in competitive bidders would force procurement prices to escalate. Furthermore, the United States would become dependent on single suppliers and increase our reliance on imports.⁴¹ Business experts speculated that corporations of the military-industrial base lacked the necessary strategic planning and marketing expertise to adapt to consumer products. They were used to a "single customer"--the U.S. Government.⁴²

³⁸ Congressional Budget Office, "The Effects of Reduced Defense Spending," x.

³⁹ Dave Dooling, "Aerospace and Military," *IEEE Spectrum* 32, no. 1 (January 1995): 76-79.

⁴⁰ Edward M. Kaitz and Gail Williams Pfister, "Conversion or Transformation: the Dilemma Facing the United States Defense Industrial Base," 1995, Marymount University, School of Business, Arlington, Virginia (unpublished manuscript).

⁴¹ See U.S. General Accounting Office, GAO/NSIAD-94-104, "Industrial Base, Assessing the Risk of DOD's Foreign Dependence," by K. Tansey et al., (April 1994).

⁴² Les Daly, "But Can They Make Cars?" *New York Times Magazine*, 30 January 1994, 27-28. See also Erik R. Pages, "How Defense Contractors Can Survive in a Peaceful World," *Business and Society Review* 86 (Summer 1993): 32-37; Murray Weidenbaum, "Can Defense Contractors Survive the New World Order?" *Business and Society Review* 82 (Summer 1992): 50-55.

In a February 1992 study, the Congressional Budget Office predicted that the reduction in defense spending would have serious implications for industries heavily dependent on defense sales--between 20 to 100 percent of their business. The CBO predicted that by 1995, these corporations would see sales fall by between one to 17 percent. Table 8 illustrates how uncertain the production situation appeared:

Table I.4

Effects on the Defense Industrial Base Associated with the 1991 Plan

Industry	1990 Output (Billions of dollars)	Defense Share of 1990 Output	1990-1995 Output Change (Percent)	Effect on Output of OBRA-90 reductions
Tank and tank components	2.4	100	-36	-17
Shipbuilding and repair	12.3	99	-11	-6
Complete guided missiles	17.5	84	-16	-2
Other ordnance and accessories	2.9	51	0	-7
Explosives	1.6	44	-9	-3
Aircraft, missile engines	34.5	43	0	-2
Communications equipment	67.6	42	9	-3
Aircraft	60.7	40	10	-1
Nonferrous forgings, n.e.c.	1.7	35	20	-2
Aircraft, missile equipment	45.3	27	13	-1
Small arms ammunition	1.8	26	-10	-2
Ammunition, except small arms	7.3	24	-10	-1
Engineering and scientific instruments	7.5	18	21	-1

Source: Congress of the United States, Congressional Budget Office, "The Effects of Reduced Defense Spending," (Washington, DC: GPO, 1991), 23.

n.e.c. = not elsewhere classified.

The dire predictions of the CBO did not come true. By 1998 the U.S. Defense-Industrial Base had not gasped its last breath. It weathered the policy jolts and years of defense cutbacks to emerge strong, in particular as the world's leading conventional arms exporter throughout the 1990s. Was this a simple fact of economics since the United States has ample factors of production or could it have any relationship to the way by which the economic stakeholders responded to the policy jolts? If so, then how did they respond?

Intent of This Research Paper

We have seen that international trading in conventional arms reached its peak in 1984 and declined rapidly after 1989 with the economic collapse of the Soviet Union and the break up of the Warsaw Pact. Rising national deficits and lowered military threat expectations precipitated the budget reductions in the late 1980s and early 1990s. Two governmental stakeholders—the President and Congress—called for drastic budget reductions to reduce the budget deficit; defense programs were particularly hard hit. These defense budget cuts are the policy jolts that rocked the corporate defense community—the economic stakeholders.

One intent of this research effort is to explore how and why the economic stakeholders interpreted and managed the jolts produced by the governmental stakeholders, and how in turn their responses caused further governmental stakeholder actions that focused on the economic rather than the foreign policy benefits of U.S. conventional arms trade. Another intent is to provide a linkage or a bridge missing in the literature between U.S. arms trading practices during the Cold War and the Post-Cold War environment by exploring corporate reactions to

governmental policy jolts through organization theory. Organizational theory provides an interesting new framework for exploring conventional arms trading. We shall see in Chapter III that theory in this field has traditionally been based on economics, international relations or international trade. Organization theory affords an opportunity to explore at the economic stakeholder level reactions to the policy jolts—a look inside the “black box”—and how those reactions could have led to the shift in arms trading benefits.

CHAPTER II

ARMS EXPORT RESTRAINTS

Introduction

Trading in conventional arms is highly regulated. While there may be sentiments in the arms control community that it is not regulated enough, there is no "free market" in arms trading.⁴³ There are "control regimes" to which many arms supplying nations adhere to some degree. The United States government does much to control arms transfers through legislation, reporting requirements, review and membership in formalized control groups. Export control restraints are discussed briefly in this chapter to familiarize readers with this important aspect of arms trading and transfers.

In the developed countries, the debate over arms trade policy has usually been found at the political level of debate rather than economic. The discussion over whether or not to export conventional arms to certain countries, or if the United States should be doing it at all, generates passionate debate. Popular sentiment generally favors restriction instead of promotion. Anti-proliferation sentiments at the *economic* level have often connected conventional weapons transfers to economic development issues in developing or Third World countries insofar as they divert scarce budget funds from social welfare programs to buy military equipment. Then too empirical models of economic variables are subject to standards of academic rigor and do not attract the popular appeal found at the *political* level of debate.

Negative outcomes from arms trade deals could have unfavorable repercussions for governmental stakeholders if such deals were associated with--

- *Rights suppression.* Weapons fall into the hands of tyrants and dictators and are used to suppress democracy and to quash human rights initiatives.
- *Regional stability.* Conventional arms transfers can upset regional balances of power and push nations to the brink of war.
- *Loss of integrity.* Sponsorship of arms transfers can court unfavorable publicity in the media.

From the U.S. Department of Defense's prospective, in particular, non-proliferation of state-of-the-art conventional weapons favors--

⁴³ Michael Mastanduno, "The United States Defiant: Export Controls in the Postwar Era," *Defense and Dependence in a Global Economy*, Raymond Vernon and Ethan B. Kapstein, eds. (Washington, DC: Congressional Quarterly, Inc., 1992).

- *Protection of the troops.* U.S. military forces should not face the demoralizing prospect of fighting an enemy armed with U.S.-manufactured weapons.
- *Tactical advantage.* Rogue states will become more aggressive, more anxious to settle old grudges with neighbors and possibility upset regional stability.
- *Technical advantage.* The United States will not have the advantage of superior weapons in certain categories; sensitive technology may be dispersed.

The rationale for restraint is compelling but so is the lure of trading absent an alternative to take its place. Restraint in arms transfers would seem convincing on its own merit. However, as noted in Chapter I, there are some benefits to such commerce. Economically, arms exports for any country mean lower acquisition costs, jobs in the national economy, open production lines and a potential for future revenue in training, up-grades and spare parts orders. Politically, arms transfers are a means of political alliance and "leverage" in times of international crises. Over time, there have been attempts, especially on the part of the superpowers, to establish multilateral conventional arms control treaties. However, as discussed in Chapter VIII, multilateral efforts have a way of engendering popular sentiment while accomplishing little, since many nations are reluctant to give up the benefits they accrue from trading. The last significant international talks concerning conventional weapons came at the end of the 1991 Gulf War at the instigation of the United States as Middle Eastern countries sought to arm or rearm themselves with modern weapons.

Restraints in Place

There are two types of restraints, mandatory legislative restraints and voluntary restraints. Two of the governmental stakeholders--Congress and the President--are the key organizational actors with respect to deciding how restrictive or lax U.S. policies will be. We noted in Chapter I that historically arms transfers as a tool of foreign policy were almost exclusively within the purview of the President until the post Vietnam era. Congress took on more oversight of arms deals by amending existing legislation that gave it a bigger role in order to check Executive power. Congress also controls exports through the military assistance figures appropriated through annual Foreign Aid authorizations and appropriations. The United States participates in international voluntary control regimes but those generally relate to nuclear proliferation. One conventional arms agreement that has been successful to date is the Missile Technology Control Regime (MTCR).

The Export Administration Act of 1979 (EAA)

The EAA of 1979, as amended, authorizes the President to control exports of U.S. goods and technology overseas, as necessary for national security and foreign policy. The administrative responsibility for export license review lies with the U.S. Department of

Commerce, the Bureau of Export Administration. Of particular concern for the Bureau is its evaluation of "dual-use" and "defense related items" for export licenses. (A "Defense related item" is defined as one that makes a "significant contribution" to a country's military capabilities.⁴⁴)

The EAA was never intended to be permanent legislation, but its life was extended by amendment for several three-year periods. It was extended during the last year of the Bush Administration to June 30, 1994 of the Clinton Administration by invoking the International Economic Emergency Powers Act (IEEPA) of 1977. The IEEPA provides the "President broad discretion to control international finance, imports, and exports. To activate this authority, the President must declare a national emergency as to an 'unusual and extraordinary threat, which has its source in whole or substantial part outside the United States, to the national security, foreign policy, or economy of the United States.'"⁴⁵ President Clinton has extended the EAA by enacting the IEEPA six times (renewable on a 6-month basis).

The Arms Export Control Act of 1976 (AECA)

The AECA of 1976 was enacted to "control the export of 'defense articles and...services', such as weapons, weapons components, technical data about weapons and other products and services which are 'inherently military.'"⁴⁶ (The AECA recognizes the need for international defense cooperation but at the same time mandates the President to exercise restraint and "seek to initiate multilateral discussions.") It also authorizes the legal existence of the Foreign Military Sales (FMS) program. The premise of the Foreign Military Sales (FMS) program, according to *The DISAM Journal*, was that

Responsible arms sales further national security and foreign policy objectives by strengthening bilateral defense relations, supporting coalition building, and enhancing interoperability between U.S. forces and militaries of friends and allies. National benefits derived from these sales include an improved balance of trade and sustainment of highly skilled jobs.⁴⁷

The AECA gave the Secretary of State administrative jurisdiction over export licenses and registration requirements for military exports. More importantly, the AECA mandates congressional involvement in the decision making process for arms exports. Under section 36 of

⁴⁴ David Silverberg, "Senate Likely to Extend Current Export Administration Act 1 Year," *Defense News* 5, no. 10 (5 March 1990): 13.

⁴⁵ Peter Swan, "A Road Map to Understanding Export Controls: National Security in a Changing Global Environment," *American Business Law Journal* 30 (February 1993): 629.

⁴⁶ The Arms Export Control Act of 1976, 22 U.S.C. §§2777-79 (1988, Supp. I 1989, & Supp. II 1990); 22 C.F.R. §120.1-.3 (1991).

⁴⁷ "United States Military Assistance," *The DISAM Journal* 19, no. 4 (Summer 1997): 45.

the Arms Export Control Act, the State Department must notify Congress of any sale at least 30 days before a license is approved or issued if the following apply:

- defense articles or services sold under a contract worth \$50 million or more
- 'major defense equipment' sold under a contract in the amount of \$14 million or more.
- Design and construction services valued at \$200 million or more.

(Confusion in interpretation of terms often arises because the AECA regulates "significant military equipment" while the EAA regulates licensing for "defense-related equipment.")

In the 30-day period, Congress may enact a joint resolution blocking the issuance of the license. This has yet to happen because feelers are usually sent out first to see if there is any objection in Congress to the sale. If it appears that opposition will be too strong, for whatever reason, the sale is tabled or deferred pending further negotiations. While Congress has never vetoed a sale, it has "by expressing strong opposition to prospective arms sales, during consultations with the executive branch--affected the timing and composition of some arms sales, and may have dissuaded the President from formally proposing certain arms sales."⁴⁸ A Congressional veto can be overruled by a presidential waiver on security grounds. (Of course, the U.S. Department of Defense is deferred to in its opinion of what constitutes "significant military equipment" with respect to export.) The AECA also requires that arms produced under a U.S. production license in countries other than the United States must be reported to Congress if they meet these criteria regardless of whether the United States or the country where manufacture takes place initiates the export.

Criticisms of trade practices under the EAA and AECA

Neither the EAA nor the AECA escape criticism. Some in Congress, government and industry feel that the AECA and particularly the EAA are out-dated and do not reflect Post-Cold War realities. There have been several attempts to introduce new legislation but no new efforts have as yet been able to pass because of the inability of the Executive and Congress to compromise on conflicting trade and control issues. Thomas McNamara, Assistant Secretary of State for Political Military Affairs, presented State Department objections in 1997 before the House International Relations, International Economic Policy and Trade Subcommittee that the then-most recent proposed legislation, the Omnibus Export Administration Act of 1996 that passed the House but failed in the Senate. McNamara said that it was objectionable because it "included insufficient executive branch flexibility to regulate exports to terror-sponsoring nations, onerous provisions for judicial review and measures that limit the president's constitutional authority to conduct diplomatic relations."⁴⁹

⁴⁸ Congressional Research Service (CRS), Report 92-914, "Arms Sales: Congressional Review Process," by Richard F. Grimmett (7 December 1992): 6.

⁴⁹ Barbara Opall, "Industry, Government Gird for Third Year without Export Law," *Defense News* (9 June 1997): 38.

Legislation Linked to Humanitarian Concerns

There are two "movements" in Congress to control arms shipments. The first involves case-by-case review of proposed sales based on the human rights violations record of the recipient nations. In the Post-Cold War era Congress has become more reluctant to sell arms to repressive and non-democratic regimes. Legislation has sometimes been introduced as amendments to foreign aid bills to block sales to certain buyers. For example, delivery of 28 F-16s to Pakistan, considered to be a violator of human rights and a developer of nuclear capabilities, was held up by the 1985 Pressler Amendment, a nonproliferation law, that took effect in 1990. President Clinton sponsored an attempt to sell nine of the undelivered F-16s to Indonesia. However, many human rights activists began to put pressure on Congress to deny the sale so Indonesia withdrew from the proposed deal.⁵⁰ How does Congress know what countries violate human rights? The State Department publishes "Country Reports on Human Rights Practices" each year now required by sections 116(d) and 502(b) of the Foreign Assistance Act of 1961, amended. (Some of the countries who receive the most U.S. Foreign Military Assistance head the list.)

The second movement is the sponsorship of a Code of Conduct that proposes to be more encompassing than current statutes. The idea of a Code of Conduct for arms transfers originated in Europe in 1990 among the NATO allies, but the drafts became delayed in negotiations over wording. Eventually, U.S. Representative Cynthia McKinney, D-GA, tried to have the wording for a Code that would ban arms sales to non-democracies inserted in the FY 1998 Foreign Aid Authorization. The measure ultimately failed but supporters were buoyed by the eventual close vote and vowed to try again in the next year's budget cycle. The Code of Conduct became a contentious issue for the Clinton Administration and is discussed further in Chapter VIII. The concept of a Code of Conduct also has renewed international support led by the United Kingdom's Prime Minister Tony Blair. (However, the exposure of supposedly U.K.-sanctioned arms to Sierra Leone rebels in 1997 rather tarnished Blair's luster as an advocate of "restraint.")

Congressional Budget Review Process

Congress can exercise "restraint" in funding weapons acquisition programs because if systems are not funded, they will not be built and hence there can be no exports. Funding for acquisition programs is, of course, inextricably tied to the U.S. Department of Defense's strategic military plans that assess the country's present and future defense needs. Weapons systems that support present and future defense needs are enumerated and justified in the Department of Defense's annual budget submission to Congress. After debate, funds are authorized for the acquisition of weapons systems. Later funds will be appropriated for procurement purposes. The procurement or acquisition process is not restricted to new weapons systems but to any system in any stage of its product life-cycle if it is deemed to meet current and future defense

⁵⁰ Keith Richburg, "Indonesia Drops Plans to Buy U.S. F-16s," *The Washington Post*, 7 June 1997, sec. A, p. 1.

needs. If systems are near the end of their project acquisition cycles and their technologies are not restricted, then they could become eligible for export with proper authorization from the Department of Defense; products at the development or prototype stage have historically not been eligible for export. This was almost always the case during the Cold War. The F-22 and the Joint Strike Fighter marketing programs may be indicating new directions for the Post-Cold War world.

Congress has also exercised its "restraint" in arms transfers through other direct fiscal controls. It sets the dollar amounts available in the U.S. Foreign Military Financing (FMF) programs (part of the Foreign Military Sales program authorized under the AECA) and reviews the list of countries to which these funds can be applied. During the Post-Cold War era, FMF loan funds have averaged approximately \$7.5 billion *in toto* annually and are primarily earmarked for Middle Eastern nations. The FMF program is included in the U.S. Department of State's International Relations annual budget. Earmarked funds and low budget figures do not give the Department much latitude in financial assistance for arms transfers as diplomatic bargaining tools.⁵¹ Another example of Congressional "restraint" has been provisions placed in Department of Defense Authorization bills that required defense companies and trade groups to pay for the cost of transporting weapons and other hardware to trade shows, and for the incremental costs, including food and lodging, of military personnel accompanying that equipment.

International Control Regimes

Many countries are reluctant to participate in control regimes as this would drive up the cost of domestic production because economies of scale can only be achieved through export initiatives. As mentioned above, it is difficult to secure political support for multilateral arms control regimes especially when important revenues from sales are involved. One should keep in mind that relative to the size of their countries and their domestic defense acquisitions, many European countries have sophisticated defense industrial bases. In some categories they are world leaders thus making it more difficult for them to back off from international sales. ACDA's Table V summarizes the number of major weapons delivered to regions and groups by supplier and weapon type. (Table V is lengthy and, therefore, is attached as Appendix B.) Two control regimes associated with conventional arms transfers are discussed below.

CoCom and the Wassenaar Arrangement

The Coordinating Committee for Multilateral Export Controls ("CoCom") was established in 1949 as a forum for Western democracies to control the flow of conventional weaponry to the Soviet Union and former Warsaw Pact members. CoCom was composed of the 16 members of NATO minus Iceland, plus Japan and Australia and was a voluntary association that worked on a consensus basis. Its members could not be compelled to take any actions, and it

⁵¹ See Barbara Opall, "U.S. Loses Tools to Craft Diplomacy," *Defense News* 9, no. 49 (12-18 December 1994): 1.

had no means of enforcing decisions. CoCom remained in relative obscurity until 1981 when the Reagan Administration decided to make export control restrictions a higher priority and used it as the means for doing so among the Western allies.⁵²

During and after the collapse of the former Soviet Union, CoCom members were uncertain about the necessity for trade restrictions and how to respond to changes in the Soviet Union and Eastern Europe. The United States feared that since CoCom membership was not buttressed by treaty obligations, too hard a push for tight controls might force members to leave. In 1988, CoCom members agreed that greater restrictions be placed on fewer, but more important technologies, such as computer-aided design or jet engine technologies. The Bush Administration's position was that machine tools, telecommunications and computer technology at a level of sophistication equivalent to that released to the People's Republic of China be released to Eastern Europe.⁵³ Then in 1991, CoCom agreed to liberalize exports of many categories of high-technology items by mid-1992 to Communist countries. The United States, among other nations, was later signatory to a new "core" export list that reduced the old one 50 percent in items of military-significant technology. It also lifted most controls on exports to Poland, Hungary and Czechoslovakia. Controls continued for several categories of items, including high-speed computers, advanced telecommunications equipment and night vision devices.⁵⁴

However, the CoCom Agreement was due to expire in March 1994, and there was disagreement about what would take its place. The State Department had promised members of Congress and arms control advocates that a CoCom successor regime would be established by the end of that year with a global mandate to restrict arms and sensitive dual-use technology to so-called rogue states. The new "successor" regime, later designated the Wassenaar Arrangement, was intended to fill a gap in the existing control regimes (Nuclear Suppliers Group, MTCR and the Australia Group) by covering conventional arms and dual-use technologies. Britain and France insisted that Russia become a founding member of the new regime, but the United States insisted on Russia abandoning arms sales to Iran as a precondition for membership. The resolution of the question of Russia's sales proved thorny as Iran was a most lucrative arms customer. After much negotiation, Russia agreed to continue with transfers already "on the books" but would not seek additional Iranian sales contracts. The degree of Russia's compliance is debated.

⁵² See, for example, Sumner Benson, in "The Security Perspective on Export Control Policy in the 1990s," lead article in Gary K. Bertsch, ed., *Export Controls in Transition: Perspectives, Problems, and Prospects* (Durham and London: Duke University Press, 1992) and "United States Policy on Strategic Trade with the Soviet Bloc," in Angela Stent, ed., *Economic Relations with the Soviet Union: American and West German Perspectives* (Boulder and London: Westview Press, 1985).

⁵³ See David Silverberg, "White House Export Control Initiative Meets Mixed Reviews," *Defense News* 5, no. 19 (7 May 1990): 6.

⁵⁴ See David Silverberg, "Soviet Changes Decrease Importance of Commerce 'Core' List, Experts Say," *Defense News* 6 (2 September 1991): 14.

The Wassenaar Arrangement (named after the town in the Netherlands where the first draft agreement was drawn up) became effective July 12, 1996. Thirty countries signed the agreement which covers conventional weapons transfers and “dual use” items. The ratification was held up once again over a dispute about third party arms sales notification. The U.S. wanted all signatories to have prior notification of pending sales. However, many signatories felt that prior notification could allow for potential price undercutting by competitors. On the matter of a stipulation that notification be made soon after issuance of a license if a country wanted to sell an item whose sale had been rejected by another member country, the Russians again disagreed. They remained adamant that they would not provide such notification until after the transfer had taken place.⁵⁵ The following provisions eventually were adopted:

- All decisions are left to individual governments
- Compliance is voluntary, with no means of enforcing standards
- All arms transfers by member nations to nations outside the group will be disclosed, but there is no provision for advance disclosure.
- No exports to Iran, Iraq, Libya and North Korea; there would be no presumption of denial to any other countries.⁵⁶

Dr. Lynn E. Davis, then Undersecretary of State for Arms Control and International Security Affairs on Arms Control, expressed the Administration's pleasure in the Wassenaar Arrangement but noted that it fell short in two areas: (1) resistance in comprehensive information sharing and (2) no support for focusing the information sharing on regions of instability.⁵⁷ The latter proposal had been sponsored by the United States but received little support in general. The rationale for the disagreement was that highlighting certain areas or countries could prove embarrassing to trading partners. Most recently, in December 1997, Russia and France blocked proposals requiring broader multilateral reporting about arms exports to pariah states and regions of instability. According to a U.S. State Department spokesman, "They [Russia and France] believe their overall position is not something that will benefit from enhanced transparency."⁵⁸ In the final analysis, however, general sentiment was and still is that Wassenaar is a weak agreement; it lacks the ability to stop sales and Russia is not particularly

⁵⁵ Natalie J. Goldring, "Wassenaar Arrangement in Limbo," *Basic Reports* 52 (The British American Security Information Council) (13 May 1996): 2.

⁵⁶ "The Wassenaar Arrangement and Non-Proliferation," *Arms Control Reporter* 15, no. 12 (January 1996): 250 A.2.

⁵⁷ See Lynn E. Davis, "The Wassenaar Arrangement," *The DISAM Journal* 18, no. 3 (Spring 1996): 76-80.

⁵⁸ USIA, "U.S. unhappy that Russia, France block arms export consensus," (22 December 1997); available from <http://www.usia.gov/current/news/latest/97122201.clt.html?/products/washfile/newsitem.shtml>; Internet.

committed, continuing to sell to rogue regimes.⁵⁹ The State Department spokesman also stated that, "The single greatest benefit of the Wassenaar Arrangement is the commitments members have undertaken regarding these four pariah states [Iran, Iraq, North Korea and Libya]."⁶⁰

Reporting Initiatives

Since the end of the Cold War, there has been an international movement, with the urging of arms control groups, toward more "transparent" reporting of transfers. These efforts have yielded some success, although perhaps not as much as some organizations would desire. Some of the reporting requirements are as follows:

United Nations Register

One recent initiative for increasing transparency in the international reporting of arms transfers was the new *United Nations Arms Register of Conventional Arms*, although the publication is far from definitive. The *Register* was proposed by Britain to the European Economic Community in 1991 and adopted by United Nations members shortly thereafter. The first publication year was scheduled for 1993. After two years (1993-1994), "it appeared that the reporting techniques were flawed and data incomplete."⁶¹ Export and import figures do not cross check, and the report lacks appropriate categories and standard counting processes. For example, "during the first reporting year 1993, Germany and the United States were the largest exporters,"⁶² a fact that does not coincide with ACDA's annually adjusted data. In 1994, the Registry showed 87 respondents out of a possible 186; more than 120 had responded in 1993. Seven of the top 25 importers (Egypt, Saudi Arabia, Kuwait and Iran) refused to report purchases. In 1995, 85 countries responded; the top exporters were U.S., Germany, Czech Republic, U.K. and the Ukraine. Russia did not report on time, nor did Poland (second in tank exports for 1995 with sales of 70 T-72 tanks to Iran). Absent from the list were Egypt, Iran,

⁵⁹ See Jeff Erlich, "Future of Multinational Export Control Remains in Question," *Defense News* 11, no. 29 (22-28 July 1996): 10.

⁶⁰ USIA, "U.S. unhappy that Russia, France block arms export consensus," (22 December 1997).

⁶¹ Theresa, Hitchens, "EC Spurns Tight Arms Control," *Defense News* 9, no. 15 (15 April 1994): 1.

⁶² Brooks Tigner, "Panel Endorses Flawed Arms Register," *Defense News* 9, no. 42 (24-30 October 1994): 4.

Kuwait, Pakistan, Saudi Arabia and Thailand.⁶³ ACDA officials, however, find *The UN Register* a useful document for comparative purposes.⁶⁴

U.S. "655 Report"

The United States Congress undertook a new self-"transparency" in arms transfers reporting as of September 1997. The U.S. State Department's Bureau of Politico-Military Affairs and the U.S. Department of Defense provide Congress with annual U.S. arms transfers figures for FMS deliveries, by country and weapons system, for the preceding year in its annual "655 Report"--nicknamed after the section of law that originally mandated it.⁶⁵ The Report has been repealed by the Reagan Administration in 1981 but reinstated in 1997.⁶⁶ In the report for FY 1996, nearly \$12.7 billion of weapons were exported in toto through the Foreign Military Sales program ("FMS") in FY 1996. The report also identified the \$2.7 billion of weapons systems which the State Department authorized manufacturers to export directly to individual militaries in 1996. A separate section itemizes the Excess Defense Articles ("EDA" or "surplus" weapons) that the Pentagon authorized for shipment and those the White House authorized be drawn down from Defense Department stocks to meet various contingencies. According to the report, the Executive Branch authorized over \$870 million of grant weapons transfers and training in fiscal year 1996. (This tally includes only surplus Pentagon equipment given away and not financial aid given to procure new American weaponry.) Of this total, \$525.8 million in weapons were distributed through EDA and \$307 million through emergency drawdowns. Also, \$39 million in training was provided through International Military Education and Training ("IMET") funds.⁶⁷

Other Reports

There are several organizations that produce annual reports on world-wide arms transfers that are also efforts toward greater "transparency." The annual Stockholm International Peace

⁶³ Figures from Brooks Tigner, "U.N. Arms Registry Loses Clout," *Defense News* 10, no. 48 (4-10 December 1995): 28 and Barbara Opall, "Major Arms Buyers Shun Voluntary Register," *Defense News* 11, no. 41 (14-20 October 1996): 22.

⁶⁴ Sarah Mullin and Daniel Gallick, interview by author, Washington, DC, 19 February 1999.

⁶⁵ Foreign Assistance Act of 1961 (22 U.S.C. 2415, sec. 655).

⁶⁶ See H.R. 3121, 104th Congress, or P.L. 104-164.

⁶⁷ Figures from a Press Release, Federation of American Scientists Arms Sales Monitoring Project (Washington DC, 24 September 1997); <http://www.fas.org/asmp>; Internet. Also, U.S. Department of State and U.S. Department of Defense, "Foreign Military Assistance Act Report to Congress, FY 1996," September 1997.

Research Institute's *SIPRI Yearbook*, the U.S. Congressional Research Service's annual report *Conventional Arms Transfers to Developing Nations* and the U.S. Arms Control and Disarmament Agency's annual *World Military Expenditures and Arms Transfers* are research or investigative reports. Another valuable research source that lists the national military strength of countries worldwide is the International Institute for Strategic Studies' (London) annual *The Military Balance*. *The United Nations Register* is also an annual report premised on voluntary "disclosure" by the member nations. In effect, they all depend on national disclosure.

Issues in Technology Transfer

Technology transfer is a national security issue and with respect to arms transfers involves conventional weapons themselves and "dual use" products. Withholding the transfer of technology during the Cold War was less problematic than in the Post-Cold War era because national security issues took precedence over any other considerations. After the fall of the Warsaw Pact, the Western Bloc had no definable enemy and certain high technology items that were once considered "defense related" and still are--to an extent--such as encryption software and global positioning satellites, became the subject of debate as their exports were seen as threats to national security. At the same time, corporations complained that foreign competitors with similar products were capturing the world market.⁶⁸ However, in the Post-Cold War era, some debate has centered around the interpretation of what constitutes national security with regard to arms transfers. Then-Deputy Secretary of Defense William Perry, in papers submitted for his confirmation hearing as secretary, stated "the fundamental purpose for U.S. arms sales overseas is to meet national security objectives, including support for allied governments, providing interoperability among our defense partners and supporting the U.S. defense and technology industrial base."⁶⁹

During Perry's confirmation process, Policy Undersecretary Frank Wisner echoed the same sentiment but added "while economic considerations are not a primary determinant of sales decisions, we must additionally consider the impact that any transfer, especially of technology would have upon the U.S. industrial base and U.S. economy as a whole."⁷⁰ According to Wisner, because of overall declines in U.S. defense spending, "sales cannot be considered in isolation of their industrial base implications. In this connection, we must bear in mind the possibility that other nations may be willing to provide capabilities equivalent to those a U.S. sale would provide but without restrictions we might impose."⁷¹ Both the Perry and Wisner statements illustrate the intertwining of military and economic aspects of national security and

⁶⁸ See, for example, Vipin Gupta, "New Satellite Images for Sale," *International Security* 20, no. 1 (Summer 1995): 94-125; and Irving Lachow, "The GPS Dilemma, Balancing Military Risks," *International Security* 20, no. 1 (Summer 1995): 126-148.

⁶⁹ Tony Capaccio, *Defense Week* 14, no. 35 (Tuesday, 7 September 1993): 1.

⁷⁰ *Ibid.* See also Benson (1994).

⁷¹ *Ibid.*

hint at the complexity of the issue. What further muddies the waters is that "dual use" technology is frequently referred to without clear distinction. While there are serious "dual-use" technology transfer issues, they are not necessarily the same issues associated with high-tech conventional arms technology transfer. Thus, the stage is set for the debate on the merits of what are acceptable levels of technology transfer for conventional arms in the Post Cold War environment for the United States.

Re-exports of high technology contribute to the national security issue. Particularly troublesome--for different reasons--to both the United States and its trading partners are third-country sales. The United States prohibits the re-transfer of its technology shared through joint-ventures or offsets without its approval in order to maintain some control over the technology. For example, about 90 percent of South Korea's defense manufacturing is under license to U.S. companies. South Korean defense industry officials complain that the third-country transfer approval process delays restrict their ability to export defense products while raising production costs and reducing efficiency.⁷² The use of Arrow Missile technology imported to Israel has also been the subject of intense negotiation with regard to third-country sales. At issue is the potential proliferation of any new technology developed by Israel based on existing U.S. Arrow missile technology.⁷³ The cases of South Korea and Israel have the potential to "snowball" advanced technology out of the United States' control.

Exporting high technology weapons may come back to haunt the United States in a few years but too much restraint may mean loss of economic opportunities. Geoffrey Kemp and Robert Harkavy make the point, as cited in an article in *Aviation Week and Space Technology*, that just transferring weapons may have serious political and military consequences in the future. Kemp and Harkavy forecast that recent U.S. technology transfers, especially to the Middle East, may come back to haunt the United States particularly if Washington's defense budget continues to slide. They caution,

"A key question...is whether the current vast American superiority in high-tech weaponry that has generated the revolution in military affairs can be sustained in the face of the inevitable spread of such technologies to the regional players themselves. Ten years from now, if the regional powers are equipped with the sorts of conventional weapons available today, a Middle East conflict would be devastating."⁷⁴

The United States historically has been more reluctant than some of her NATO allies and Russia to release state-of-the-art technology. The French maintain that "Americans may easily

⁷² See Terrence Kiernan, "South Korea Expands Sales, Import Markets," *Defense News* 7, no. 33 (17-23 August 1992): 8.

⁷³ See David Silverberg, "U.S. to Control Arrow Missile Technologies within Israel," *Defense News* 6, no. 24 (17 June 1991): 4.

⁷⁴ Paul Mann, "Strategic tensions fuel weapons trade," *Aviation Week and Space Technology* (22 September 1997): 50.

supply aircraft, but they supply the related missiles, weapons and countermeasures with much greater reticence. On the other hand, when the French government decides to sell a fighter, we supply the aircraft, missiles, weapons and countermeasures as a package,"⁷⁵--all of which would appear to make a French buy more attractive to export customers. The French did take this position in a 1997 \$6 billion competition to supply fighters to United Arab Emirates after the United States voiced its reluctance to release key equipment for F-16s. (The French Rafale did lose the first round initially but when the United States appeared reluctant to transfer the level of technology desired by the UAE, the deal became less certain. As of early 1999, the UAE fighter deal was still not finalized.)

Summary

Governmental stakeholders in the form of Congress, the President and, through his delegation of administrative responsibility, the Departments of Commerce and State control arms exports and transfers. There are unilateral U.S. and international controls. Unilateral U.S. controls are stringent and violation is a federal offense. While the United States has strict standards of export regulations, international control regimes are few. (Severe offenses, however, may warrant sanctions, such as an embargoes.) Efforts toward transparency are increasing while technology transfer continues to be a concern of the governmental stakeholders.

The governmental and economic stakeholders that trade in arms must adhere to complex regulations and restrictions but have their rationales for engaging in this commerce. So far, we have centered the discussion on the United States as a seller, but the United States is not the only trader. She participates in an international system that involves many buyers and sellers with diverse motivations for their actions. Chapter III discusses contemporary arms trade theory and the differences in political philosophy that underlie much of the literature.

⁷⁵ Giovanni de Briganti and Barbara Opall, "European Firms Predict More Fighter Exports," *Defense News* 6, no. 24 (17 June 1991): 18.

CHAPTER III

ARMS TRADING IN THEORY AND PRACTICE

Introduction

In the discussion that follows, theory is presented that explores why and how the United States and other nations sell conventional arms why some other nations buy them, and why there are many stakeholder groups interested in this commerce. The existing assumptions, theories and its hypotheses can provide, in turn, a foundation for testing new theories and examining data. Theoretical explorations are rarely grounded in neutrality but are influenced by political, moral, philosophical, intellectual and scientific beliefs about how the object or system under examination ought to work. The self-selection of existing theories to test new hypotheses implies some of alignment of beliefs with the former. The following discussion is just that—a self-selection of theories that inform conventional arms trading, organizational responses to the policy jolts and policy transformation.

The Krause Categories

Keith Krause in his 1992 publication, *Arms and the State: Patterns of Military Production and Trade*, writes that historically the literature on arms trading can be categorized by several themes. The first is the “conspiratorial exposé” with titles such as Helmuth Engelbrecht’s *Merchants of Death: A Study of the International Armaments Industry* (1934) and Seldes’ *Iron, Blood and Profits: An Exposure of the World-Wide Munitions Racket* (1934). The second theme, according to Krause, was the emphasis on weapons as tools of foreign policy, prevalent in the late 1950s and early 1960s. This weapons-as-tools-of-foreign-policy theme was triggered by the escalation of the Cold War, fears of a nuclear arms build up and the race to carve up the globe by the superpowers into partnerships and alliances. Descriptive works appeared by such experts as Harold Hovey (1966), Lewis Frank (1969), Geoffrey Kemp (1970-71) and John Stanley and Maurice Pearton (1972). Two annual publications originating in this era were the Stockholm International Peace Research Institute’s (SIPRI) *World Armaments and Disarmament Yearbook* and the MIT Arms Control Project’s *Arms Transfers to Less Developed Countries*.

The arms transfer literature, from 1973 to the present (Krause's "present" is 1992), branches out into three general groupings. The first can be characterized as American Foreign Policy literature (emphasis on agency and actions of decision makers). This branch is represented by Paul Hammond, David Louscher, Anthony Cordesman, Anne Cahn, Andrew Pierre and Michael Klare. The second group is composed of writers in the European political economy tradition who have shown more inclination to incorporate the economic, political and military forces driving arms suppliers and recipients. Among these writers are Wolfgang Mallmann, Herbert Wulf, Michael Brzoska and Thomas Ohlson. (Along with the later, there is

also an emerging group of U.S. political economists who explore arms issues [Mastanduno (1992), Ross et al. (1991)]. Krause's third post-1973 general group is the "iconoclasts" who specialize in one particular region (David Pollock), economics (James Katz) and analysis of foreign suppliers (Roger Pajak and Aaron Klieman). The scholarship of this latter group is not highly regarded by Krause as he finds the writings neither systematic nor integrated.⁷⁶

An Update on the Krause Categories

Krause's analysis of arms trade literature is a good place to begin a literature review because he is a respected scholar in the field. However, his 1992 analysis requires some updating. His first general category--the exposé--appears to have been co-opted by Post Cold War arms control advocates whose publications range from the scholarly to the "iconoclastic." Earlier exposé books included chapters on arms traders as personalities and legends, such as the late Samuel Cummings of Interarms, while later works focus on corporate entities as sellers. Recent contributions to this field include selections from William D. Hartung's *And Weapons for All* (1994), William Greider's *Fortress America* (1998) and W. Keller's *Arm in Arm* (1995). Excellent scholarship on the subject of control regimes includes Anthony (1994), Klare (1992 and 1994), Kemp (1994), and Gupta (1993). The writers who advocate the loosening of controls (Johnson, 1994/95; Swan, 1993) generally address "dual-use" products. The "iconoclastic" writings criticize any and all facets of arms transfers with little regard for scholarship. The scholarly literature of arms control issues and export control issues, such as export legislation and control regimes, can be accommodated under the heading of "Foreign Policy" which is discussed and illustrated below. The second general grouping--weapons as tools of foreign policy--does not contain much contemporary literature unless it is retrospective in nature. However, in the Post-Cold War era, the *SIPRI Yearbook* still remains a respected and valued reference source.

Krause's third grouping, which he describes as in turn branching off in three directions, is of greater interest to this research effort. Much of the contemporary, Post-Cold War literature in arms transfers is contained in the first branch, American Foreign Policy, under which we now place arms control and control issues and in the second, the political, economic and military tradition. Included in this second branch is a subcategory of scholars who examine technology transfer issues with respect to conventional arms transfers. The third branch, the "iconoclasts" is not a label that this researcher finds particularly useful in an academic sense. Much of the "economics" and "foreign supplier" literature has already been absorbed into the political-military-economic literature (the first and second branches). For example, Amit Gupta's "Third World Militaries: New Suppliers, Deadlier Weapons," in *Orbis* (1993) could hardly be considered "iconoclastic." It appears that the "iconoclasts" of the mid- to late 1990's have become the more radical arms control advocates who contribute to their cause but rarely to scholarship. Thus, for our purposes, there are now two contemporary categories of arms trade literature:

⁷⁶ Keith Krause, *Arms and the State: Patterns of Military Production and Trade* (New York: Cambridge University Press, 1992), 8.

1. Foreign Policy
 - (a) arms control
 - (b) export control aspects
 - (c) "iconoclasts"
2. Political, economic and military tradition
 - (a) technology transfer issues

Thus we can map out contemporary arms transfer literature in the table below. Note that the "iconoclasts" have been dropped from the table as of marginal relevance to the present study.

Table III.1

Contemporary Arms Transfer Literature

Foreign Policy		Political, economic and military tradition	
Arms Control	Control aspects		Technology transfer issues
		Mearsheimer (1990)	
		Krause (1991)	
			Fieleke (1991)
			Krause (1992)
	Klare (1992)		
	Swan (1993)		
	Gupta (1993)		
		Harkavy (1994)	
Anthony (1994)			
		Brzoska and Pearson (1994)	
Hartung (1994)			
		Pearson (1994)	
		Kapstein (1994)	
			Krause (1994)
			Mussington (a) (1994)
			Mussington (b) (1994)
		Neuman (1994)	
			Johnson (1994)
		Kemp (1994)	
		Sislin (1994)	
		Cooper (1994)	
			Benson (1994)
			Spear (1994/95)
			Pierre and Conway Lanz (1994/95)
			Bitzinger (1994/95)
Klare (1994/95)			
	Johnson (1994/95)		
	Lewis (1994/95)		
	Neumann (1995)		
-----			Eisenhour (1995)
			Roos (1995)
			Leitner (1995)
			Levine and Smith (1997)

Two reminders

Two reminders about arms transfer literature are useful. First, there are different "types" of military "products" but they are generally lumped together under the heading of "arms transfers" which is at best confusing and at worst misleading. There are three "types" of military products: (1) conventional arms, which consists of a diverse range of products from state-of-the-art high technology jet planes to rifles but excludes weapons of mass destruction; (2) "dual-use" products which have both civilian and military applications and (3) high tech civilian product spin-offs such as certain encryption software and sophisticated electronic applications. Some authors do address all three types of products in one book or article while others may address only conventional arms or "dual-use" products. What is important to realize is that the three different product types travel along diverse legislative and regulatory paths and different sets of stakeholders have interests in each one of the three areas or some may overlap depending on the product(s). Since this research effort focuses on conventional arms exports, the primary literature focus will be in this area.

Second, a standard literature review with respect to the United States' behavior as an exporter (supplier), producer and policy maker concerning international arms trading and transfers in the Post Cold War era does not yield a wealth of material. There may be some logical reasons for this. One is that it may be difficult to define trade patterns that characterize the Post Cold War era that are as distinctive as those in the Cold War years because political alliances for arms are no longer necessary. Also, in the absence of an enemy, conventional arms transfers no longer capture the popular imagination as they once did as an activity in which the United States ought to be engaged.

The Philosophic Divide

The two dominant branches or categories of arms transfer literature in the 1990's, which were derived from Krause above, are not mutually exclusive. For example, Pearson (*The Global Spread of Arms, Political Economy of International Security*, 1994) addresses technology transfer issues, foreign policy and political economy from an arms control perspective. The debate in the literature is among the scholars who have basic philosophic differences about how the world works. Adherents to any one of the diverse philosophical concepts in international relations--realism, idealism, dependency, balance of power, deterrence, internationalism--approach conventional arms transfers from different perspectives. Scholars whose works are grounded in the philosophy of realism explore their theories through a lens that in principal supports the right of states to trade in arms. Who are the realists?

The Realists

The "realist tradition" in international relations holds that the world is a place of "relentless security competition, with the possibility of war always in the background."⁷⁷ While states may appear to cooperate with each other, that cooperation is fragile because it is constrained by the dominating forces of security competition which no amount of cooperation can eliminate. Realism makes five assumptions about how the world works:

1. The international system tends toward the anarchic because individual political states are the ultimate ruling authority. There is no suprapower or higher ruling body. Anarchy in realism has nothing to do with conflict but is an ordering principle.
2. States inherently possess some form of offensive military capability that they may use on each other.
3. One state can never be one hundred percent certain of the intentions of another state. One state cannot be sure that another state will not couple offensive intentions with its offensive capability.
4. Since states want to maintain their sovereignty, their most basic instinct is survival.
5. States think strategically and behave rationally but may make miscalculations from time to time because they cannot operate with perfect knowledge as potential adversaries will tend to misrepresent themselves.

None of the above assumptions implies that states will behave offensively but their primary aim is to survive--which is defensive behavior. All five assumptions taken together create an atmosphere of aggression from which three patterns of behavior emerge:

- First, states in the international system fear each other; regard each other with suspicion; have little trust amongst themselves and have no central authority to turn to for help when threatened unless a third party has self-serving interests in intervening.
- Second, because each state sees itself alone and vulnerable, it prepares itself for its own survival. States may form alliances but they are transitory because a state will always act in its own self-interest.
- Third, states in the international system seek to maximize their relative power status over other states because the greater the military advantage, the more power one state will have over other states.

The two most influential realists in "International Relations" are Hans Morgenthau [Hans J. Morgenthau, *Politics Among Nations: The Struggle for Power and Peace*, 5th ed. (New York: Knopf, 1973)] and Kenneth Waltz [*Theory of International Politics* (Reading, MA: Addison-Wesley, 1979)]. According to Mearsheimer, "Morgenthau maintains that states have a will to power, while Waltz begins his theory with the assumption that states merely want to survive and are therefore driven to maximize security."⁷⁸ Realist scholars in the field of conventional arms

⁷⁷ John Mearsheimer, "The False Promise of International Institutions," *International Security* 19, no. 31 (Winter 1994/95): 9.

⁷⁸ *Ibid.*, 9.

transfers are not “merchants of death.” What appears to be a pro acquisition stance in the belief that the positive benefits derived from countries arming themselves outweigh the negative effects of proliferation is contained within the boundaries of control or control regimes. Realists hold to the belief that nations will export and buy because of the aggressive nature of the states. It is more productive to exercise control within the existing order than to change the nature of the world. An exploration of arms transfers in the Post-Cold War environment through the realist perspective is interesting because it supports the U.S. Cold War political perspective in spite of increasing criticism put forth by arms control advocates for the non-proliferation of conventional weapons and the decline in international demand due to national budget constraints in the emerging democracies and other developing and lesser developed countries.

The theory of international arms trading in this research effort is based on Robert E. Harkavy's *The Arms Trade and International Systems* (Cambridge, MA: Ballinger Publishing Co., 1975). Harkavy, a realist, addresses a lack of emphasis in the scholarly literature of international relations that might serve to relate the patterns of arms flows to some of the other traditional concerns of the field, such as alliance patterns, the extent and rigidity of bloc polarization, the ideological content of international rivalries, the distribution of power among nations during certain periods and the mood during given eras on the totality of conflict. Harkavy employs, as the title implies, a systems approach and conducts his project through an analysis and comparison of the variables comprising what he calls "the arms transfer system."

Harkavy has developed four important "aspects" of international arms trading. These “aspects” allow him to compare the international systems of arms trading across two eras, between World Wars I and II ("Interwar") and after World War II ("Postwar"--Harkavy wrote in 1975). These "aspects" are--

(1) Supplier markets and the behavior of suppliers

Questions regarding the structure of supplier markets:

- What countries hold the market shares [number of factors in the market, changes in market shares over time and “analysis of various products (weapon types) according to differing levels of oligopoly prevailing in different periods”]?⁷⁹
- What is the number of suppliers of given weapons types existing at any given time?

Questions regarding the behavior of supplier markets:

- What types of arms will suppliers transfer? How much?
- Do revisionist, expansionist, defensive or conservative nations or blocs behave differently from each other with regard to arms exports?

(2) Donor-recipient patterns and relationships

- Who supplies arms to whom, in what amounts, when and in what aggregate patterns?
 - Is there a propensity of various recipient nations to acquire their weapons over time either primarily from one supplier or from several?
 - Can multiple client relationships involve suppliers within alliance blocs, across blocs or in a mixture of bloc ties and relationships with neutrals?
- (3) Transfer modes
- Does the frequency and use of different transfer modes (sale, loans, military assistance, licensing, assembly, coproduction, codevelopment, copying) vary during different diplomatic eras?
- (4) Dependence and autarky
- Are a growing number of countries becoming more dependent on a smaller number of suppliers for arms?
 - Do unilateral and multilateral control efforts push dependent countries toward autarky?

Harkavy has also delineated some “characteristics” or “variables” in terms of their “differential” impact on the arms trade. They are as follows:

- (1) Polarity, bloc structure, alliance systems and distribution of power
- (2) Ideological locus of conflict
- (3) Totality in war and diplomacy
- (4) The relationship of dominant modes of economic intercourse
- (5) Governmental and private controls over arms shipments
- (6) The internationalization of the corporate arms business
- (7) The impact of technological change in weaponry on the arms trade

Harkavy builds his model on the first three aspects which he refers to as independent variables. He writes, “These factors, in combination, aggregate to a structural picture of the international system at any time or for any given period.”⁸⁰ Harkavy bases his work on assumptions about the different characteristics of arms trading during two diplomatic eras. The first three variables now constitute a “constellation of factors” or a “specific cluster of diplomatic system variables” that will affect the dependent variables, . i.e., Supplier markets and the behavior of suppliers, etc. (Harkavy drops independent variables four through seven above from his illustrated model, but not necessarily from further discussion.) After the dependent variables

⁷⁹ Robert Harkavy, *The Arms Trade and International Systems* (Cambridge, MA: Ballinger Publishing Company, 1975), 5.

⁸⁰ *Ibid.*, 9.

are compared and contrasted, with numerical data when available and applicable, across diplomatic eras, the author “speculates intelligently” how the two eras have been affected over time by changes in the systems’ characteristics. Harkavy is aware that his data is not sufficient for regression analysis. The reason for this is that some variables, such as “degrees of totality of conflict and diplomacy, degrees of governmental controls and the structure of international corporate business,” are highly subjective, but the “direction” impelled by certain dimensions of the arms trade can be analyzed.

Harkavy’s conclusion on controlling the arms transfers is not very optimistic. He notes that one way to mitigate a sense of pessimism may be provided by the notion of a “collective good.” However, when he goes on to aggregate the notion of collective good into constituent parts, suppliers and recipients, suppliers find there is no better way to maintain influence than by selling arms and recipients with the “ever present fear of the surrounding Hobbesian jungle” are only too happy to buy.⁸¹

Harkavy himself revisits his 1975 work in *The Annals* (September 1994, Volume 535) in “The changing international system and the arms trade.” In this article he adds a third international system: the emerging post-Cold War period and concludes that it is reminiscent of the interwar period.⁸² The realist position articulated by Harkavy in 1975 has been updated by several authors for the Post-Cold War period.

Harkavy frequently collaborates with Stephanie G. Neuman of Columbia University. They co-edited *The Annals* (September 1994) the theme of which was devoted exclusively to arms transfers. In her own piece, Neuman discusses the role played by arms transfers Lesser Developed Countries’ (LDCs) economic growth in “Arms transfers, military assistance and defense industries: socioeconomic burden or opportunity?” In the first half of her article, Neuman traces the history of guns vs. butter as public policy, culminating in the 1980’s with the political realists and dependency theorists at either ends of the spectrum. She writes, “by the late 1970s, the debate had expanded to include the entire military sector. Much of the literature now reflected the view that not only defense spending but also military regimes, arms transfers, military assistance, and defense industries were responsible for negative development in the Third World.”⁸³ Today the relationship between the military sector and economic development is seen as more complex than originally believed.

In the second half of her article, Neuman presents the positive and negative socioeconomic arguments for arms procurement in Lesser Developed Countries (LDCs). Her position is that the debate has been muted by the economic and political realities of the post-Cold War World and the sharp decline in demand for military procurement. Neuman also presents the

⁸¹ Ibid., 238.

⁸² Robert E. Harkavy, “The Changing International System and the Arms Trade,” *The Annals* 535 (September 1994): 11-28.

⁸³ Stephanie G. Neuman, “Arms Transfers, Military Assistance, and Defense Industries: Socioeconomic Burden or Opportunity?” *The Annals* 535 (September 1994): 95.

pro and con positions for defense industries located in LDCs. She believes that those countries that can retain their defense industries will continue to do so for national security reasons. Neuman concludes by citing failed research efforts, with a few notable exceptions, to tie economic growth either positively or negatively to military spending in LDCs. The author suggests that linking present and future arms transfers to human rights issues rather than economic growth may become the “new litmus test” for aid.⁸⁴

Keith Krause in *Arms and the State: Patterns of Military Production and Trade* (1992) presents in the realist tradition a theory of the motivational forces in the global transfer of arms and production systems. He writes that the arms transfer and production system is located at the “intersection” of three sets of concerns or “sets of forces for change,” i.e., the motivating forces. The motivating forces are the Pursuit of Wealth, factors that shape the production and distribution of goods within and between states; Pursuit of Power, attempts by states to change their position in the arms transfer and production system; and Victory in War, the catalyst for military innovation and production (including the social and political organization for warfare) that war provides. Krause’s central thesis is that the global arms transfer system is driven by how the three motivational forces interact from country to country after a period of revolutionary technological innovation.

The author notes that the above forces are from different disciplines and acknowledges that he runs “the risk of simplifying the analysis of complex historical processes to reductionist single-factor (or sets of factors) explanations. But it is justified since the goal is not to analyze changes in arms transfers and production to illuminate the evolution of the modern international system, but rather to situate the changing patterns of the arms trade against this broader historical backdrop.”⁸⁵ Krause, similar to Harkavy, uses a systems approach.

Non-Realist Literature

Other noted scholars who are not acknowledged realists also have valuable perspectives on supply side behavior. (Readers will recall that Harkavy's "Supplier Behavior" as one of his four aspects of arms trading.) Supplier Behavior is an important “aspect” because in many respects it drives the arms trading system. In a “realist” world, if there were no suppliers, then nations would produce their own arms. This would be impossible for some nations completely lacking the necessary factors of production. Thus supply side behavior is important for many buyers and for other sellers who compete for the buyers. Also, since this research effort concerns the United States as an exporter, it seems appropriate to widen the scope of inclusion to scholars who address supply side behavior.

⁸⁴ Ibid., 108.

⁸⁵ Keith Krause, *Arms and the State: Patterns of Military Production and Trade* (New York: Cambridge University Press, 1992) 12.

The Supply-Side in International Trade

Sumner Benson's thesis in "National security and economic considerations in U.S. conventional arms transfer policy" (*The Nonproliferation Review*/Fall 1994) is that in matters of national competitiveness, we [the United States] should not treat weapons as just another commodity. Benson writes that in the mid-1990s arms sales "are approached from the standpoint of trade balances, corporate sales, and employment as well as of national defense, arms control, and proliferation."⁸⁶ Military sales began to be promoted by the Executive Branch as a means of energizing productivity and the national technology base, as well as providing overall support to the military-industrial base. The Clinton Administration included defense sales in policies for international competitiveness and subsequent initiatives to help strengthen high-technology dual-use production. The greater economic weight given to arms transfers has also led to modifications in export control policies. Responsibility for export approval of defense-related goods and services has shifted from the Department of State to the Department of Commerce. Restrictions have eased on the sale abroad of communications and navigation equipment, weapons systems, and defense-related software. COCOM (since disbanded) members also reduced restrictions on many dual-use technologies. Benson cautions that the change in export controls may provide opportunities for resale of arms to "rogue" governments and that the idea of conventional arms transfers may mistakenly become melded with other international "commodity" transfers.

Benson concludes by stating that he does not believe the trend toward economic competitiveness is irreversible. He states that DOD officials have come to realize that the export market is just too small to carry the burden of downsizing the defense industry. At the same time, members of the Clinton Administration began to refocus on the security implications of defense exports. Benson cautions that advocates of economic competitiveness have yet to reach a consensus with the growing ranks of government officials who now see that arms exports are not just more commodities. He states that we need to accept certain limits on defense-related exports. This course would also mean enlisting Russia's cooperation with the West. The solution the author proposes is a conventional arms control regime, similar to nuclear proliferation control regimes which have achieved some success in fulfilling their mandates.

Frederic Pearson views arms transfers as a strategic supply-side problem caused by social, political and moral dilemmas in *The Global Spread of Arms, Political Economy of International Security* (1994) although the cessation of the Cold War has not lessened the desire of recipient countries to procure arms. Suppliers come in two types: strategic and commercial. It is the strategic suppliers who are faced with social, political and moral dilemmas that have not disappeared with the Cold War concerning whether or not to trade arms. Pearson's hypothesis is that if suppliers could resolve these dilemmas, then arms proliferation would slow down. The particular dilemmas a supplier(s) continues to face are causation (what causes actually leads to war), access (persons who want arms will find them somehow), alternatives (alternatives to armament are difficult to agree on), adequacy (how much is enough), political (arms as political power) and equity (how much access should sovereign states have to the weapons they desire). Pearson claims Supplier Markets trade in arms for the following strategic goals--

⁸⁶ Sumner Benson, "National Security and Economic Considerations in U.S. Conventional Arms Transfer Policy," *The Nonproliferation Review* (Fall 1994): 17.

- homeland defense and the myth of autonomy and self-sufficiency
- desires to show the benefits of associating with the arms-supplying state--that is, “better” weapons can be obtained from this state than from its rivals
- bolstering of favored clients to promote regional power balances, which can mean having to prevent the fall or defeat of those clients
- maneuvering of recipient states to adopt policies preferred by the arms supplier--that is, bargaining through arms supply to obtain concessions such as military base rights or votes in the United Nations.

Pearson concludes that regulating supplier behavior through traditional diplomatic channels has not worked. This conclusion was drawn after many hours of research into diplomatic approaches to control arms transfers, such as embargoes, during volatile international situations. What the author finds most effective to date and recommends the continued support of are mass destructive weapons accords, the Missile Technology Control Regime (MTCR), COCOM and conventional arms transfer controls (particularly among the Big Five of the U.N. Security Council).

“Developments in the global supply of arms: opportunity and motivation” by Michael Brzoska and Frederic S. Pearson in *The Annals* (Vol. 535, September 1994) looks at the supply side of the arms trade by examining the actors (United States, Russia, Western Europe, China and other niche suppliers) and their linkages to a global system. In the long-term, Brzoska and Pearson write, the United States could lose its international dominance by its reluctance to issue export licenses and as prospective buyers turn toward more forth-coming sellers. It could also suffer a decline in its leading-edge military products as more resources and personnel enter the financially attractive and competitive dual-use markets. In the second half of the article, Brzoska and Pearson discuss supplier relationships and how suppliers are influenced by international politics, economics and restrictions. In the long run, the authors believe that while “contradictory trends caution against simple assumptions..., some competitors will move into the dual-use market over time and thereby lessen the economic impetus to export arms.”⁸⁷ On the other hand, pressure for economies of scale under conditions of reduced domestic military weapons procurement will reinforce the urge to export as much as possible. Brzoska and Pearson conclude that “for most suppliers the overall volume of foreign sales will probably drop, but the search for foreign buyers will continue to be intense, aggressive, and competitive.”⁸⁸

Ethan B. Kapstein writes in *Foreign Affairs* (1994), “America’s arms-trade monopoly,” that the United States should welcome the coming era in which it has the potential to become a monopolist in supplying arms to the world. Since the U.S. could realize so many benefits from this position, it should stop exporting advanced weapons technology to allies and instead only export finished weapons. However, we must consider that such action may drive many countries

⁸⁷ Michael Brzoska and Frederic S. Pearson, "Developments in the Global Supply of Arms: Opportunity and Motivation," *The Annals* 535 (September 1994): 72.

⁸⁸ *Ibid.*, 72.

to develop weapons of their own while we (the United States) becomes lazy and complacent. Kapstein believes that

- Dominance is the United States' to lose because its defense budget is the highest in the world. The Chinese may be the only possible future threat.
- In the post-Gulf War world, the U.S. has achieved dominance in regional world markets.
- The U.S. is on the verge of a revolution in military technology that will put it years ahead of any competitors.

Kapstein believes that every country would like to monopolize global arms transfers. Dependence of importers can be exploited to the advantage of the supplier's political and economic interests. Not only will friends and allies obtain conventional weaponry but adversaries will be denied arms of equal quality. While some students of international relations may argue that a monopoly is good for international security, others may argue that monopolies are bad for consumer interests and fail to place a check on the behavior of any single supplier. Kapstein counters this argument with the rationale that a strong monopoly will force lesser players out of the market and free economic resources for investment elsewhere in Third World countries' economies. In conclusion, the author points out that if the U.S. demands too much in return for its arms, countries will find alternative sources. If it demands too little, the U.S. faces moral censure. "Monopoly power should not be confused with absolute power. It must be exploited with skill, or it will soon be lost."⁸⁹

In "Desperate measures, arms producers in a buyers' market," Andrew Pierre and Sahr Conway-Lanz (*Harvard International Review*, Winter 1994/95, XVII/1) discuss the post-Cold War arms-producing surplus capacity of industrialized nations. As a result, fierce competition is alive and well fueled by desperation. The authors note that "...arms transfers in the post-Cold War environment have increasingly become commercial transactions."⁹⁰ To illustrate their thesis that countries will do anything to protect their own domestic industries, Pierre and Conway-Lanz discuss the current trade status of the United States, Russia, France and the United Kingdom and the emerging supply nations, Germany and China. The authors conclude their article calling for strict control regimes.

The Supplier and Domestic Production

International trade policy is well and good but what about domestic policy? The authors listed above address policy issues that are carried out in the international arena but in order to be a leading arms exporter of high technology weapons systems, a national government must play a major role in policy decisions that affect the domestic production level. Not all levels of production, however, require government policies. Many developed and developing countries

⁸⁹ Ethan B. Kapstein, "America's Arms-Trade Monopoly," *Foreign Affairs* 73, no. 3 (1994): 19.

⁹⁰ Andrew Pierre and Sahr Conway-Lanz, "Desperate Measures: Arms Producers in a Buyers' Market," *Harvard International Review* 17, no. 1 (1994/95): 13.

have local manufacturing facilities that produce and export arms without the benefit of nationally-funded weapons acquisitions programs. However, it is unlikely that these weapons will be state-of-the-art. Only countries with large defense budgets, possessing the skilled manpower and that are willing to invest heavily in government-sponsored research and development, can produce and export high technology, state-of-the-art weapons systems. Whatever the level of sophistication, the same economic reasons for developing and distributing conventional weapons by states and firms prevail. These economic reasons entail--

- employment
- longer production runs at the factory
- commercial trading
- industrial manufacturing
- technological development motives⁹¹

This position is reiterated in the article previously cited by Michael Brzoska and Frederic S. Pearson (see page 73). Concerning the United States as a “supplier,” the authors note the advantages of having the world’s largest military R&D budget, the extent of government subsidies and the length of production runs. Post Cold War downsized firms have become more competitive and enjoy the support of the White House in both commercial and foreign policy sectors.

Whenever the government changes its domestic policy with respect to issues that affect export levels, private corporations take note because whether an arms sale is conducted through government channels or corporately, the corporation involved has a financial stake. Corporate defense contractors' responses to the Bush defense budget reductions have not been addressed in-depth in the current literature. In fact, the current literature does not address the possible connections between public policy, government organizations and arms-producing corporations that would explain in depth the process(es) by which the private and government organizations responded to each other after in the Post-Cold War environment. Contributions such as Richard A. Bitzinger’s “Going global, the quiet revolution in arms production” (*Harvard International Review*, Winter 1994/95, XVII/1) explores the recent phenomenon [according to Bitzinger] of the internationalization of the development, production and marketing of arms, what government and defense industries hope to gain by their actions and what problems this creates. The globalization process (called “the quiet revolution”) is being motivated today more by economic forces than strategic rationales. Bitzinger may have valid points but what we need to keep in mind is that in order for corporations to place high importance on global markets, there must first be compelling domestic reasons that prompt this action. Such statements tend to sidestep the domestic process with a “that-was-then-and-this-is-now” approach. There is no literature that explores what happened in the meantime--the formation of government-corporate linkages--between the “then” and the “now.”

⁹¹ After Frederic S. Pearson in *The Global Spread of Arms, Political Economy of International Security* (Boulder, CO: Westview Press, 1994).

Discontinuous Change

The central line of inquiry of my thesis presents itself at this point: How much of the United States' behavior in the Post-Cold War environment can be described and understood within the concept of discontinuous change? Organizations face change whether they want to or not. All organizations are affected by changes in technology, educational levels and national economies. In the best of all possible worlds, managers can plan for change because there is much resistance to overcome both in individuals or in the organization structure itself. Individual and organizational resistance have been identified by R. H. Hall, *Organizations: Structures, Processes, and Outcomes*, 4th ed. (Englewood Cliffs, NJ: Prentice Hall, 1987) and D. Katz and R. I. Kahn, *The Social Psychology of Organizations*, 2nd ed. (New York: Wiley, 1978). Prescriptions for overcoming resistance are diverse and can be found in publications such as J. P. Cotter and L. A. Schlesinger, "Choosing Strategies for Change, Harvard Business Review (March-April 1979), pp. 106-14; D. I. Day, "Raising Radicals: Different Processes for Championing Innovative Corporate Ventures," *Organization Science* (May 1994), pp. 148-72; P. M. Senge, *The Fifth Discipline* (New York: Doubleday, 1990) and E. H. Schein, *Process Consultation: Its Role in Organizational Development* (Reading, MA: Addison-Wesley, 1969). However, not all managers have the luxury of planning for change. Sometimes the forces of change move so quickly that organizations struggle not merely to change themselves but to survive. These forces can involve revolutionary technology changes or startling events in an organization's environment will cause completely different assumptions about the way the business is handled.

First- and Second-Order Change and Environmental Jolts

The concept of first- (linear and continuous) and second-order (multidimensional, multilevel, discontinuous and radical) change appears in many systems theories--from physics to sociology to organizational behavior. It challenges deep-rooted assumptions and norms within an organization says A. Levy, in "Second-order planned change: definition and conceptualization," *Organizational Dynamics*, 1986. Second-order change in organizations occurs when "Environmental Jolts" take place. The theoretical framework in Organizational Behavior and discontinuous change for this research project can be found in "Environmental Jolts and Industry Revolutions: Organizational Responses to Discontinuous Change" by Alan D. Meyer, Geoffrey R. Brooks and James B. Goes in *Strategic Management Journal*, Vol. 3 (1990). The authors write,

From time to time, organizational environments undergo cataclysmic upheavals--changes so sudden and extensive that they alter the trajectories of entire industries, overwhelm the adaptive capacities of resilient organizations, and surpass the comprehension of seasoned managers.⁹²

⁹² Alan D. Meyer, Geoffrey R. Brooks and James B. Goes, "Environmental Jolts and Industry Revolutions: Organizational Responses to Discontinuous Change," *Strategic Management Journal* 2 (1990): 93.

The authors believe that existing strategic management theory and research literature offer managers little with respect to discontinuous change. Meyer et al. proceed to build a model of organizational change according to whether the mode of change is continuous or discontinuous and whether the change occurs at the corporate or industry level. They posit four basic types of change:

- Adaptation--Firms track their environments more or less continuously and adjust to them purposively.
- Evolution--Individual firms are relatively inert but various forces propel certain "populations" of them toward alignment with prevailing external conditions.
- Metamorphosis--Organizations adopt stable configurations and possess inertia, but must periodically realign by undergoing rapid, organization wide transformations.
- Revolution--Industries are restructured and reconstituted during brief periods of quantum change, which punctuate long period of stability.

Meyer et al. hypothesize that the "types" of change that organizations and industries undergo will influence organizational response, industry structure and constrain research methodologies. Drawing from their discussion of the current literature, the authors present the following table:

Table III.2

First and Second Order Change at the Firm and Industry Level

		First-Order Change	Second-Order Change
Firm Level		Adaptation	Metamorphosis
		Focus: Incremental change within organizations Mechanisms: - Incrementalism - Resource dependence Authors: Lindblom (1959) Miles & Snow (1978) Pfeffer & Salancik (1978) Quinn (1978)	Focus: Frame-breaking change within organizations Mechanisms: - Life cycle changes - Configuration transitions Authors: Ginsburg (1988) Greiner (1972) Kimberly & Miles (1980) Miller & Friesen (1984) Tushman & Romanelli (1985)
Industry Level		Evolution	Revolution
		Focus: Incremental change within established industries Mechanisms: - Natural selection - Institutional isomorphism Authors: Hannan & Freeman (1977) McKelvey & Aldrich (1983) DiMaggio & Powell (1983) Scott (1987) Zucker (1987)	Focus: Emergence, transformation, and decline of industries Mechanisms: - Punctuated equilibrium - Quantum speciation Authors: Astley (1985) Barney (1986) Gould & Eldredge (1977) Schumpeter (1950)

Once they conceptually organized the literature according to implicit and explicit assumptions about the nature and level of change, the authors stated that empirically their work may help isolate and interpret the "multi-level processes that alter organizations and industries over time."⁹³ Meyer et al. next turn to an earlier study by Meyer on the hospital industry and illustrate 10 premises about organizations and industries in discontinuous change. Interestingly, it would seem that the 1970's hospital industry was not unlike the Cold War's arms manufacturing industry:

In economists' terminology the hospitals were regulated, homogeneous oligopolists during the 1960s. Industry boundaries were distinct, entry barriers were high, and competition was negligible. In terms of our framework, this was an era of evolution: industry-level first-order change was the primary change process operating, the most potent mechanisms of change were institutional, and the result was homogenization of the industry.⁹⁴

⁹³ Ibid., 97.

⁹⁴ Ibid., 99.

The options available to Defense-Industrial base corporations in response to the policy jolts can be examined through Meyer's hospital study variables in "Adapting to Environmental Jolts" that appeared in *Administrative Science Quarterly*, 27 (1982). This paper will be discussed later in the Methodology Chapter VI.

Punctuated Equilibrium

Second order change can also produce "punctuated equilibrium"--a radical disruption of the status quo--for organizations. The idea of equilibrium seems particularly apt when thinking about corporations because much of what they do has a suggestion of balance--for example--inputs should equal outputs, financial documents should "balance" (debits equal credits) and production processes should achieve a point of profitable return (a point of equilibrium) at the margin. "Revolutionary Change Theories: A Multilevel Exploration of the Punctuated Equilibrium Paradigm," by Connie J. G. Gersick, *Academy of Management Review* 16 (1991) is the groundwork for Elaine Romanelli and Michael L. Tushman model using data on U.S. minicomputer producers to develop a theory of organizational change that reconciles the incremental, transformational and ecological approaches to organizational evolution ["Organizational Transformation as Punctuated Equilibrium: An Empirical Test," *Academy of Management Journal*, 37 (1994)]. Romanelli and Tushman began their work in discontinuous change in "Inertia, environments, and strategic choice: A quasi-experimental design for comparative-longitudinal research," *Management Science* 32 (1986).

Romanelli and Tushman (1994) have expanded on Gersick's theoretical work. In their own study they test the following hypotheses on changes in the computer industry. The first is based on the general theory that organizational activity is one of stability and that only radical or discontinuous change can break the inertia that grips organizations. This is in opposition to nonrevolutionary or "incrementalist" views that suggest "fundamental organizational transformations can be observed by comparing organizational activity patterns over distant points in time, though no specific transforming event may be identifiable."⁹⁵

Hypothesis 1: Organizational transformations will most frequently occur in short, discontinuous bursts of change involving most or all key domains of organizational activity.

The second hypothesis purports that resistance to change in organizations is so strong that incremental change in a subunit cannot affect organization-wide change. Are organizations transformed by top-down mandates or bottom-up initiatives?

Hypothesis 2: Small changes in individual domains of organizational activity will not accumulate incrementally to yield a fundamental transformation. (Chaos Theory does suggest otherwise.)

⁹⁵ Elaine Romanelli and Michael L. Tushman, "Organizational Transformation as Punctuated Equilibrium," *Academy of Management Journal* 37, no. 5 (1994): 1143.

The authors present their proposition in hypothesis number three that large or long-sustained declines in performance are likely to trigger fundamental organizational transformations. Is organizational transformation a response to short-term or long-term declining performance measures?

Hypothesis 3: Major declines in the short-term performance of an organization or sustained declines over several years will substantially increase the likelihood of revolutionary [second-order change] transformation.

Hypothesis number four tests the rich organization theory literature on the influence of organizational environment on organizational change. Do changes in an organization's environment force it to change?

Hypothesis 4: Major changes in environmental conditions will significantly increase the likelihood of revolutionary transformation.

For their final hypothesis, Romanelli and Tushman return to one of their earlier studies on chief executive officer succession. Does organizational change depend on new management?

Hypothesis 5: Installation of a new chief executive officer will significantly increase the likelihood of revolutionary transformation.

Romanelli and Tushman identified similar organizational activities relevant to its survival over five "domains" (or variables) of organizational activity which are culture, strategy, structure, power distributions and control systems. For each of the organizations in their study, they collected and coded quantitative and subjective data for the five variables. Hypotheses three through five were coded with dummy variables. By regression analyses and frequency tables, Romanelli and Tushman were able to test and support all of the above hypotheses except for number three.

Chaos Theory

Is it possible to tie all of the diverse elements of the public policy process and second-order corporate organizational change together? If so, what would be the outcome of such a coupling? In order to undertake such a challenge, we turn to Philip S. Kronenberg's "Chaos and re-thinking the public policy process" in *Chaos and Society* (1995). In his chapter, Kronenberg distills existing ideas from three current theories of nonlinearity or evolutionary change and recasts these ideas into the "perspective of a 'cloud' metaphor. Recasting existing theories into a new metaphor will enable us to grasp public policy ideas differently...and more usefully."⁹⁶ There are presently two mainstream metaphors of public policy--the machine and the organism--but the author believes that they are insufficient for capturing the themes of what he calls the "New Sciences of Transformation" (NST)--the theories of chaos, complexity and autopoiesis.

⁹⁶ Philip S. Kronenberg, "Chaos and Re-thinking the Public Policy Process," in *Chaos and Society*, A. Albert, ed. (Amsterdam: IOS Press, 1995): 253.

Kronenberg proposes the cloud metaphor as he finds the machine metaphor too rigid and the organic metaphor too inhibited by the image of "thermodynamic equilibrium" to fully accommodate the "New Sciences of Transformation." The cloud metaphor, however, has many features to recommend its use:

1. Clouds like public policy have blurred edges.
2. The shape of clouds and policy is changeable.
3. Description of both is qualitative.
4. Cloud formations and policy processes are not entirely capricious. Both have identifiable patterns and labels.
5. Cloud formations and policy processes both have correlates in other systems.
6. The outputs and outcomes from clouds and policy can vary depending on their textures and makeup.

Kronenberg proposes an "*entirely new phase concept*"--*issue transformation*--that can be accommodated by the cloud metaphor. Issue transformation is grounded in three related research streams. (These research streams are, in my opinion, not only compatible with the policy process but with the above theories of discontinuous organizational change.) They are as follows:

- *Asymmetry of organizational change*--It is easier to continue a program of activity than initiate a new one.
- *Dynamics of fractal bifurcation*--A forced choice may cause a jump to a completely different, but no less stable, direction.
- *Dynamics of the garbage-can process or organized anarchy*--Problem definitions and problem solutions are tossed into multiple garbage cans; policy choices are often made by institutional participants depending upon what catches their eye as they riffle through the cans.

Kronenberg concludes his work with six implications for policy theory. The third one is the most germane to this research proposal. It cautions that the discovery of the nonlinear should not compel us to "ignore the apparent presence of an extraordinary amount of order around us."⁹⁷ Some systems do tend toward order. (The author is referring to policy systems; in organizational systems "punctuated equilibrium" would be a good example of a system tending toward order.) Kronenberg implies about systems,

And it is when they reach a point--called a bifurcation point--that one possible course of movement is into chaos or randomness--that this boundary between order and chaos is thought of as an arena of 'complexity.' Hence reference is made to 'complexity occurring at the edge of chaos.' This concept of bifurcation as a critical process event strikes me as being the most powerful challenge--and opportunity--for policy theory-building in the entire body of NST ideas.

⁹⁷ Ibid., 263.

Summary

Arms trade literature provides a source of theoretical grounding for examining why and how nations trade in arms, how and why suppliers, e.g., the United States, behave the way they do, the pros and cons of transfers and the dilemmas faced at the national stakeholder level. Organizational theory literature in the work of Alan Meyer, Elaine Romanelli and Michael Tushman offers empirical testing of organizational responses to abrupt and discontinuous change against which the responses of the economic stakeholders to the policy jolts can be examined. Philip Kronenberg's work in chaos theory provides a new "final" stage--one that closes the loop--in the policy process. Where this research will contribute to the current literature is in looking at corporate responses to government policy jolts that were perceived to have potentially negative domestic outcomes and why and how the government further intervened to counter the jolts by enhancing U.S. competitiveness with respect to conventional arms transfers. However, before moving on to the Conceptual Framework chapter, there is another category of "literature" that needs inclusion because of its importance in informing all aspects of conventional arms trading. This other category of "literature" is the body of arms trade data.

CHAPTER IV

ARMS TRADE DATA

Introduction

Arms trade data or statistics and their interpretation are a separate and distinct category of literature in that arms trade data can stand on their own or can be incorporated into other manuscripts and interpreted according to individual perspectives. At this point in time, a brief explanation of how the data is presented is useful because it will help to illuminate some of the claims or statements made about arms trading by various stakeholder groups.

Who Compiles Trade Statistics?

There are a number of reporting organizations but the four most familiar to those in the field are those mentioned earlier in Chapter II. Domestically, there is the U.S. Arms Control and Disarmament Agency's (ACDA) *World Military Expenditures and Arms Transfers* (WMEAT) report and the U.S. Congressional Research Service's (CRS) report on *Conventional Arms Transfers to Developing Nations*. (The data in both these reports covers a 10-year reporting period).

Two international publications are of note. The first is the annual Stockholm International Peace Research Institute's *SIPRI Yearbook* and the other is the International Institute for Strategic Studies' (London) annual *The Military Balance*. According to ACDA, *The United Nations Register* is also becoming a valuable source of comparative data.⁹⁸

However, there are major differences in the base data used by each of these organizations. SIPRI and the International Institute for Strategic Studies (IISS) depend on "open" sources for their data collection. That is to say, SIPRI and IISS collect data from newspapers, trade reports, the Federal Register, the national defense publications of foreign countries, and any other document available to the general public.

ACDA's and CRS's data sources are different. Although both incorporate public documents, they also rely heavily on data that is considered classified by the federal agencies that either collect or provide the basic data. ACDA aggregates the data into broad categories in order to eliminate strategically important data, and by so doing, declassifies it.⁹⁹ The CRS report

⁹⁸ Daniel Gallick, ACDA, interview by author, Washington, DC, 19 February 1999.

⁹⁹ Ibid.

resembles ADCA's *WMEAT*. Notwithstanding their reliance on public data, however, the *SIPRI Yearbook* and *The Military Balance* are very detailed for non-government documents and are considered as authoritative by the users of these publications. In general, publication of data lags by one or two years. ACDA released data for 1996 in the fall of 1998 and spring of 1999 while SIPRI data is now current to 1997. The lag time results from delays in reporting transactions by both exporters and importers, the long time periods between orders and shipments and the fact that shipments can extend over a period of years for some orders. Of note, however, is that each of these publications have the same methodological approach to the data collection process such that the period to period trend is not obscured.

The Two Primary Categories of Reporting

Sales "agreements" and "deliveries" are two terms that should never be confused. "Agreements" are intentions to buy that are subject to an array of unknowns: changes of government, recession, international political realignments, financial complications and second thoughts on the part of the buyer. Agreements are usually finalized one to two years after their initial announcement and sometimes for a different monetary value than originally negotiated. Agreements posted for all years in trade reports are normally higher than actual deliveries for the same year. A "delivery" signals the actual shipping of goods from the exporter and the receipt of the equipment by the importer. Agreements are reliable indicators of future revenue streams, however. So, a statement that informs us "For 1996, the U.S. posted \$11.3 billion in conventional arms export agreements, up from \$9.2 billion in 1995 and accounting for 35.5 percent of nearly \$32 billion grand total registered in 1996..." should be noted for its relative and not absolute value.¹⁰⁰

Watch the Fine Print

Reporting techniques vary from organization to organization. Readers comparing data must also keep in mind that not all reporting institutions report on the same categories of weapons and that some national statistics may be lopsided due to home country reporting requirements. For example, the United States exports for no charge many conventional arms under its Excess Defense Articles program. The value of these items are rarely counted into U.S. trade statistics or if they are, their value is discounted highly.

In addition, readers should note how the dollar values are presented. The U.S. Arms Control and Disarmament Agency uses current dollars; the Congressional Research Service uses both current and constant or real dollars.¹⁰¹ SIPRI does not report in monetary units. Many foreign countries report their data in calendar years while the United States a the fiscal year.

¹⁰⁰ Trade figures are from the August 13, 1997 report on *Conventional Arms Transfers to Developing Nations, 1998-1996*, Congressional Research Service.

¹⁰¹ Current dollars are as if each year's observations are measured in prices (including inflation) that prevailed at the time; constant dollars are measured according to prices in a base year and adjusted to remove inflation.

As of *WMEAT 1997*, ACDA revised its reporting to incorporate into its statistics previously unreported Direct Commercial Sales (DCS). Direct Commercial Sales are corporate to government sales although they are subject, as all weapon system transfers are, to licensing by the State Department and review by Congress. ACDA's rationale for inclusion of direct commercial sales in *WMEAT* is found in Appendix C. In brief, ACDA officials felt that DCS have increased so greatly during the Post-Cold War Years that they can no longer be excluded from the annual data compilation. In *WMEAT 1996*, both the materiel and services components of the Foreign Military Sales (FMS) program and the International Military Education and Training Program (IMET) were included for the first time too, although these figures are much lower in total than DCS.¹⁰² Inclusion of these additional categories has given U.S. figures an upward trend not previously noted. SIPRI, on the other hand, has developed its own "trend indicator values" (Appendix D) that are not derived from economic units, such as Gross National Product (GNP) and Military Expenditures (ME). SIPRI's use of "indicator values" causes their totals to appear lower than WMEAT dollar figures. (See Appendix E for a discussion of SIPRI "trend indicators.")

Summary

The information in this chapter was provided to familiarize readers with defense trade data terms and reporting institutions since they make an important contribution to the literature of arms trade arena. As illustrated in the appendices noted, it was also included to illustrate how varied the reporting styles and data collection techniques can be--and deceiving if, for example, a clear distinction is not made between agreements and deliveries and current or constant dollars.

¹⁰² See Appendix D for Tables of Direct Commercial Sales and Foreign Military Sales for 1997.

CHAPTER V

CONCEPTUAL FRAMEWORK

Introduction

This chapter takes the statements set forth about the contemporary status of U.S. arms trading and transfers in Chapters I-III and develops a conceptual framework to help explore our central thesis that the relative importance of arms transfers has shifted from political to economic in the Post-Cold War era. A model, based on Meyer's work in "Adapting to Environmental Jolts,"¹⁰³ has been developed to help define and illustrate our effort. That model is presented below in Figure V.1. The top half of the model illustrates the path of the policy jolts. Reading from left to right, it represents the President of the United States and Congress responding to changes in international relationships (collapse of the former Soviet Union and the Warsaw Pact) through domestic policy jolts that affected the status of weapons acquisition program, among others, at the U.S. Department of Defense. The Department of Defense deflected these "policy jolts" onto the individual corporations of the Defense-Industrial Base.

The right-hand side illustrates corporate decision makers responding to the policy jolts in line with their strategy (organizational surveillance of market niches), structure (task allocations, control and coordination among subunits), ideology (shared beliefs that bind values to actions) and slack resources ("cushions" that insulate organizations from external shocks).¹⁰⁴ (Structure, ideology, strategy and slack resources are developed in Chapter VII.) The bottom half of Figure V.1, now reversing ourselves and reading from left to right, is intended to portray governmental stakeholders' attempts to affect favorable outcomes for economic stakeholders as they respond to the policy jolts. The sections that follow in Chapter V provide an elaboration on this introduction.

¹⁰³ See Alan D. Meyer, "Adapting to Environmental Jolts," (1982).

¹⁰⁴ *Ibid.*

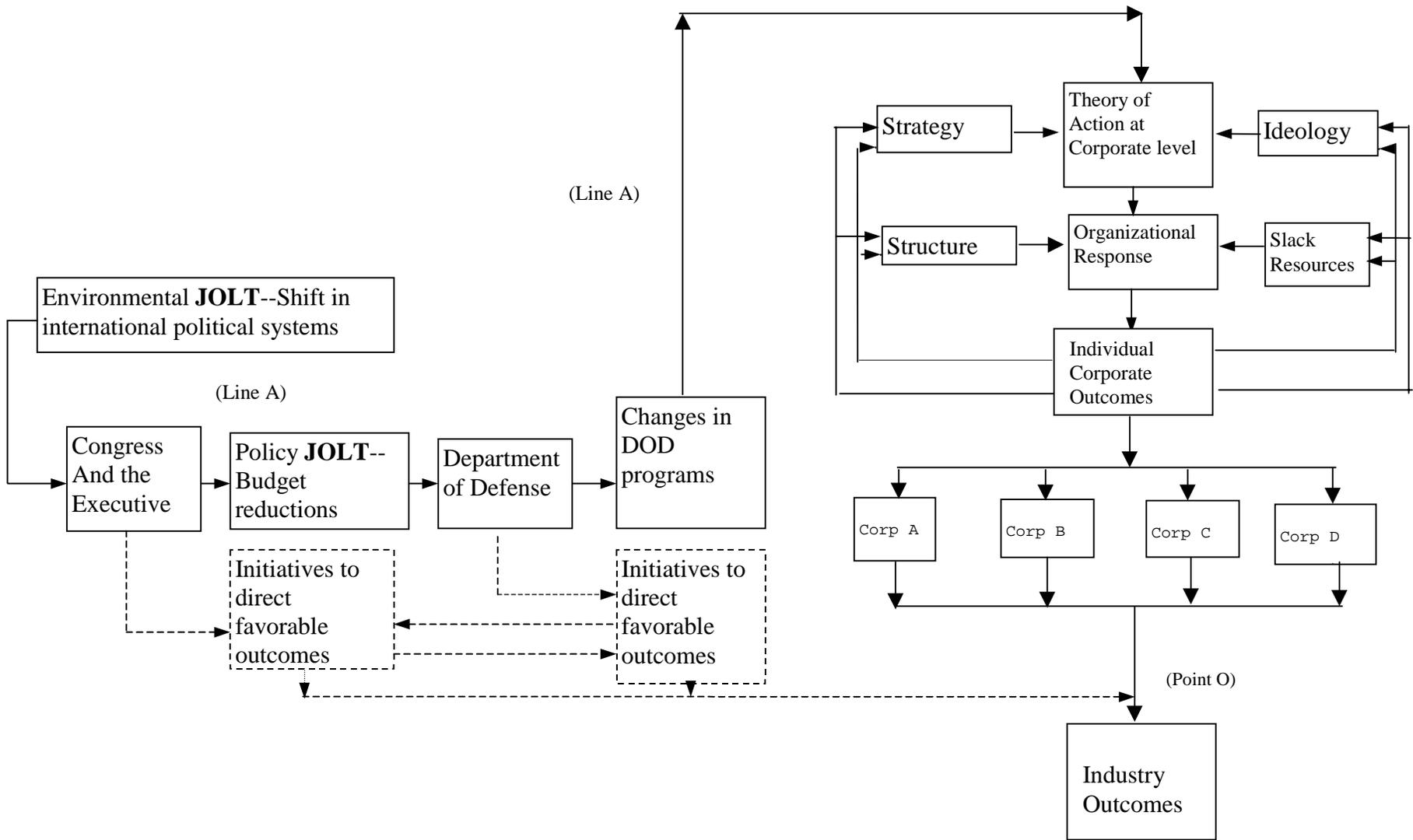


Figure V.1

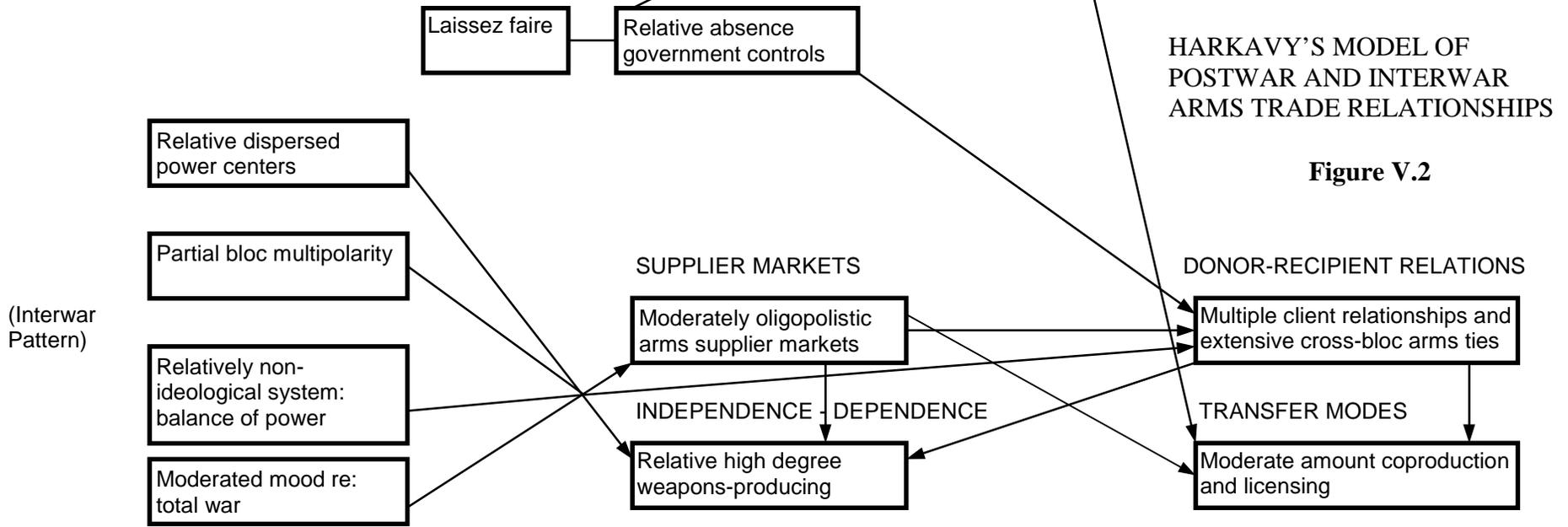
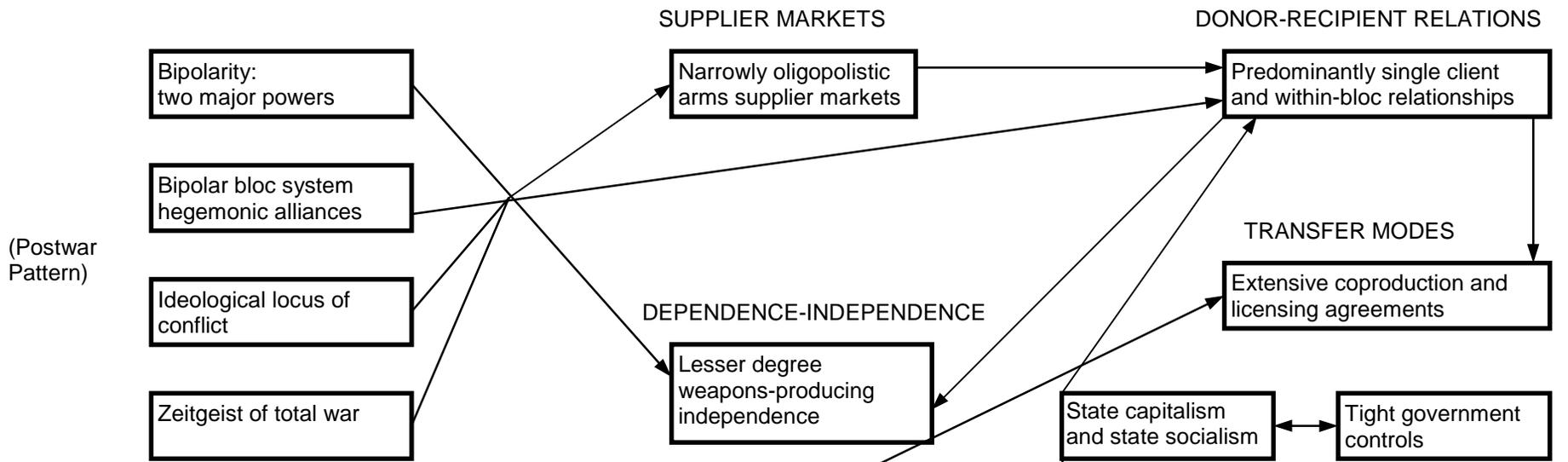
The Policy Jolts and Stakeholder Attempts to Direct Favorable Outcomes

International Events Cause Changes in Conventional Arms Trading

The Cold War Era

The 50-year Cold War produced its own distinct trade characteristics and patterns of arms trading. During the Cold War, the U.S. traded in arms with foreign nations in order to (1) maintain U.S. hegemony against Soviet influence; (2) help our allies defend themselves against aggressors; (3) increase our military and economic leverage abroad and (4) provide economies of scale in the Defense-Industrial Base. However, the state systems that contained the Cold War balance-of-power with its unique rationale for arms trade was dramatically altered with the dissolution of the former Soviet Union and the collapse of the Warsaw Pact in the late 1980's and early 1990's. The shocking and rapid pace of change in the international arena--the fall of Communism, the dissolution of the former Soviet Union, the collapse of the Warsaw Pact, an international movement toward democratization and increased emphasis on economic competitiveness based on market economies--gives foundation to the assumption that Cold War conventional arms trading patterns will also change. Indeed, the primary international sellers, the United States and the Soviet Union, are no longer in an arms race against each other and no longer need to retain allies or politically uncommitted nations as members of either the Eastern or Western Bloc. For international buyers, the political necessity of aligning oneself with a hegemon in order to acquire modern arms has ceased.

Robert E. Harkavy's conclusion in *The Arms Trade and International Systems* (1975) is that arms trading patterns change from one diplomatic era to another. Thus, based on Harkavy, the Post-Cold War era could expect to experience changing patterns as the transition is made from the Cold War era. The cause of these changing patterns from era to era is shifts in the relative importance attributed by major world powers to their sense of security from aggression by other world powers. Harkavy examined these changes through three independent variables which he calls "a diplomatic constellation." These variables are (1) Polarity, bloc structure, alliance systems and distribution of power; (2) Ideological locus of conflict; (3) Totality in war and diplomacy. (There are four independent variables modeled below in Figure V.2; the first variable in the "diplomatic constellation" is split into two creating the fourth). Radical changes in international environment between World Wars I and II and again after World War II also changed the characteristics of Harkavy's four "aspects" or dependent variables--(1) Supplier markets and the behavior of suppliers; (2) Donor-recipient patterns and relationships; (3) Transfer modes and (4) Dependence and Autarky. The changes in the patterns and characteristics between the two diplomatic eras are illustrated below in Figure V.2. The independent variables or the "diplomatic constellation" are modeled in Figure V.2 top to bottom on the left-hand side. The dependent variables are read either horizontally or vertically.



HARKAVY'S MODEL OF POSTWAR AND INTERWAR ARMS TRADE RELATIONSHIPS

Figure V.2

The Post-Cold War Era

Since Harkavy wrote in 1975 (and extended herein to 1989), his model should be updated to incorporate changes in the world political order after 1989. I have done this in the right-hand columns in Tables V.1 and V.2 below. His "Supplier Markets" change from narrowly oligopolistic to very oligopolistic with respect to high-tech conventional weapons systems. In the Post-Cold War environment only a few of the Western allies can support high technology R&D for military equipment; those that cannot are dependent on imports. However, trade in traditional conventional arms becomes less oligopolistic because the former Communist countries who have considerable expertise in manufacturing tanks, rifles, armored cars and with older Soviet equipment to sell off are trading on the world markets. Concerning the Independence-Dependence variable for the Post 1989 years, there is less need for developing nations to produce their own weapons since the major producers are ready to make deals without political strings attached. Developing countries have little inclination to enter the arms production business, except at the low end, because of high barriers to entry, the high cost of R&D and competition from the major arms producing nations. In the Post-Cold War environment, coalition building and compatibility have replaced single client and within-bloc relationships. Multiple client relations are once again possible. Simply put, sellers find buyers wherever they can and buyers are attracted to the best deal. Extensive co-production and licensing that characterized the Post World War II era continues into the Post-Cold War period with the increased demands by buyers for offset and licensing packages accompanying arms deals.

Table V.1

Changes in Dependent Variables in Three Diplomatic Eras

Dependent Variables	Inter World Wars I and II	Post World War II	Post 1989 based on current events
Supplier markets	Moderately oligopolistic arms supplier markets	Narrowly oligopolistic arms supplier markets	High tech: Very oligopolistic Traditional arms: moderately to less oligopolistic
Independence-Dependence	Relative high degree weapons-producing independence		Lessening degree weapons-producing dependence but less inclination to do so
Dependence-Independence		Lesser degree weapons-producing independence	
Donor-Recipient relations	Multiple client relationships and extensive cross-bloc arms ties	Predominantly single client and within-bloc relationships	Multiple client relations possible
Transfer Modes	Moderate amount coproduction and licensing	Extensive coproduction and licensing agreements	Extensive coproduction and licensing agreements

Table V.2

Changes in the Independent Variables over Three Diplomatic Eras

	Inter World Wars I and II	Post World War II	Post 1989
Independent Variables (or the "Diplomatic Constellation")	Relatively dispersed power centers	Bipolarity: two major powers	U.S. is one remaining superpower
	Partial bloc multipolarity	Bipolar bloc system hegemonic alliances	Economic multipolarity
	Relatively non-ideological system: balance of power	Ideological locus of conflict	Non-ideological; intrastate ideological conflicts
	Moderated mood re: total war	Zeitgeist of total war	Moderate mood

In his 1975 work, Harkavy discussed seven independent variables, but modeled only three, per Figure V.2. One additional variable discussed by Harkavy should be included here because it is a focus of examination in this research paper: Economics. A multi-polar world will favor Economics with respect to arms transfers--at least for the United States because conventional arms exports have many economic pluses. They keep manufacturing costs low through economies of scale, create domestic jobs or keep them in the economy, increase GNP and provide favorable balances of trade. Charles Anderton¹⁰⁵ writes in *Peace Economics, Peace Science and Public Policy* those nations with the largest economies of scale, highest factor endowments and the most advanced technology will be the primary sellers. Those nations that cannot compete in long production runs or are not willing to devote their resources to state-of-the-art weapons-producing activity will be either buyers and/or mid- to-low range producers. Anderton states, "Economies of scale, factor endowments, and technology differences between nations are...the main economic causes of the arms trade."¹⁰⁶

¹⁰⁵ Charles H. Anderton, "What can international trade theory say about conventional arms trade?" *Peace Economics, Peace Science and Public Policy* 4, nos. 1 & 2 (Fall & Winter 1996): 7-30.

¹⁰⁶ *Ibid.*, 11.

Thus, Economics can be added to Harkavy's table:

Table V.3

Changes in the Economy as an Independent Variable over Time

Independent Variables	Inter World Wars I and II	Post World War II	Post 1989
Economy	Emergence of Superpowers; recovery of Europe	Domination by superpowers; recovery of Europe; rise of Asia	Multiple competing economies; less domination by superpowers

Table V.4

Changes in the Economic Aspect of Conventional Arms Trading Dependent Variables over Time

Dependent Variables	Inter World Wars I and II	Post World War II	Post 1989 (based on current events)
Economic aspect of conventional arms trading	Defense production in alignment with U.S. industrial base; open markets, ease of transfers	Self-sufficiency in production; high volume domestic defense procurement programs; high economies of scale; high level of trade protectionism; emphasis on foreign policy	Emphasis on international competitiveness and "dual-use" exports; slight easement of "Buy America" restrictions; some trade barriers removed

Tables V.1 and V.2 can be combined with Tables V.3 and V.4 for a complete picture of changes in international arms trading over time.

Table V.5

Summary Changes in Independent and Dependent Variables Over Time

Independent Variables	Inter World Wars I and II	Post World War II	Post 1989
"Diplomatic Constellation")	Relatively dispersed power centers	Bipolarity: two major powers	U.S. is one remaining superpower
	Partial bloc multipolarity	Bipolar bloc system hegemonic alliances	Economic multipolarity
	Relatively non-ideological system: balance of power	Ideological locus of conflict	Non-ideological; intrastate ideological conflicts
	Moderated mood re: total war	Zeitgeist of total war	Moderate mood

Dependent Variables	Inter World Wars I and II	Post World War II	Post 1989
Supplier markets	Moderately oligopolistic arms supplier markets	Narrowly oligopolistic arms supplier markets	High tech: Very oligopolistic Traditional arms: moderately to less oligopolistic
Independence-Dependence	Relative high degree weapons-producing independence		Lessening degree weapons-producing dependence
Dependence-Independence		Lesser degree weapons-producing independence	
Donor-Recipient relations	Multiple client relationships and extensive cross-bloc arms ties	Predominantly single client and within-bloc relationships	Multiple client relations possible
Transfer Modes	Moderate amount coproduction and licensing	Extensive coproduction and licensing agreements	Extensive coproduction and licensing agreements

Table V.5 (Continued)

Independent Variables	Inter World Wars I and II	Post World War II	Post 1989
Economy	Emergence of Superpowers; recovery of Europe	Domination of superpowers; recovery of Europe; rise of Asia	Multiple competing economies; less domination of superpowers

Dependent Variables	Inter World Wars I and II	Post World War II	Post 1989
Economic aspect of conventional arms trading	Defense production in alignment with U.S. industrial base; open markets, ease of transfers	Self-sufficiency in production; high volume domestic defense procurement programs; high economies of scale; high level of trade protectionism; emphasis on foreign policy	Emphasis on international competitiveness and "dual-use" exports; slight easing of "Buy America" restrictions; some trade barriers removed

Harkavy's Interwars and Postwar model Figure V.2 can also be updated.

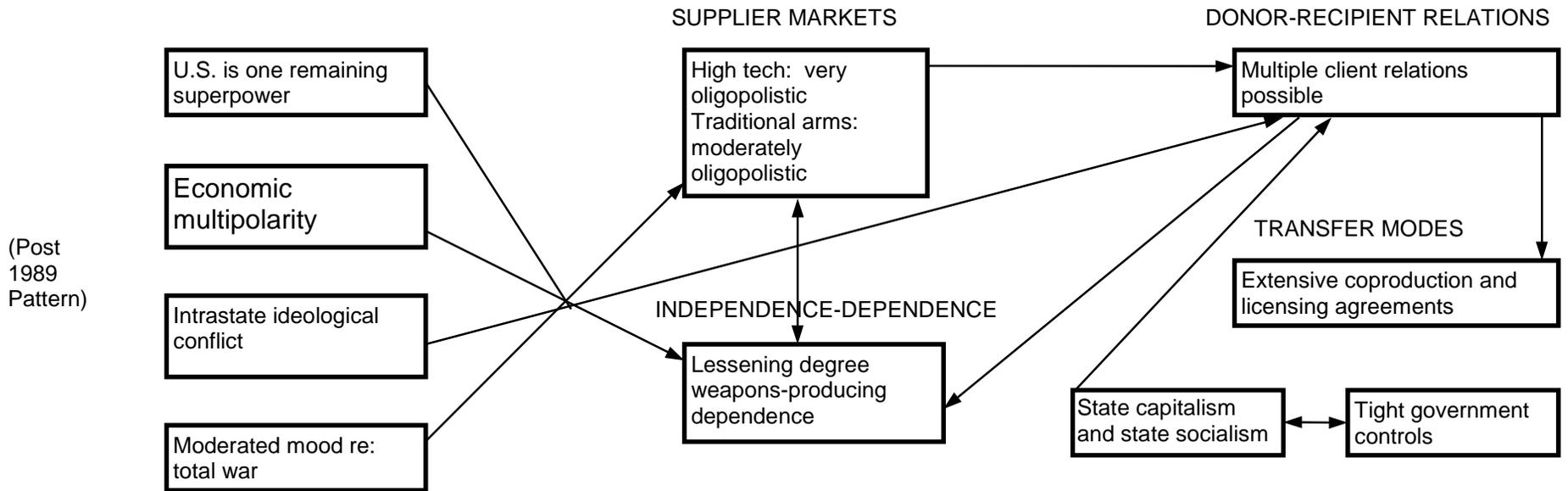


Figure V.3
Model of Post 1998 Arms Trade Relationships

This research effort explores the premise that the unusual international events that took place in the late 1980's caused domestic policy initiatives that changed how the United States participated in International Arms Trading Systems. These policy initiatives, called "jolts," in the form of defense budget reductions--laid the foundation for the ascendancy of the "Economics" variable over the "Diplomatic Constellation." Thus, if the "Diplomatic Constellation" has lessened in importance with respect to the ascendancy of "Economics," then it should follow that the United States has experienced a shift in the rationale for trading in arms. The conceptual shift in motivating forces behind arms trading from the diplomatic to the economic in the Post Cold War Era is supported by many analysts. (Grimmett, 1994; Johnson, 1994, 1994/94; Cooper, 1994; Press, 1994; Fieleke, 1991; Lewis, 1994/94; Pierre, 1994/95, Pohling-Brown, 1994).

The Policy Jolts

Harkavy's model predicts the possibility of change in arms trade patterns and characteristics during different diplomatic eras. The rapid changes in international events did introduce a new era—the Post-Cold War world. The policy jolts aimed at readjusting U.S. federal spending to reflect the new world order can be thought of as the catalysts of change between arms trading in the Cold War and Post-Cold War environments. In Figure V.1, the policy jolts appear in the top half of the model and move across the page from left to right.

The First and Second Policy Jolts

Chapter I suggested that a policy jolt could be thought of as an earthquake wave. The jolt travels from the source (S_1) until the first wave crests with intensity and amplitude at the end of its radius (r_1). Subsequent wave crests will lose energy as their distance from the source (S_1) increases (r_2, r_3, r_4 and so forth). Figure V.4 below represents the analogy of the how a policy jolt compares to an earthquake wave:

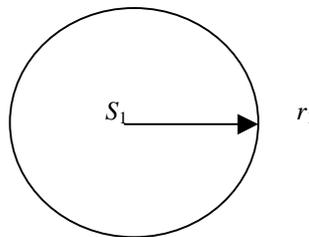


Figure V.4

The First Policy Jolt Produces a Wave

A lateral view of the wave S_1, r_1 in Figure V.4 is illustrated below:

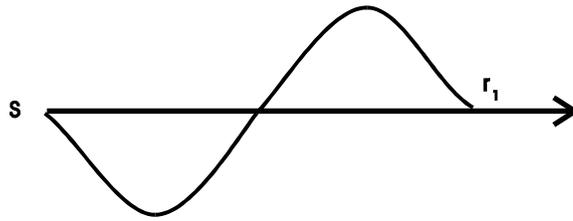


Figure V.5

A Lateral View of the Policy Wave

The policy jolts are recapped here with reference to Figure V.1 (above). The jolts travel from left to right along line (A) across the top of Figure V.1. If we begin at the left-hand side, we see that the policy jolts originated with Congress and the Executive Branch (Bush Administration). The Secretary of Defense and the Chairman of the Joint Chiefs of Staff in February 1991 presented the Future Years Defense Program for 1992-1997 that responded to the Omnibus Budget Reduction Act of 1990 (OBRA-90) and the 1990 Budget Summit by a 25 percent reduction in military forces and a real reduction in defense outlays of 20 percent. The Future Years Plan envisioned that by 1995 the real defense budget would be about 18 percent below its 1990 level and that procurement spending would decrease by 23 percent. The reduction in force was predicated on the political changes in Eastern Europe. The Defense Conversion Commission estimated that, "By FY 1997, procurement was expected to decline almost \$46 billion or 46 percent or a 5.2 percent decrease per year expressed in annual rates of change."¹⁰⁷ ("Procurement outlays pay for the purchases of weapon systems and equipment and directly affect defense contractors who provide these systems and equipment.")¹⁰⁸ (Procurement Appropriations for FY 1997 were \$38.9 billion.¹⁰⁹) While Defense Department budgets had been cut beginning in 1985 as a result of the rising crisis over deficit spending, the difference between the 1985-1989 budget cuts and budget provisions after 1990 is that the former still reflected Cold War strategies while the rationale for decision making in budget cuts beginning in 1990 began to reflect Post Cold War realities. The source and the jolt can be summarized as follows:

¹⁰⁷ Defense Conversion Commission, "Defense Drawdown: Financial Overview and Strategies for the top 25 Prime Contractors," Annex E to *Adjusting to the Drawdown* (Washington, DC: GPO, 1993), p. 3.

¹⁰⁸ Figures from U.S. General Accounting Office, GAO/NSIAD-98-26, "Future Years Defense Program, DOD's 1998 Plan Has Substantial Risk in Execution," by Richard Davis, et al., (1997).

¹⁰⁹ Ibid.

Table V.6

Summary of Policy Jolt No. 1

S_1	r_1
Congress and the Executive (Source of policy jolt= S_1) Omnibus Budget Reduction Act of 1990; the Budget Summit of 1990 leads to \$500 billion reduction in the federal deficit over the 1991-1995 period; \$180 billion taken from defense.	February 1991 Secretary of Defense and Chairman JCS introduce 1992-1997 Future Years Defense Program that calls for a 25 percent reduction in force plan to meet OBRA requirements; plan based on the removal of Soviet forces from Eastern Europe, the collapse of the Warsaw Pact, and the unification of Germany. Total Defense budget is reduced 18 percent by 1995 to reflect reduction in force proposal; Procurement reduced 23 percent by 1995.

The second smaller policy jolt came a year later in President Bush's National Defense Budget Authority where he cut the Fiscal Year 1993 budget seven percent more than was called for in the 1992-1997 Future Years Defense Program. The President cut total defense spending from \$279.8 billion to \$267.6 billion; procurement was cut from \$58.5 billion in FY 1992 to \$54.4 billion in FY 1993. The Defense procurement budget was expected to hit bottom in 1995 and then begin to rise slowly in 1997. However, any increase was not expected to rise until later in the decade because actual spending or outlays trails behind the budget. "Outlays for procurement should keep going down in 1996 and 1997 and then begin to turn up," Stephen Daggett, national defense specialist at the Congressional Research Service in Washington," reported in 1994.¹¹⁰ Barring the unforeseen, defense spending levels on new weapons systems procurement could not be expected to rise significantly until the end of the Century. By the time the FY 1993 cuts were made compared to the figures in OBRA-90 and the 1992-1997 Future Years Defense Program, there was little doubt that the former Soviet Union was in the middle of an economic crisis. Russia did not have the strength or the will to carry on the arms race.

¹¹⁰ Debra Polsky Werner, "Industry faces a second wrenching wave of cuts," *Defense News* 9, no. 14 (11-17 April 1994): 1.

Table V.7

Summary of Policy Jolt No. 2

S_2	r_2
The Executive (Source of policy jolt= S_2) National Defense Budget Authority	FY 1993 Defense budget process; budget figures informed by Russia's economic and political crises. FY 1993 Defense budget cut to \$267.6 billion; procurement cut to \$54.4 billion.

The following figure combines the first and second policy jolts "in phase." As suggested earlier, the crests of the waves at r_1 and r_2 have positive interference, they produce a wave crest of greater amplitude and intensity than either one alone.

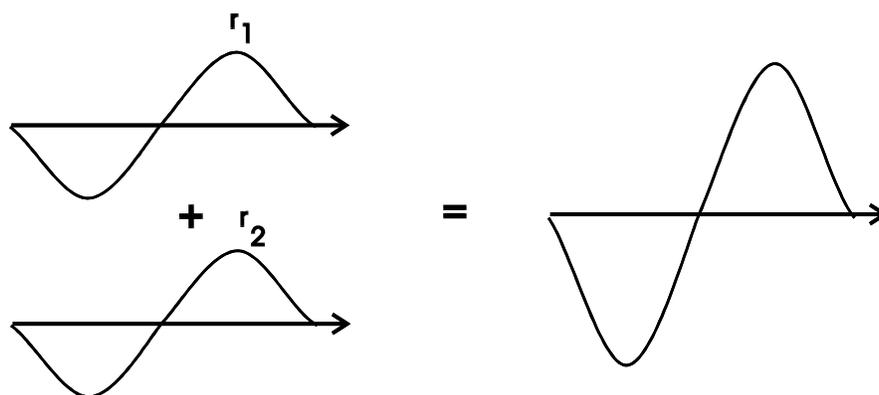


Figure V.6

The First and Second Policy Jolts "In Phase"

There are reasonable expectations that figures will change in the budget cycle but the message was sent that President Bush was not going to fight to maintain current spending levels. The table below, included for reference, reflects the Defense budget history and future years figures when the second policy jolt was sent.

Table V.8

Department of Defense Budget Authority
(billions of dollars)

Year	Current \$	Constant \$	Real growth %
1985	286.8	375.6	
1986	281.4	359.1	-4.4
1987	279.5	345.7	-3.8
1988	283.8	338.5	-2.1
1989	290.8	333.7	-1.4
1990 ^a	291.0	324.1	-2.9
1991 ^a	276.0	292.9	-9.6
1992 ^a	277.5 ^b	287.8 ^b	-1.8
1993	267.6	267.6	-7.0
FY 1985-1993 real change: -28.8			
1994	267.8	258.0	-3.6
1995	269.9	250.4	-2.9
1996	270.4	241.8	-3.4
1997	274.6	237.5	-1.8
FY 1985-1997 real change: -36.8			

Source: Report of the Secretary of Defense to the President and Congress, February 1992.

^a Excludes cost of Operation DESERT SHIELD/STORM. This is consistent with the 1990 Budget Enforcement Act, which exempted DESERT SHIELD/STORM spending on an emergency basis from negotiated budget ceilings set by the Executive Branch and Congress. According to the DoD, the net U.S. cost for this operation should not exceed \$5.9 billion after all foreign contributions are received.

^b Enacted in FY 1992 DoD Appropriations Act. The FY 1992 figure in this year's budget request (\$270.9 billion) differs because it reflects proposed environmental supplemental appropriations and proposed rescission of already appropriated funds.

The Bottom Up Review as a Policy Jolt

Some of the budget cuts, coupled with the lists of the Base Closings Commission in 1989 and 1991, resulted in immediate personnel, operations and program changes. Both military and civilian personnel levels were reduced; some operations, procurement and RDT&E were delayed or canceled indefinitely. Many bases and arsenals around the country were closed. In the meantime, there was intense pressure on Department of Defense's operating budget as U.S. troops were sent on peacekeeping missions and requested to help the Newly-Independent States dispose of their nuclear arsenals. However, not all changes were immediate. With respect to procurement, many acquisitions programs were already in the pipeline for funding. Military base closings soon became a political issue as Congressmen fought to keep installations open in

their districts. As a result, fewer bases ended up being closed than slated on the base closure lists. While so much was going on, the U.S. Department of Defense undertook an evaluation of what level of preparedness would be the most effective to respond to the international political situation and at home to shrinking annual budgets. The Pentagon had to rethink its Cold War posture and decide on a new strategic posture, i.e., military weapons and forces that would be essential in the absence of a known enemy.

Not all of the policy jolts "passed through" the Pentagon in a clear shot to the Defense-Industrial Base. Many of the waves crested inside the Department of Defense. Examples of these crests were base closings and reductions in force. A policy jolt cresting inside the Department of Defense is illustrated in Figure V.7 below. In response to these policy jolts, the Pentagon in turn created new policies that in and of themselves became jolts, although smaller in intensity and amplitude than those discussed above in policy jolts one and two. One of the Department of Defense-generated policy jolts was an in-house review mandated by then-Secretary of Defense Les Aspin entitled the "Bottom Up Review." This review was important because it delineated the U.S. military preparedness posture for the 1990's and the manpower it would take to achieve it. The recommendations in the "Bottom Up Review" released in 1993 were incorporated into subsequent years' budget submissions. The Review was controversial because it recommended that the optimum level of preparedness would be for the United States to have the means to fight major battles simultaneously on two fronts. In addition, implementing the recommendations of the Review caused considerable debate over whether to continue financing new weapons acquisitions that were already in the development pipeline or face the possibility of a "hollow military."

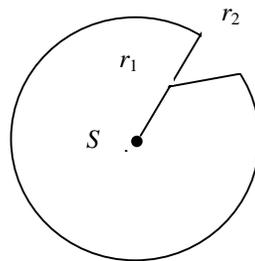


Figure V.7

The Bottom Up Review Wave Cresting Inside the Department of Defense

Organizational Responses to the Policy Jolts

Two types of stakeholder organizations responded to the policy initiatives: governmental and economic. (Other stakeholder groups are acknowledged in Chapter I, but this research effort narrows the scope to two.) The economic stakeholders are illustrated on the right-hand side, top to bottom, in Figure V.1. The governmental stakeholders are placed horizontally, right to left on Figure V.1.

Economic Stakeholder Responses

This research explores the proposition that the policy jolts would be met with second-order change in the Defense-Industrial Base as the economic stakeholders envisioned a future with greatly-reduced Department of Defense weapons systems acquisition programs. “Second-order change” can be defined as “a multidimensional, multilevel, discontinuous, radical change involving reframing of assumptions about the organization and the world in which it operates.”¹¹¹ “Second-order change” can be contrasted with “first-order” change defined as linear and continuous. “It implies no fundamental shifts in the assumptions that organizational members hold about the world or how the organization can improve its functioning.”¹¹² Second-order change can be attributed to “environmental jolts” or “transient perturbations whose occurrences are difficult to foresee and whose impacts on organizations are disruptive and potentially inimical.”¹¹³

The Punctuated Equilibrium model of Elaine Romanelli and Michael Tushman aptly describes the unfolding of events in the Defense-Industrial Base environment.

Organizations progress through convergent periods punctuated by reorientations which demark and set bearings for the next convergent period. Convergent periods refer to relatively long time spans of incremental change and adaptation which elaborate structures, systems, controls and resources toward increased coalignment. These periods may or may not be associated with effective performance.

...punctuated equilibrium theory depicts organizations as evolving through relatively long periods of stability (equilibrium periods) in their basic patterns of activity that are punctuated by relatively short bursts of fundamental change (revolutionary periods). Revolutionary periods substantively disrupt established activity patterns and install the basis for new equilibrium periods.¹¹⁴

Current events in the corporate sector suggest that there is ample evidence that certain defense-related corporations or major divisions thereof experienced “second-order” change from the policy jolts during the downsizing period that resulted in the “reframing of assumptions about the organization and the world in which it operates.” The “reframing of assumptions” is defined according to Michael Tushman and Elaine Romanelli in “Organizational Evolution: A

¹¹¹ Stephen P Robbins, *Organizational Behavior* 7 ed. (Englewood Cliffs, NJ: Prentice Hall, Inc., 1996), 719.

¹¹² *Ibid.*, 719.

¹¹³ Meyer, "Adapting to Environmental Jolts," 515.

¹¹⁴ See Elaine Romanelli and Michael L. Tushman, "Organizational Transformation as Punctuated Equilibrium," 1141.

metamorphosis model of convergence and reorientation” (1985) as either (1) a reorientation or (2) a recreation of the corporation. A reorientation is defined by simultaneous and discontinuous shifts in strategy (product, market, technology, competitive timing), distribution of power, structure and controls. A recreation is a reorientation that also involves a discontinuous shift in an organization’s core values (customers, competition, technology, employees).¹¹⁵ Current events in the corporate sector suggest that there is ample evidence that certain defense-related corporations or major divisions thereof experienced “second-order” change from the policy jolts

Figure V.4 or V.5 indicates that a wave crests on a circle at "r." The corporations of the defense industrial base can be imagined as sitting in time and space on a circle's circumference. We know that the defense corporations as an industry have enjoyed a long period of equilibrium because the Cold War was approximately 50 years in duration. If Policy Jolt No. 1, now "S₁," is emitted from the center of the circle, let us assume for purposes of discussion that its wave crests at the imaginary circle's circumference or the at "r₁" as in Figure V.8 below. This wave crest shatters the 50-year Cold War status quo and in theory produces a period of "fundamental" change or "punctuated equilibrium." The corporations react to "install the basis for new equilibrium periods" lest they miss the opportunity for recovery. In other words, the corporations must take steps to insure their profitability into the future. They want to stop riding the wave and find a new equilibrium.

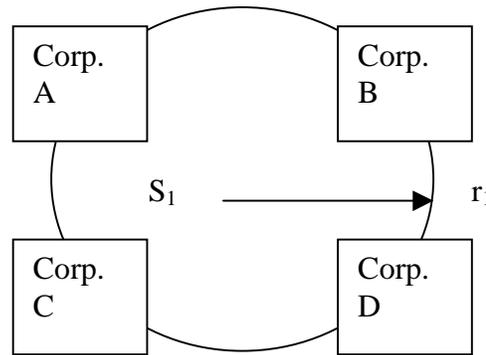


Figure V.8

Defense Corporations on the Policy Jolt

From a lateral view, Figure V.9 below, it appears as if the corporations will fall off the crest, if they have made it that far, and into the trough. The corporations need to find a new convergence at point $r=0$, if they want to regain their stability and profitability to survive into the future and not slip into financial failure.

¹¹⁵ See Meyer, "Adapting to Environmental Jolts."

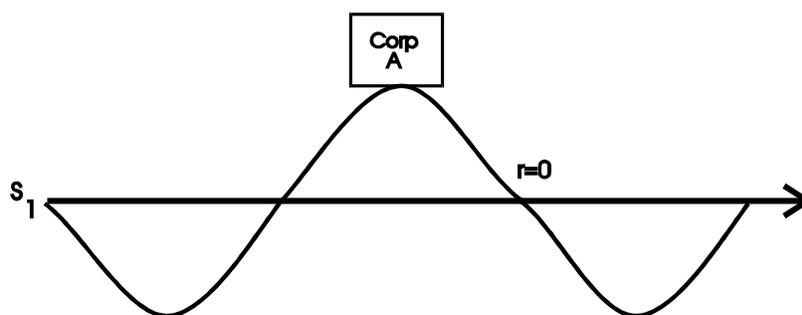


Figure V.9
A Corporation on the Wave Crest: A Lateral View

This process is not necessarily as linear as it appears in the figures above. Policy Jolt No. 2 (not illustrated) did not emanate from exactly the same source as Policy Jolt No. 1. Therefore, some of the waves may be out of phase (produce weaker crests) while others are in phase (produce stronger crests) and other unforeseen "interferences" may change the shape of the wave at any point. Circumstances particular to each corporation may prevent some from making it to the wave's crest and others may topple under their own weight into the trough before they can adapt to their punctuated equilibria.

Romanelli and Tushman base their research on the premise that Organizational transformations will most frequently occur in short, discontinuous bursts of change involving most or all key domains of organizational activity.¹¹⁶ (However, "short" is a relative term. "Short" with relation to time means one thing at a biotech or software company whose fortunes are made overnight; it means another to defense contractors whose products are years in development.) Romanelli and Tushman identify five "domains of organizational activity"¹¹⁷ that produce the transformation resulting from major changes in the competitive, technological, social and legal conditions of an organization's environment may lead to a "reorientation" of core values (customer, competition, technology, employees). And, they define "reorientations" as ...simultaneous and discontinuous shifts in strategy (defined by products, markets and/or technology), the distribution of power, the firm's core structure, and the nature and pervasiveness of control systems.¹¹⁸

¹¹⁶ Romanelli and Tushman, "Organizational Transformation as Punctuated Equilibrium," 1143.

¹¹⁷ *Ibid.*, 1146.

¹¹⁸ Michael L. Tushman and Elaine Romanelli, "Organizational Evolution: A Metamorphosis Model of Convergence and Reorientation," in *Research in Organizational Behavior*, Volume 7, L. L. Cummings and B. M. Straw, eds. (Greenwich, CT: JAI Press, 1985): 179.

Quite distinct from incremental change, reorientations involve simultaneous and discontinuous changes in organizational culture, strategy, power distribution, structure, and control systems. This research effort includes a step absent in Romanelli and Tushman insofar as it assumes that policy jolts have resulted in "supra change activities" in the form of mergers and acquisitions at "r₁." By the very nature of mergers and acquisitions, they should produce ample change activity in all five domains because two organizations must somehow become one.

- Organizational culture--Two organizations that merge may have conflicting work cultures. For example, a Lockheed Martin official related how two cultures clashed when the team from the Marietta, Georgia plant that manufactures the C-130 Hercules cargo planes was joined with designers from the Lockheed Martin-acquired General Dynamics, Fort Worth, Texas facility that manufactures the F-16 Falcon. The cargo plane team and the jet fighter "Aces" did not have "seamless" integration.¹¹⁹
- Strategy--Two companies that merge may not be aligned as to company mission, goals and objectives, strategic plans for the future and new product development--just to mention a few.
- Structure--When two companies merge, the structure of one or both will somehow change. Often companies are reorganized, duplicate positions are eliminated, employees transferred and superfluous offices closed.
- Power distributions--A merger or acquisition can result in succession changes. With a succession change can come new leadership, new ideas, philosophy and a vision for the future that differs greatly from the present course.
- Control Systems--Mergers can bring new control systems, different ways of holding employees accountable for their work and measuring performance standards.

In Meyer et al.'s conceptual framework for first- and second-order organizational change, they describe firm-level theories focusing on second-level change by the term "metamorphosis" theories. They write,

These [firms] are termed metamorphosis theories, because they maintain that organizations adopt stable configurations and possess inertia, but must periodically realign by undergoing rapid organization-wide transformations.¹²⁰

At the industry level of change, in which they include Punctuated Equilibrium Theory, Meyer et al. make an even stronger case for organizational change,

¹¹⁹ Robert J. Casey, interview with author, Falls Church, VA, 9 December 1997.

¹²⁰ Alan D. Meyer, Geoffrey R. Brooks and James B. Goes, "Environmental Jolts and Industry Revolutions: Organizational Responses to Discontinuous Change," 96.

...we label these revolution models, because they propose that industries are restructured and reconstituted during brief periods of quantum change which punctuate long periods of stability.¹²¹

The policy jolts with respect to weapons acquisitions programs had a tremendous effect on the top defense corporations of the U.S. Defense-Industrial base (*Defense News*' Top 20, for example). Companies that once enjoyed a lucrative domestic market for their goods and services found themselves facing an uncertain future. To maintain their profitability in the long run and increase shareholder wealth, they appeared to respond to the "policy jolts" [a "jolt" was defined as a sudden "shock" to a system that has the *potential* to alter radically one or more of its established structural components or behavioral patterns] with mergers, acquisitions, succession changes, sales of divisions, diversification and new joint ventures. Some corporations appear to have shed what they perceived to be unprofitable excess capacity while others acquired what they perceived as strategic resources related to their corporate mission and market share ambitions.

If the relationship between the governmental and economic stakeholders was a simple one, Figure V.1 would conclude at Point O. However, at the heart of the matter is a very long and deeply structured relationship between defense-dependent corporations and the U.S. Department of Defense. Over time, defense corporations have become dependent on the Department of Defense for business. The reason for this dependency is because the more defense work a corporation accepts, the more profitable it is to continue doing this type-of work. Experience allows corporations to work "on the margin" and thus earn more profit. In turn, the Pentagon depends on the performance and availability of these companies to produce weapons systems. The defense industry operates in a market regulated by the Department of Defense that is characterized by high levels of concentration, barriers to entry and exit and specialized products. Not only does the DoD regulate the market but it is the predominant buyer. Weapons systems and other military-unique products are distinguished by the following features:

- Technologically complexity--because the missions they perform have become increasingly difficult in a rapidly changing environment;
- Expensiveness--because of technological complexity and sunk costs in manpower, R&D and facilities;
- Produced in low volume;
- Highly reliable and maintainable in order to perform their mission in hostile environments with minimal repair costs;
- Long in development; and
- Produced in a "regulated" market.¹²²

The Report of the Defense Conversion Commission also noted how difficult it was for defense corporations to diversity. The report noted that non-defense corporations have problems

¹²¹ Ibid., 97.

¹²² Defense Conversion Commission, "Defense Drawdown: Financial Overview and Strategies for the top 25 Prime Contractors," Annex E, p. 6.

entering into new markets too but emphasized that diversification is particularly difficult for defense firms. The Report noted the following differences between commercial and Department of Defense practices:

- Government-unique accounting practices,
- DoD-unique standards and specifications,
- The Government's claim of ownership of rights in technical data,
- Government-unique contract and information collection requirements, and
- Government audit and oversight rules.¹²³
-

While the Department of Defense regulates the defense industrial market and it in turn is its only customer, defense corporations still make financial decisions as the publicly-held corporations that they are (with very few exceptions). This means that management has a fiduciary responsibility to shareholders similar to those undertaken by other commercial firms. Thus, defense corporations seek financing for investments, invest in capital assets and attempt to turn a profit.

The private sector dependant on defense weapons acquisitions programs had four possible outcomes in response to the policy jolts that signaled the end of business as it had been conducted for the past 50 years. In other words, there were four possible outcomes at 'Point O' in Figure V.1. The corporations could consolidate (merge), stay as they were, stay and diversify or leave altogether. (Consolidation and staying are not mutually-exclusive as those who decided to stay could consolidate or not as the case may be.) Somehow conventional arms exports must factor into the corporate outcomes because they produce revenue streams and have, as noted earlier, many benefits for all stakeholders.

¹²³ Defense Conversion Commission, "Adjusting to the Drawdown: Report of the Defense Conversion Commission," 31 December 1992, 19, NTIS, PB93-175792.

U.S. Government Stakeholders

The conceptual model (Figure V.1) indicates that the President and the U.S. Department of Defense do respond to economic stakeholder outcomes. The governmental stakeholders have both differing and converging benefits from conventional arms trade and transfers. The primary stakeholders are the President, as he sets the tone for foreign policy and is responsible for the domestic well being of the country and the U.S. Department of Defense that sees arms transfers as (1) delaying the need to import more defense technology resulting in a loss of self-sufficiency; (2) keeping pricing competitive, as well as insuring efficiencies of scale and (3) keeping production lines open that would result in a lower military response time if needed during a military crisis.

The U.S. Department of Defense officials and Defense-Industrial Base corporate officials had strong working relationships during the Cold War years,¹²⁴ but those were, for the most part, bountiful years for defense spending. Similar to the corporations which have an array of options--from staying to leaving--there are also options that the Defense Department can exercise in its relationships with the corporations. Below are three possible scenarios for relationships in the Post-Cold War environment between the Department of Defense and the Defense-Industrial Base: a weaker, a status quo or a stronger relationship.

- A weaker relationship--The Defense Department could step back and let the corporations sort themselves out and let the market determine the fates of who stays and who leaves.
- A status quo relationship--In this relationship, the corporations and the Department of Defense carry on as they did during the Cold War with strong interdependencies, such as those described above.
- A stronger relationship--Both the corporations and the Department of Defense entrench themselves, coordinate activities and act in concert. The Post Cold War era with budget and industry downturns becomes one with closer bonds between the public and private organizations as both have common cause. New offices, teams and interests form with the goal of promoting conventional arms transfers.

The Departments of State and Commerce are governmental stakeholders but in a “reactive sense” while the President is more “proactive.” The Executive Departments do make policy within their own scope of interests or within their enabling legislation but State and Commerce also carry out the President's foreign policy and trade initiatives, act in an advisory capacity to the President and license conventional arms exports or “dual-use” exports. The Department of Commerce carries out the President's civilian foreign trade initiatives, advises the President and licenses "dual-use" export applications ("dual-use" products have both civilian and military applications).

¹²⁴ Reference is made to Anthony Sampson, *The Arms Bazaar, from Lockheed to Lebanon* (New York: The Viking Press, 1977); George Thayer, *The War Business, the International Trade in Armaments* (New York: Simon and Schuster, 1969) and the seminal John Stanley and Maurice Pearton, *The International Trade in Arms* (New York: Praeger Publishers, Inc., 1972).

The broken lines that now appear in the bottom half in Figure V.8 below suggest that the jolt-response process does not end with governmental stakeholder actions. It can be carried one step further. The jolt-response mechanism can serve an intermediary function for informing new policy directions. Philip Kronenberg's work in "Chaos and re-thinking the public policy process" [*Chaos and Society* (1995)] provides a framework for exploring this segment of the model with regard to the public policy process. The suggestion is made that not only is the point between "Organizational Response" and "Outcomes" where uncertainty can be contained or its interpretation controlled but from where policy *transformational issues* can evolve or be developed. According to Kronenberg, "Issue transformation is my concept of the emergent policy advocacy and dynamic social behavior 'at the edge of chaos' for a given policy process."¹²⁵ Issue transformation as an "*entirely new phase concept*" and adds a sixth step to the existing, conventional five-step policy process (agenda setting, policy formulation, policy adoption, policy implementation and policy assessment).

¹²⁵ Philip S. Kronenberg, "Chaos and Re-thinking the Public Policy Process," 260.

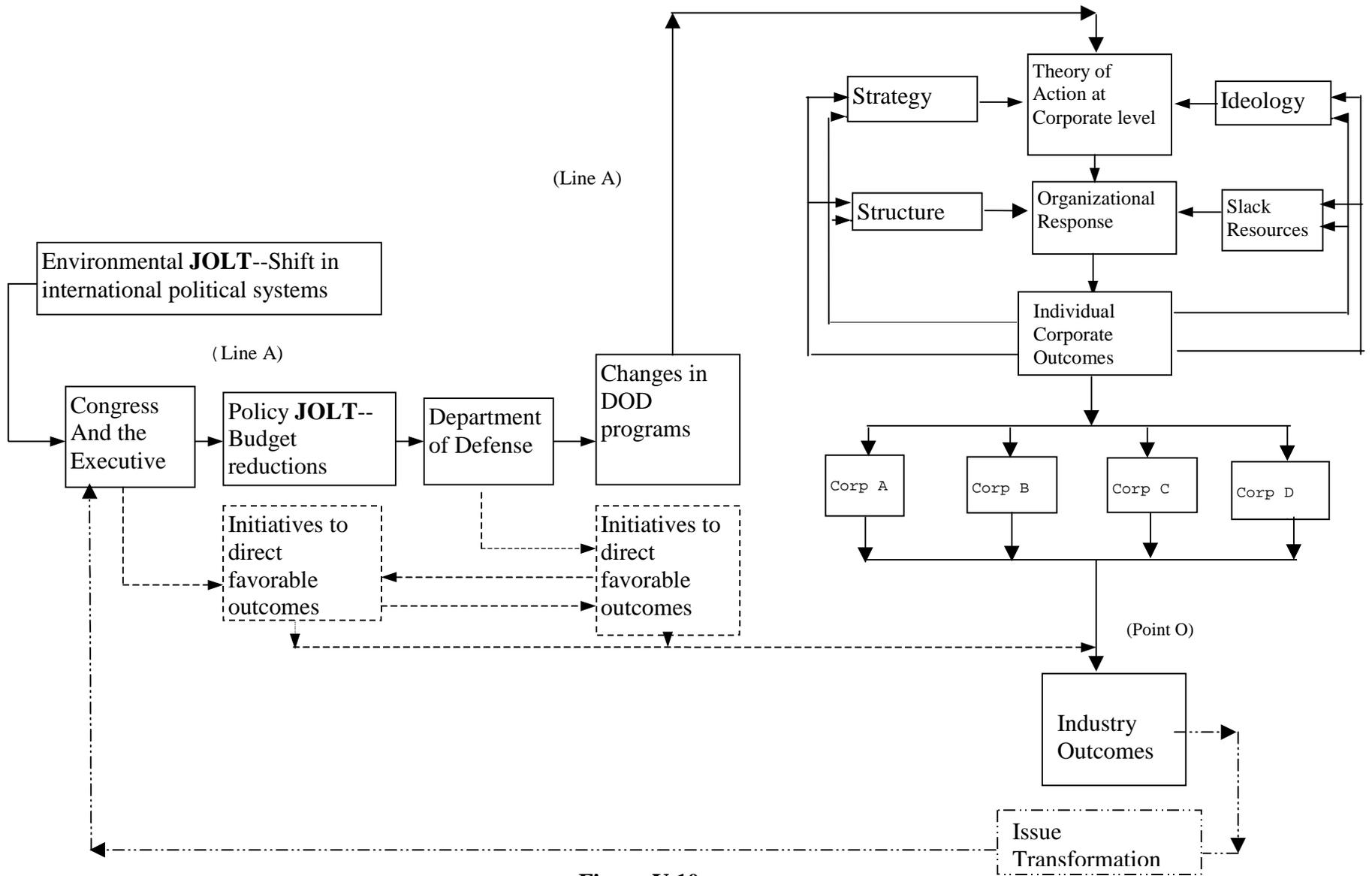


Figure V.10
Issue Transformation

CHAPTER VI

METHODOLOGY

Introduction

Chapter VI discusses the methodology for examining the economic stakeholder reactions to the policy jolts and the governmental stakeholders responses to those actions, with respect to conventional arms transfers, as they were presented in the conceptual model (Figure V.1) in the previous chapter. The research herein is guided by two questions:

- (1) To what extent did conventional arms transfers figure into the corporate "outcomes" presented in the model (point O on Figure V.1) ?
- (2) How have the national-level stakeholders responded to organizational changes in the Defense-Industrial base with respect to conventional arms transfers?

Case Studies

Case studies are developed for the Defense-Industrial Base concurrently with a study of weapons systems that have an active export market (Chapter VII); the Office of the President of the United States as he interacts with the U.S. Departments of State and Commerce (Chapter VIII) and the U.S. Department of Defense (Chapter IX). The case studies are designed to respond to the null hypothesis (H_0) that the policy jolts underscored the importance of conventional arms transfers as a vehicle for corporate stability (the economic-level stakeholders) and as a means for maintaining the economic well-being of the Defense-Industrial Base (for the national-level stakeholders) in the Post-Cold War environment. A comparative case study is also included for Western European arms producers.

Case Study: Defense-Industrial Base

This case study will examine U.S. corporate responses to the “jolt(s)” —the policies that reduced domestic “demand” in weapons acquisition programs. Economic stakeholders can be identified as top defense contractors, such as those on the list published by the U.S. Department of Defense in Appendix A or in the business section 'Top 20' in any edition of a weekly *Defense News*. There are two levels of analysis: the corporate level and the industry level. Individual corporations will undergo change first and the industry level will follow. Corporate change is illustrated in Figure V.1 at point O.

Corporations identified in *Defense News* will be examined for internal "change activities" on the assumption that these economic stakeholders will undertake such a degree of change activities that they will transform themselves as opposed to those who do not and "stay the course." The examination of corporate change activities is based on a 1994 paper by Elaine Romanelli and Michael Tushman who studied the minicomputer industry in the late 1960s.¹²⁶ Romanelli and Tushman examined five areas in which they predicted radical change, in the form of punctuated equilibrium, could produce corporate transformation. These areas are organizational culture, strategy, structure, power distribution and control systems. Romanelli and Tushman eventually dropped organizational culture and control systems from their inquiry because they found "organizations reported information about cultures and control systems infrequently and inconsistently."¹²⁷ Before examining defense corporations for change activities in the remaining variables of strategy, structure and power distribution, some modifications need to be made to the Romanelli and Tushman variables since their study applied only to the mini-computer industry. The language in the 1994 paper is specific to mini-computers but the underlying concepts are the same. For example, in discussing "Strategy Changes," Romanelli and Tushman state, "Changes in strategy were coded whenever companies introduced or abandoned either major new lines of minicomputers or non-minicomputer product lines...." Changes in a defense corporation's strategy would center on weapons systems (although computers are parts in weapons systems), not commercial minicomputers. In this research the timeframe will change, too, from the late 1960s-early 1970s to post 1989. Corporate "change activities" in all categories are those that represent a significant departure from the pre-1989 status. The table below represents the modifications:

¹²⁶ See, for example, Romanelli and Tushman, "Organizational Transformation as Punctuated Equilibrium," and Michael L. Tushman and Elaine Romanelli, "Organizational evolution: a metamorphosis model of convergence and reorientation," (1985).

¹²⁷ Romanelli and Tushman, "Organizational Transformation as Punctuated Equilibrium," 1147.

Table VI.1

Modifications to Romanelli and Tushman's Variables

	Romanelli and Tushman	Current research
Product	Mini-computers	Conventional Weapons Systems
Time	1960s-1970s	Post 1989
Measurement of Change Activities		
<i>Strategy</i>	The number of times a company entered or exited a non-minicomputer product line.	Strategy is extended to include new commercial ventures, contract awards other than defense, commercial joint-ventures, changes in strategic marketing, etc.
<i>Structure</i>	Title of senior executives to measure whether organizations were organized on a functional or divisional basis	Structure extended to include personnel changes resulting from merger and acquisition activities .
<i>Power distribution</i>	Measured by (1) turnover in the executive team; (2) percentage changes in the ratio between research expenditures and the total of research expenditures and marketing and sales expenditures and (3)changes in the ratio between the number of research executive titles and the total number of titles in research plus titles in marketing and sales	Power distribution extended to include measures 1-3 as a result of mergers and acquisitions.

This research makes two assumptions based on Romanelli and Tushman's work. The first is that mergers and acquisitions can be classified as major structural change activities. Two corporations must somehow meld into one, old divisions abandoned, new ones formed, new departments created, buildings sold while others are acquired, consolidation or expansion of facilities—all of these are structural changes that are the consequences of a merger or acquisition. The second assumption is that in a merger and acquisition the power distribution will also change since it is unlikely that a corporation would have, for instance, two presidents or two chairmen, duplicate division chiefs and so on. There have been many mergers and acquisitions among the prime defense contractors in the Post-Cold War Era.

Romanelli and Tushman collected data from many sources and by regression analyses and frequency tables, they were able to test the above variables. It is unnecessary to duplicate Romanelli and Tushman's work again because the revised data measurements for the defense industry are readily extrapolated from those of the mini-computer industry. Therefore, it is sufficient to stipulate that other data measurements, e.g., mergers and acquisitions, by their very nature can describe change activities. Two abridged qualitative examples appear below that illustrate how the Romanelli and Tushman variables can be stipulated in this research by the very nature of the change activity. Table VI.2 below provides an example of the applicability of the change activities in two defense corporations over three years.

Table VI.2
Change Activities in Lockheed-Martin and Loral Corp.
1994-1998

Changes in Activity Domains	Lockheed-Martin	Loral Corp.
Strategies	<ul style="list-style-type: none"> • Tier III Minus “Darkstar” (drone) development for DoD’s ARPA • Announced plans to commercialize F-16 production in Ft. Worth to reduce costs by 15% • Entered into agreement with Russia’s Khrunichev for an international satellite launch service 	<ul style="list-style-type: none"> • Development of “Grizzly Bear,” a new computer management system • Announced plans to build two direct-to-home broadcast television satellites to position themselves as major player in the market
Structures	<ul style="list-style-type: none"> • Lockheed-Martin March 1995 merger created largest DoD contractor • After merger 10% consolidation to take approximately five years • Will close 12 facilities and labs and lay off 12,000 	<ul style="list-style-type: none"> • Purchased UNISYS Defense Systems in March 1995 • Purchased IBM Federal Systems Co. in January 1994 • Over past six years has picked up seven sizable outfits including Ford Aerospace in 1990
Power distributions	<ul style="list-style-type: none"> • Merger created executive team turnover • Urged by government to team up with R&D efforts • Announced in March 1995 it will slash internal information systems costs by \$700 million over next five years 	<ul style="list-style-type: none"> • Pouring dollars into new ventures as defense contracts decline (<u>Baron’s</u>, 1/19/95) • Fosters employee empowerment as critical to corporate TQM effort (<u>Quality</u>, Sept. 1994)
UPDATE	<p>Lockheed Martin bought Loral's defense divisions in January 1996 while the commercial satellite division (Loral Space) spun off into a separate operation headed by Bernard Schwartz, former CEO of Loral. (Lockheed Martin will have an equity interest in Loral Space.) Next, Lockheed Martin attempted to purchase Northrup Grumman for \$11.6 billion in 1997 but gave up the effort in July 1998 after strenuous protests from the Department of Defense and the U.S. Department of Justice's antitrust division.</p>	

According to the methodology proposed herein, Loral Corp. would be eliminated from further consideration because its defense divisions were acquired by Lockheed-Martin leaving only its commercial divisions. Lockheed-Martin would be considered for further examination because it continued to engage in change activities in strategy, structure and power distributions throughout the 1990s. Romanelli and Tushman concluded that activities in those domains could cause organizational revolutionary transformation.

Conventional Arms Exports

The corporate selection process must go hand-in-hand from this point on with corresponding export lines because not all corporations that have experienced change activities are major exporters (Electric Boat for example). Conventional weapons systems that have been exported in the past and are currently exported can be identified through a review of the Foreign Military Sales lists and the *Congressional Record*. Whether or not a system will be procured in future years can be determined by checking the annual Department of Defense acquisition procurement budget. The second stage matches current export systems with their manufacturer.

The Defense Department procurement budget(s) is also scanned for new acquisition initiatives that are scheduled to replace the systems identified in the previous paragraph. The data collected will tell the current and future years trading prospects of existing systems before its replacement kicks in. This information is important because a system in the 'mature' stage of the product life-cycle may have trouble attracting buyers when a newer, more desirable system will soon be available. On the other hand, some systems in the 'mature' stage that are schedule to be replaced may not be for many years out and other systems that are no longer being acquired by the U.S. Department of Defense and not scheduled to be replaced still have steady export demand.

Data on the corporations and export lines will provide a "snapshot" in time of what characterized them when the parent underwent change activities. An effort will be made to determine the importance of that export system to the corporation's bottom line, where one particular system fits into the competition and how many years out certain weapons platforms have to remain in production until a replacement is offered. Determining the future outlook for popular arms transfer systems will reveal insights into how and why they are important for corporate profitability and for defense acquisition.

Processing the Change

Many of the top corporations of the Defense-Industrial Base underwent revolutionary or second order change in response to the policy jolts. How did they process this change with respect to conventional arms transfers? The change process can be examined using Alan D. Meyer's "Adapting to Environmental Jolts."¹²⁸ Meyer's research is based on case studies of three San Francisco hospitals whose environment was jolted by a physician's strike precipitated by the termination of malpractice coverage by a major insurer. Meyer states that his objective is,

¹²⁸ Meyer, "Adapting to Environmental Jolts."

To generate theory about organizational adaptations to jolts by triangulating between data from observations, anecdotes, surveys, documents, and archives (Denzin, 1970; Jick 1979). By juxtaposing qualitative and quantitative modes of analysis, it seeks to compound their discrete advantages, offset their inherent liabilities, and achieve a deeper understanding of adaptation than either method could have produced alone. This strategy is especially appropriate for exploratory research because it yields "thick descriptions" of behavior in contest that complement numerical data and facilitate their interpretation (Denzin, 1970).¹²⁹

Meyer collected data on what he refers to as "antecedents" to the shock ("antecedents" are defined by Meyer as preexisting characteristics). The antecedents examined are strategy (organizational surveillance of market niches), structure (task allocations, control and coordination among subunits), ideology (shared beliefs that bind values to actions) and slack resources ("cushions" that insulate organizations from external shocks). Meyer's premise is that the hospitals in his study adapted to the environmental jolt according to the nature of their antecedents. For example, the study indicates that the hospital with the smoothest adjustment to the doctors' strike also engaged in strategic planning (Market Strategy) before the strike. The antecedents as developed by Meyer are illustrated below:

Table VI.3

Meyer's 'Antecedents' for Exploring Adaptation to Environmental Jolts

Market strategy Strategic type Innovativeness of market behavior Administrator's attention devoted To the environment Boundary spanning Scope of service provided Scope of outpatient and long-term Services Portion of revenue from Medicare	Hospital structure Structural type Size Complexity Formal job descriptions Decision centralization Medical specialization
Organizational ideology Dominant metaphor Perceived importance of environment Stories about strategic reorientations Benefits expected from changes Subordinates' perceived capabilities Benefits expected from participation	Slack resource deployment Predominant kind of Investment Financial reserves Human resources Medical technology Control systems

Meyer and Romanelli and Tushman are compatible in a sense that they are not exactly the same specifically but in a general sense, i.e., there is sense of convergence rather than difference between the two. The difference between the them is that Romanelli and Tushman's

¹²⁹ Ibid., 517.

change activities are the agents of change whereas Meyer's antecedents are the means through which the jolt is processed. Strategy and structure are quite similar and much of organizational ideology and slack resources are found in "power distributions." Meyer's study is less longitudinal than Romanelli and Tushman because he examined the hospitals for a discrete period--just before the environmental jolt. The hospitals in his study had little time to react to the doctors' strike. Corporations of the Defense-Industrial Base may have been shocked by the policy jolts, but adaptation to this sudden change did not have the time-critical immediacy as health care delivery. Therefore, a more longitudinal approach, similar to Romanelli and Tushman, is more appropriate.

A table using Meyer's hospital antecedents as a framework and adjusted for U.S. defense corporations is presented below:

Table VI.4
Meyer's Antecedents Modified for
U.S. Defense Corporations

Market strategy Strategic type Innovativeness of market behavior Boundary spanning Particulars of export product line(s)	Corporate structure Structural type Size Complexity
Organizational ideology Dominant metaphor Perceived importance of environment Benefits expected from change activity	Slack resource deployment ..Back orders Financial reserves Human resources

Defense corporate responses in "Market strategy," "Structure," "Organizational ideology" and "Slack resources" will be examined in Chapter VII. "Slack resources" is a particularly interesting area because this is the "quadrant" in which the defense corporations played out their "public" hand, so to speak, in responses to the policy jolts. The possibility of slack resource diminishment in the Defense-Industrial Base may be unacceptable to some governmental-level stakeholders so it could be here where they attempt to direct favorable outcomes through arms transfer policy.

Therefore, this case study explores the hypothesis (H₁) that after the policy jolts corporations responded in accordance with their Strategy, Structure, Organizational Ideology and Slack Resource Deployment that will result in one of four possible outcomes: (1) consolidate (merge), (2) stay as they were, (3) stay and diversify or (4) leave altogether. And if the choice is (1) or (2), then they will attempt to increase exports sales through a higher volume of Direct Commercial Sales (DCS) and pursue winning offset deals through licensing or joint-ventures. Data will be drawn from primary and secondary sources. Primary sources include interviews; secondary sources include newspaper clippings and other articles appearing in the mass media,

formal studies, scholarly journal articles, books, minutes of hearings, letters, memoranda, press releases, government publications and texts of legislation.

Case Study: The President of the United States in conjunction with the U.S. Congress, the Departments of State and Commerce

Investigation in Chapter VIII will focus on examples of governmental intervention and assistance that serve to support or broaden the scope of U.S. conventional arms exports. This case study examines the role of the President and any Presidential initiatives that are supportive or inhibit arms exports and the rationales for these actions. What is the perception of arms exports to the Chief Executive as a way to meet national economic objectives and political and military security needs? How does the President use the power of his office to intervene? How do the stakeholders self-interests converge or clash? This case study will further illustrate the relative importance of exports in meeting economic or political objectives or both to some stakeholders while others may be more hesitant to acknowledge their benefits.

This case study will explore the hypothesis (H₂) that the President of the United States and some government-level stakeholders will ease the outcomes of the policy jolts for defense corporations in ways favorable to defense exports rather than have market forces prevail to an unknown extent. Data will be drawn from primary and secondary sources. Primary sources include interviews; secondary sources include newspaper clippings and other articles appearing in the mass media, formal studies, scholarly journal articles, books, minutes of hearings, letters, memoranda, press releases, government publications and texts of legislation.

Case Study: The U.S. Department of Defense

The U.S. Department of Defense has had a long and interdependent relationship with the defense corporations but will it continue in this tradition? Research on the U.S. Department of Defense will explore the Department's activities with respect to arms transfers. What kind of a role does the Department assume in arms transfers? Will the Department of Defense take measures to facilitate government-to-government sales (Foreign Military Sales) and/or attempt to facilitate the release of state-of-the-art weapons systems for export?

This case study in Chapter IX explores the hypothesis (H₃) that the U.S. Department of Defense will attempt to assist corporations in increasing foreign arms exports sales by providing support for designated programs for its own strategic purposes. Data will be drawn from primary and secondary sources. Primary sources include interviews; secondary sources include newspaper clippings and other articles appearing in the mass media, formal studies, scholarly journal articles, books, minutes of hearings, letters, memoranda, press releases, government publications and texts of legislation.

Case Study: The Western European Allies

A comparative examination in Chapter X is provided that returns our attention to the international trading system. The conceptual framework in Chapter V can also be applied to the Western European allies because their acquisition and production processes and the markets they seek in arms transfers are both similar and dissimilar to the United States. They are close enough for meaningful comparison and yet different enough to derive a sense of how other approaches to the same situation work or do not work as the case may be. Since the United States does not trade its conventional arms in a vacuum, it is interesting to make comparisons with Western European countries. During the Cold War, they were virtually overlooked with so much emphasis placed on the behavior of the former Soviet Union. Russia is still a major arms trader but the next generation of state-of-the-art weapons will belong to the United States, France and some Western consortia. Data will be collected from the same sources as the other case studies and European English language publications.

Case Study: Chaos Theory

Chapter XI is a series of mini-studies on selected industrial sectors of arms production and their related exports. These mini-studies on tanks, helicopters, naval vessels and jet fighters provides the bases for an "exploration" of the proposition that certain outcomes of the policy jolts could lead to issue transformation using Kronenberg's "cloud metaphor." As Kronenberg wrote,

A central consequence of its [issue transformation] operation is that it is an interface process linking what we tend to think of (simplistically) as both the beginning and end of the policy process. It closes the loop of the policy process.... It is the ill-bounded, formative set of behaviors and interactions that may lead to changes in the political support for current policy and to the interactions that may lead to changes in the political support for current policy and to the consideration and emergence of support for other policy arguments and approaches, and even to redefinitions of the "problem" to be solved.¹³⁰

This paper extends Kronenberg's theory to describe the policy process at or after the point between "Organizational Response and Outcomes." Figure V.10 illustrates that attempts by the governmental stakeholders to direct favorable outcomes coupled with corporate responses to these same attempts could generate issue transformation. (There are actually more outcomes possible but Figure V.10 only illustrates the possibility of issue transformation.) Thus the hypothesis (H₄) in Chapter XI is that one possible outcome to the governmental stakeholders attempts to direct favorable outcomes for the economic stakeholders is issue transformation.

¹³⁰ Ibid.

Research Findings

The research conducted for the case studies is undertaken with the following objectives in mind:

a) Help to answer the question in Post-Cold War arms transfer literature about the future direction of arms transfers best summarized by Sumner Benson in "National security and economic considerations in U.S. conventional arms transfer policy" in *The Nonproliferation Review* (Fall 1994)--How have the corporate outcomes to the policy jolts affected Presidential and Department of Defense policies, as well as industry programs, in view of the fact that political and military pressures for restraint in conventional arms sales continue even as economic and military pressures for sales have been increasing?

b) The research conducted herein will also help to fill a gap in organizational theory. It will serve as a preliminary investigation of how governmental organizations and private corporations react to each other in response to "policy jolts." It will hopefully elucidate through organization theory what happened in the "black box" after the end of the Cold War that de-emphasized conventional arms transfers as tools of foreign policy to increased emphasis on their economic benefits.

c) The final objective of this research is to expand on the theory developed by Philip S. Kronenberg on *issue transformation* within the literature of the New Sciences of Transformation and public policy processes.

CHAPTER VII

THE DEFENSE-INDUSTRIAL BASE

Introduction

This Chapter discusses the strategic response behavior of a number of Defense-Industrial Base corporations to the continuing reduction in the acquisition portion of the defense budget. Kaitz defines 'Defense industry' as,

...the industry consists of those firms, irrespective of size, that derive a minimum of 30% or more of their annual sales from various weapons acquisition programs, that is to say, their corporate perpetuity is primarily dependent on the flow of funds from the defense budget.¹³¹

The 'Defense industrial base' is defined as,

...includes any industry or firm that produces products and/or services for any of the many weapons acquisition programs implemented by the Department of Defense. In particular, the term defense industrial base denotes those firms who participate in these programs but who are otherwise not defense contractors, prime contractors, etcetera. In this regards, (a) only a relatively minor portion of their sales are the result of the weapons system acquisition process and, more importantly, (b) the major strength of their business is in their commercial operations.¹³²

Between 1992 and 1998 in response to guidance provided by the Department of Defense, a number of important mergers and acquisitions took place or were attempted among prime contractors. Organization change theory in Meyer et al. and Romanelli and Tushman predicts that this should be a period of "reorientation" and "recreation" in the core values of these corporations. However, reorientation and recreation means modifying old linkages and interdependencies with the Department of Defense while confronting a changed economic environment, specifically a lessening in demand for weapons systems. For corporations that merged or stayed in the industry, conventional arms export programs were one means to assure themselves of some hopeful level of profitability into the future and minimize the jolt resulting both from significant decreases in the defense budget and from changing Defense Department acquisition policies.

¹³¹ Edward M. Kaitz, "The Effects of a Scale-down in Defense Budgets," Vol. 1, Defense Systems Management College (Washington, DC, 1993): 15.

¹³² Ibid., 15-16.

Defense Conversion Commission

As required under the 1992 Department of Defense Appropriations Act, the Defense Conversion Commission was formed in April 1992. It was chaired by David Berteau, who was appointed by the Secretary of Defense. The charter of the Commission was to review

(a) the impact on the U.S. economy of the reduction in the size of the armed forces and the reduction of resources devoted to defense procurement and (b) the potential for strengthening or establishing Federal programs for retraining military personnel and civilian employees of the Department of Defense for non-defense-related pursuits and for appropriate cooperative ventures between the Federal Government and companies predominantly engaged in defense-related activities to assist the companies in converting to predominantly commercial activities.¹³³

The Commission issued its report in December 1992 entitled "Adjusting to the Drawdown." The report itself was only 85 pages long but had 14 supporting annexes that dealt at length with important topics. The two annexes that addressed defense-industrial issues were Annex D, "The Impact of Reduced Defense Spending on U.S. Defense Contractors," prepared by Data Resources, Inc. (DRI)/McGraw-Hill, and "Defense Drawdown: Financial Overview and Strategies for the Top 25 Prime Contractors," prepared by the DCC staff.

The conclusions of the two annexes, which were cited in "Adjusting to the Drawdown," were that the major defense corporations had excess capacity, a factor long known by acquisition specialists in the Department of Defense. DRI examined in depth financial ratios for various categories of the defense industry and concluded optimistically that the prime contractors "will successfully manage the decline in defense spending and sustain the financial conditions necessary for a strong industrial base."¹³⁴ Further, annexes D and E predicted that defense corporations would consolidate and remain profitable, although less so than during the early to middle 1980s. Further, DRI noted that corporate focus would be on profitability as opposed to sales growth. DRI listed three primary options contractors have pursued or will pursue "either independently or in combination."¹³⁵ They are

- (1) aggressive divesting of individual business segments;
- (2) focus on core businesses or competencies and manage the corporation for cash and profitability; or

¹³³ Defense Conversion Commission, "Adjusting to the Drawdown: Report of the Defense Conversion Commission, Appendix 4," 31 December 1992, 85, NTIS, PB93-175792.

¹³⁴ Defense Conversion Commission, "Defense Drawdown: Financial Overview and Strategies for the top 25 Prime Contractors," Annex E, 30.

¹³⁵ *Ibid.*, 30.

- (3) pursue and expand commercial markets and foreign sales.¹³⁶

With one exception, defense corporations, as this chapter shows, appear to have followed the predictions of the Defense Conversion Commission. Number (3) above is a confusing statement, however, since expansion into commercial markets is a very different corporate strategy than is an attempt (or policy decision) to increase foreign sales. A later section in this chapter discusses problems related to expansion in commercial markets.

Structural Rationalization

The process of shedding excess capacity in the military-industrial base and consolidation is known as "structural rationalization." ["Rationalization" is a strategic merger and acquisition process that creates value by reducing the operating sites in mature industries. It is not exclusive to the defense industrial sector.¹³⁷] According to Creehan and Leger, there are many short- and long-term benefits of rationalization.

In the short term, a reduction in the combined firms' manufacturing sites probably will result in increased capacity utilization and lower overall costs. Over the long term, if the industry has overcapacity, reducing the number of manufacturing sites will result in reduced prices for the industry. This type of acquisition thus can provide both cost and revenue benefits to the acquiring firm.¹³⁸

Kaitz prefers the term "structural rationalization" for the following reason:

This term is being used here now because it has been used before in both economic and political literature such that someone looking for a history of the 'down-sizing process could begin a fruitful bibliographic search with this as the leading descriptor.¹³⁹

Top Department of Defense officials did not wait for the findings of the Defense Conversion Commission's report before taking action. In their opinion the defense contractors were moving too slowly.¹⁴⁰ In February 1992, an important event took place. At a dinner (now

¹³⁶ Ibid., 30.

¹³⁷ Keith Creehan and Eleanor Leger, "Gaining competitive position through M&A," in *The Mergers & Acquisitions Handbook*, 2 ND, Milton L. Rock et al. eds. (New York: McGraw-Hill, 1994): 81.

¹³⁸ Ibid., 81.

¹³⁹ Edward M. Kaitz, "The Effects of a Scale-down in Defense Budgets," 11.

¹⁴⁰ At the beginning of the merger process, there were many buyers and very few sellers. See, for example, Jon Kutler, "Merger Pace will Continue," *Defense News* 11, no. 47 (November 27-December 3 1995): 19.

known as "The Last Supper"), the late Secretary of Defense Les Aspin and then-Deputy Secretary of Defense William Perry attended a dinner with representatives of major defense contractors during which they strongly suggested the corporations consider a consolidation strategy. Consolidation then was key to maintaining the competitiveness of the domestic defense industrial base because it meant that excess production capacity would be reduced. In the opinion of Aspin and Perry, fewer healthy players were better than many weaker ones. Financially stronger companies can command more resources than can weak ones and, by proper investment, keep costs down thus making themselves more competitive. Although Aspin and Perry stated that they were offering "advice" as opposed to setting "policy," the defense industry responded relatively quickly.

In the opinion of Aspin and Perry, the rationalization of the U.S. defense industry was not only necessary to ensure the continued supply of weapons to meet U.S. security needs but also important if the United States was to continue to sell them abroad. The rationalization process would help to keep U.S. weapons systems available and competitive with regard to those of our international rivals. Strong corporations would be able to command more resources thus be able and willing to offer products at more competitive prices along with attractive offset packages, if necessary.¹⁴¹ Competitive pricing was important in the early 1990's because, other than the Middle East, there were no international sales of any magnitude on the horizon and many countries, particularly the NATO allies, were just completing their own force modernization programs. Other prospective foreign customers were then suffering through a global recession and unwilling then to spend the required monies. A spokesman for McDonnell Douglas stated, "we can only supplement domestic orders and keep production lines open but not dominate based on domestic consumption."¹⁴²

¹⁴¹ "Offsets" are discussed in Chapter VIII. They are defined as "The entire range of industrial and commercial compensation practices provided to foreign governments and firms as inducements or conditions for the purchase of military goods and services. They include coproduction, technology transfer, training, investment, marketing assistance, and commodity trading." See, U.S. General Accounting Office, Report GAO/NSIAD-96-65, "Military Exports, Offset Demands Continue to Grow," by David E. Cooper et al. (1996), p. 1.

¹⁴² Sharon Denny and Philip Finnegan, "McDonnell Douglas Plans to Double International Sales," *Defense News* 10, no. 33 (21-27 August 1995): 9.

Mergers, Acquisitions and Divestitures

Consolidations are the prime process used in most corporate mergers, acquisitions and divestitures. There had been many defense-related mergers during the early 1980's, but these involved second- and third-tier contractors and were not economically significant. Moreover, the pace of these consolidations began slowing late in the decade. It was not until 1992 with the impetus provided by the Department of Defense that the most dramatic mergers began to take place. Between 1992 and 1997 the corporate landscape changed radically. The following table is a recent chronology of these various mergers and acquisitions:

Table VII.1
Mergers and Acquisitions in the U.S. Industrial Base
1992-1997

<p>1992</p> <ul style="list-style-type: none"> • Hughes Electronics acquires General Dynamics Corp.'s missile business for \$450 million. 	<ul style="list-style-type: none"> • Northrop Corp. completes the \$2.17 billion acquisition of Grumman Corp. • Northrop Grumman Corp. acquires the remaining 51 percent of Vought Aircraft Co. for \$130 million. 	<ul style="list-style-type: none"> • Northrop Grumman buys Westinghouse's defense businesses for \$3 billion. • Raytheon acquires Chrysler Technologies Corp.'s defense businesses for \$455 million.
<p>1993</p> <ul style="list-style-type: none"> • Lockheed Corp. purchases General Dynamics' fighter business for \$1.5 billion. • Martin Marietta Corp. acquires General Electric Co.'s aerospace business for \$3.05 billion. 	<p>1995</p> <ul style="list-style-type: none"> • Hughes Electronics completes its \$155 million acquisition of CAE-Link. • Lockheed and Martin Marietta merge. • Loral buys Unisys Corp.'s defense business for \$862 million. 	<ul style="list-style-type: none"> • Boeing Co. completes a \$3.2 billion acquisition of Rockwell Corp. • Boeing announces its intention to acquire McDonnell Douglas Corp. for \$13.3 billion.
<p>1994</p> <ul style="list-style-type: none"> • Loral Corp. acquired IBM Federal Systems Co. for \$1.58 billion • Martin Marietta buys General Dynamics' space division for \$200 million. • Westinghouse Electric Corp. buys United Technologies Corp.'s Norden Systems Inc. for an undisclosed sum. 	<ul style="list-style-type: none"> • Hughes Electronics completes its \$370 million acquisition of Magnavox Electronic Systems Co. • Raytheon completes \$2.3 billion acquisition of E-Systems, Inc. 	<p>1997</p> <ul style="list-style-type: none"> • Raytheon announces plans to acquire the defense electronics business of Texas instruments Inc. for \$2.95 billion. • Raytheon announces plans to acquire Hughes Electronics' defense business for \$9.5 billion. • Lockheed Martin announces plans to acquire Northrup Grumman for \$11.6 billion.
	<p>1996</p> <ul style="list-style-type: none"> • Lockheed Martin acquires most of Loral for \$9 billion. 	

Source: Defense News research, January 1997 (modified by JM).

The following table compiled by GAO graphically represents the current status of defense contractors. The Department of Defense has identified the industrial market sectors that are important to U.S. national security.

Table VII.2

Prime Contractors in Defense Market Sectors (1990-98)

Sector	Reduction in contractors	1990 contractors	1998 contractors
Tactical missiles	13 to 3	Boeing Ford Aerospace General Dynamics Hughes Lockheed Loral LTV Martin Marietta McDonnell Douglas Northrup Raytheon Rockwell Texas Instruments	Boeing Lockheed Martin Raytheon (Northrup Grumman)
Fixed-wing aircraft	8 to 2	Boeing General Dynamics Grumman Lockheed LTV-Aircraft McDonnell Douglas Northrup Rockwell	Boeing Lockheed Martin (Northrup Grumman)
Expendable launch vehicles	6 to 2	Boeing General Dynamics Lockheed Martin Marietta McDonnell Douglas Rockwell	Boeing Lockheed Martin
Satellites	8 to 5	Boeing General Electric Hughes Lockheed Loral Martin Marietta TRW Rockwell	Boeing Lockheed Martin Hughes Loral Space Systems TRW

Sector	Reduction in contractors	1990 contractors	1998 contractors
Surface Ships	8 to 5	Avondale Bath Iron Works Bethlehem Steel Ingalls NASSCO Newport News Tacoma Tampa	Avondale Bath Iron Works Ingalls NASSCO Newport News
Tactical wheeled vehicles	6 to 4	Am General BMY GM Canada Oskosh Stewart & Stevenson Teledyne Cont. Motors	Am General GM Canada Oskosh Stewart & Stevenson
Tracked combat vehicles	3 to 2	FMC General Dynamics Harsco (BMY)	General Dynamics UDLP
Strategic missiles	3 to 2	Boeing Lockheed Martin Marietta	Boeing Lockheed Martin
Torpedoes	3 to 2	Alliant Tech Systems Hughes Westinghouse	Lockheed Martin Raytheon
Rotary wing aircraft	4 to 3	Boeing Bell Helicopters Sikorsky McDonnell Douglas	Boeing Bell Helicopters Sikorsky

Note: The table reflects the ongoing Lockheed Martin/Northrup Grumman merger as completed. The electronics sector is not included.

Source: GAO analysis of DOD data (GAO/TNSIAD-98-112), p. 7.

The Four Classifications of Acquisitions

According to most business analysts, there are four classifications of acquisitions: horizontal, vertical, concentric and conglomerate.

- *Horizontal Acquisition.* In a horizontal acquisition, one firm acquires a direct competitor. The advantages are "economies of scale in production, distribution and possible increases in market power in a more concentrated industry."¹⁴³ To date with respect to the defense industry, all mergers and acquisitions among the prime contractors have been horizontal. Before a horizontal merger can take place, the U.S. Department of Justice or the Federal Trade Commission can require that certain departments or business units of the seller or buyer be divested in order to avoid conflicts of interest. The 1990's mergers have raised anti-competitiveness issues in industry circles, in the press and less frequently by consumers but only one merger has been prohibited (Lockheed Martin-Northrup Grumman). There was some concern expressed by industry and press, for example, that a merger of Raytheon and Hughes Electronics Corp. would not be approved by either the Pentagon or the Justice Department because of the concentration of U.S. missile production in one company.¹⁴⁴ The Boeing McDonnell-Douglas merger threatened to raise some antitrust issues outside of the defense sector since a merger of those two companies created an aviation giant equal to Europe's Airbus Industrie, Boeing's foreign competitor, moved to have the EU rule against the merger but it ultimately was approved by both European and U.S. anti-trust agencies.
- *Vertical Acquisition.* In a vertical acquisition, one firm acquires an important supplier (or a customer). Vertical acquisition is undertaken "when the market for the intermediate product is imperfect, because of scarcity of resources, criticality of the purchased products, or control over production specification of the intermediate product..."¹⁴⁵ The Lockheed Martin-Northrup Grumman merger was considered a vertical one and was ruled against. The problem was not that Lockheed Martin was buying *its* valuable supplier, it was acquiring everyone else's supplier. Such a merger could have had serious implications for the future of the competitive bidding process for defense contracts.
- *Concentric or Conglomerate Acquisitions.* The former is an outward movement to expand by "economies of scope," e.g. contiguous businesses. An acquisition of a "dual-use" business unit or a second-tier defense contractor seeking to diversify could be considered a concentric acquisition. A conglomerate acquisition is not aimed explicitly at the current business mix

¹⁴³ Peter Lorange et al., "Corporate Acquisitions: A Strategic Perspective," in *The Mergers & Acquisitions Handbook*, 2ed., Milton L. Rock et al. eds. (New York: McGraw-Hill, 1994), 5.

¹⁴⁴ The Defense Department has no veto power over proposed mergers but can make recommendations to the Justice Department. See John R Wilke and William M. Bulkeley, "Raytheon deal faces changes by Pentagon," *The Wall Street Journal*, 9 May 1997, sec. A, p. 3.

¹⁴⁵ Ibid.

but as a means to enhance the corporate portfolio. Some prime defense contractors at one point or other were part of conglomerates, such as Westinghouse Defense. The trend recently has been toward retention of synergistic business units and divesting the rest. Litton Industries is such an example of a corporation that divested its consumer products group and retained its core defense capabilities. Raytheon sold its consumer products division (Amana appliances and Speed Queen washers) to raise cash to purchase Hughes Electronics.

Staying the Course

The Mergers and acquisitions process, despite its size, has not, at least as yet, resulted in any revolutionary change in the operations of the Defense-Industrial Base. Defense industrial corporations basically retained their Cold War "strategies" by (a) continuing to provide the same products to the same client, and (b) by not leaving the industry or (c) not attempting to enter non-defense markets. Thus, the major corporations in the industry did not reorient themselves. According to Tushman and Romanelli,¹⁴⁶ reorientation brings changes in a company's core values, i.e., who is the customer, what companies are the competition, changes in technology" and the type of skills sought in employees. The mergers and acquisitions did not affect core corporate values although there may have been some unperceived second-order changes. For the firms discussed herein, the customer--the U.S. Department of Defense--remains the same. There are fewer competitors but competition remains intense, the technology remains at the high tech or state-of-the-art level and the employees who are retained have relative skill sets.

When sunk costs are so high, the disincentive to leave or diversify out of current lines of business is staggering. Table VIII.2 illustrates the revenue dependency for the top 100 contractors. Since the table was published, several corporations have further solidified their positions in defense revenue rankings. Boeing has merged with McDonnell-Douglas and Hughes Electronics with Raytheon. General Dynamics (Electric Boat in Croton, CT) has also been trying to acquire Newport News Shipbuilding while Newport News Shipbuilding has been pressing ahead with its plans to acquire Avondale Industries in Mississippi. The latest mergers, or attempts to merge, indicate that corporations with large to mid-range revenues from the Department of Defense prefer to consolidate their positions within the respective segments of the defense industry whereas the more diversified corporations with under 20 percent of their revenues generated by the Defense Department are not involved in the merger process. Some mergers were also pre-emptive strikes that would prevent a competitor from future growth in a certain area. The now-rejected merger by Lockheed Martin and Northrup Grumman (announced July 3, 1997) was "preemptive in nature."¹⁴⁷ The latter merger is considered an effort on Lockheed's part to blunt future competition from Boeing and Raytheon. Lockheed could also not risk Boeing making a bid for Northrop Grumman after it's merger with McDonnell Douglas. An earlier preemptive strike was Boeing's quickly arranged merger with McDonnell Douglas when

¹⁴⁶ See Tushman and Romanelli, "Organizational evolution: a metamorphosis model of convergence and reorientation."

¹⁴⁷ Anthony L. Velocci, Jr., "U.S. Plays out Merger Endgame," *Aviation Week & Space Technology* (14 July 1997): 63.

Hughes was put on the auction block by General Motors. "Boeing feared that McDonnell--troubled by military business setbacks and known to be hungry for a deal--would buy Hughes and make a future Boeing-McDonnell combination impossible."¹⁴⁸

The newly-merged corporations returned to the fold--those corporations that have remained as they were prior to the jolts--and together form a convergent Post-Cold War period. Several of the corporations not involved in the merger activities are presented below in Table VIII.3. A few of these corporations were spin-offs from larger parent companies such as Ceridian (CSC Corporation) and Newport News Shipbuilding (Tenneco). Some are with holding companies such as Esco Electronics Corp. and United Defense, LP. The helicopter industry was very reluctant to rationalize because orders were steady; helicopters was not a growth industry but there were enough orders--both commercial and defense--to eliminate the need for consolidating activities. Shipbuilding was another industry that had difficulty rationalizing. (Both helicopters and shipbuilding are discussed in Chapter XI.)

¹⁴⁸ John Mintz, "Auction forced Boeing's Hand," *The Washington Post*, 17 December 1996, sec. D, p. 1.

Table VII.3

Top U.S. Defense Corporations Derived from Defense News Top 100 Worldwide 1997

Principal Business Key

A-aircraft; M-missiles; SP-space systems; PS-professional services; DE-defense electronics; AV-armored vehicles; S-ships and/or submarines; CS-computer services; AR-artillery; E-engines; H-helicopters; C-communications; O-ordnance; T-trucks; MU-maintenance and upgrades

1996 Rank	Country	Company	Principal Line of Defense Business	1995 Rank	1996 Defense Revenue	1996 Total Revenue	1995 Net Income	Percent of Revenue in Defense
1	U.S.	Lockheed Martin Corp.	A,M,SP,PS,DE,CS,C,MU	1	14,300.0	26,800.0	1,350.0	53.4
2	U.S.	McDonnell Douglas Corp.	A,M,SP,DE,H	2	10,130.0	13,834.0	788.0	73.2
4	U.S.	Northrop Grumman Corp.	A,SP,DE,CS,C,MU	5	6,699.0	8,100.0	234.0	82.7
5	U.S.	Hughes Electronics Corp.	M,SP,PS,DE,CS,C,MU	4	6,300.0	15,900.0	1,150.0	39.6
7	U.S.	Boeing Co.	A,SP,DE,CS,H,C,MU	6	5,770.0	23,000.0	1,095.0	25.1
9	U.S.	Raytheon Co.	A,M,PS,DE,CS,C,MU	10	4,032.0	12,300.0	783.3	32.8
11	U.S.	United Technologies Corp.	A,SP,E,H	11	3,400.0	23,500.0	906.0	14.5
12	U.S.	General Dynamics Corp.	AV,S,AR,O	15	3,300.0	3,581.0	270.0	92.2
15	U.S.	Litton Industries Inc. ²	SP,PS,DE,S,CS,C,MU	18	2,966.6	3,611.5	150.9	82.1
18	U.S.	TRW Inc.	SP,PS,DE,C	24	2,267.0	9,857.0	480.0	23.0
21	U.S.	Texas Instruments Inc.	M,DE,CS,C	23	1,773.0	9,940.0	62.6	17.8
22	U.S.	Newport News Shipbuilding	S	22	1,760.0	1,870.0	55.0	94.1
23	U.S.	General Electric Co.	E	21	1,700.0	79,180.0	7,280.0	2.1
25	U.S.	ITT Industries Inc.	SP,PS,DE,CS,C,MU	25	1,571.6	8,718.1	222.6	18.0
27	U.S.	Allied Signal Inc.	DE,E,H,C,MU	34	1,260.0	13,970.0	1,020.0	9.0
33	U.S.	Computer Sciences Corp. ⁵	SP,PS,CS,C,MU	40	1,082.8	5,616.0	192.4	19.3
34	U.S.	Science Applications International Corp.	PS,CS,C,MU	38	1,046.9	2,402.2	63.7	43.6
37	U.S.	United Defense L.P.	DE,AV,C	39	1,010.0	1,010.0	N/A	100.0
38	U.S.	Textron Inc.	A,M,DE,AV,S,E,H	30	1,000.0	9,300.0	253.0	10.8

1996 Rank	Country	Company	Principal Line of Defense Business	1995 Rank	1996 Defense Revenue	1996 Total Revenue	1995 Net Income	Percent of Revenue in Defense
39	U.S.	Alliant Techsystems Inc. ⁵	SP,DE,AR,C,O	37	959.0	1,089.4	59.2	88.0
40	U.S.	Tracor Inc.	DE,S,CS,H,C,MU	43	928.2	1,082.5	36.6	85.7
46	U.S.	Lucent Technologies Inc.	DE,C	73	750.0	24,000.0	224.0	3.1
48	U.S.	Harris Corp. ⁷	SP,PS,DE,C,MU	48	684.0	3,600.0	178.4	19.0
50	U.S.	Rockwell International Corp. ⁸	C	19	600.0	10,400.0	555.0	5.8
51	U.S.	GTE Corp. ⁹	PS,DE,CS,C	52	599.0	21,300.0	2,798.0	2.8
55	U.S.	Dyncorp	PS,CS,H,MU	67	574.7	1,020.0	14.6	56.3
58	U.S.	Ceridian Corp.	SP,PS,DE,CS,C,M U	66	553.0	1,495.6	181.9	37.0
59	U.S.	Logicon Inc.	SP,PS,DE,S,CS,C, MU	69	538.0	566.4	32.7	95.0
65	U.S.	GenCorp Inc.	M,SP,E	65	494.0	1,500.0	42.0	32.9
67	U.S.	Avondale Industries Inc.	S	72	481.0	624.9	30.8	77.0
68	U.S.	Allegheny Teledyne Inc.	DE	56	456.0	3,800.0	211.0	12.0
73	U.S.	Primex Technologies Inc.	SP,DE,O	44	368.3	471.5	-7.9	78.1
75	U.S.	BDM International Inc.	PS,CS,C	60	362.0	1,002.0	27.3	36.1
78	U.S.	AM General Corp. ¹¹	PS,T,MU	84	342.2	462.4	-19.6	74.0
85	U.S.	Esco Electronics Corp. ¹³	DE	79	301.0	438.5	26.1	68.6
86	U.S.	Motorola Inc. ⁹	SP,DE,C,O	91	290.0	28,000.0	1,015.0	1.0
87	U.S.	Booz-Allen & Hamilton Inc.	PS,C	80	280.0	1,300.0	N/A	21.5
88	U.S.	Honeywell Inc.	DE	85	263.6	7,312.0	402.7	3.6
93	U.S.	Kaman Corp.	SP,CS,H	100	253.3	953.6	23.6	26.6
94	U.S.	UNC Inc.	PS,MU	94	252.3	832.1	41.7	30.3
95	U.S.	Oshkosh Truck Corp. ¹³	T,MU	97	251.5	413.5	-3.1	60.8
98	U.S.	Johnson Controls Inc. ⁹	PS	95	245.0	10,000.0	234.7	2.5
99	U.S.	Thiokol Corp. ⁷	M,SP,O	96	241.1	889.5	58.3	27.1
100	U.S.	Sundstrand Corp.	A,SP,S,H	98	240.0	1,521.0	114.0	15.8

Footnotes: ¹Profit before taxes; ²Year ended July 31; ³Japanese defense contract awards rather than revenue; ⁴Defense analyst estimate; ⁵Year ended March 31; ⁶Operating profit for Hunting Defence; ⁷Year ended June 30; ⁸Figures based on continuing operations; ⁹Ranking based on U.S. Department of Defense prime contract awards only; ¹⁰Earnings before interest and taxes; ¹¹Year ended Oct. 31; ¹²Year ended Jan. 31; ¹³Year ended Sept. 30

Table VII.4

Representative Defense Contractors that did not Merge in the 1990's

Name	Rank*	Comments
General Dynamics	12	In the early 1990s General Dynamics sold its missile business, its commercial and military aircraft businesses and its electronics business, leaving only its tank and submarine divisions. In 1995, General Dynamics agreed to buy destroyer maker Bath Iron Works in Bath, Maine. The latter can be considered a horizontal merger.
United Technologies	11	Spun off Norden, a radar system company in 1994; divisions include Pratt & Whitney engines and Sikorsky helicopters.
Kamen	93	Has been manufacturing helicopters since the 1940's.
Bell Helicopters- Textron, Inc.	38	Textron is a conglomerate that bought Bell Helicopters in 1960.
Gencorp, Inc.	65	Divested itself of its tire business, changed its name (General Tire and Rubber) and concentrated on core competencies (chemicals and sealants)
Litton Industries	15	Electronics systems and shipbuilding (Ingalls); has not been involved in any major merger deals.
Newport News Shipbuilding & Drydock Company	22	Spun off from Tenneco in December 1996.
Dyncorp	55	Information technology
Oshkosh Truck	95	Has been in same business since early 1900's
National Steel and Shipbuilding	N/A	Employee-owned buyout of Morrison-Knudsen in 1989.
General Motors Corporation	N/A	General Motors sale of its Hughes Electronics Corp. in July 1997 tightened GM's focus. ¹⁴⁹

*As ranked by *Defense News*.

As noted earlier, expensive mergers and acquisitions are, of course, done for specific purposes. Below is a table that illustrates how the weapons systems previously manufactured by a seller lent a boost to the buyer's strategic position within the defense industry. All of the systems in the "Weapons Systems" column have current export orders.

¹⁴⁹ See Jon C. Auerbach et al., "Raytheon's Picard Does It His Way, Pulling off Deal for Hughes Assets," *The Wall Street Journal*, 17 January 1997, p. 1.

Table VII.5

Defense Industrial Firms Seek Compatible Acquisitions

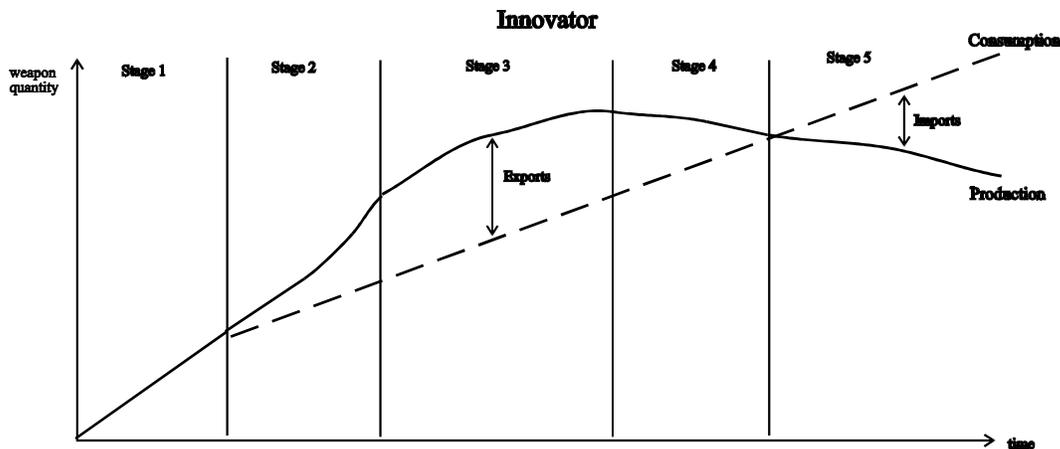
Weapon System	Developed by	Acquired by	Comments
F-15	McDonnell-Douglas	Boeing	Shored up sagging defense capabilities
F/A-18 C/D	McDonnell-Douglas	Boeing	--
F-16	General Dynamics	Lockheed Martin	Added jet fighter technology and capabilities
AIM-120	Hughes	Raytheon (also produced AMRAAMs)	Raytheon becomes leading U.S. missile producer; General Motors Sold Hughes Missiles to Raytheon
AH-64	McDonnell-Douglas	Boeing	AH-64 series is mainstay of U.S. Army; Boeing may sell off its civil helicopter production unit
TOW	Hughes	Raytheon/Hughes	Same as above
C-130	Lockheed Martin	No change	
M1A2	General Dynamics Land Systems	No change	

When the corporations of defense industrial base merged, they increased their scope of production capabilities. The corporations that rationalized and those that stayed now sought ways or continued to seek ways to regain their financial equilibrium. It is at this point of convergence and equilibrium that the utility of conventional arms transfers rises since acquisition program dollars are down since the defense corporations have decided not to change their business strategies despite the decreases in the defense budget. Their utility was buoyed by the changes in international arms transfer variables that favored the prestige associated with the unipolarity of the United States' position in international affairs, new non-ideologically aligned trading partners, emphasis on economic competitiveness and a more relaxed attitude toward co-production, licensing and offsets. However, it is not the current export activities of these firms that assure their future profitability. Rather, it is the next generation that is important. Keeping production lines open and workers employed through export contracts helps to keep the corporation viable until the next generation of weapons systems goes into production.

The Product Cycle

The policy jolts, followed by the Aspen-Perry advice to consolidate and the "Bottom Up Review" were all events that sent a powerful message to the major firms in the nation's Defense-Industrial Base. As noted earlier, the jolts affected the status of many weapons acquisitions programs because of reduced budgets. New projects were canceled and acquisition orders in the

pipeline were reduced or postponed. The product cycle model provides a template for envisioning the profit potential of weapons systems as exports. The model presented below is found in Anderton (1996) who attributes it to Vernon:¹⁵⁰



Stage 1 is the Product Development Stage in which the innovators' production and consumption are identical and thus no exports of the weapons system.

Stage 2 shows the exporter's and importer's consumption rising.

Stage 3 indicates domestic consumption has leveled off while exports continue to rise.

Figure VII.1

The Product Cycle Model

Existing weapons systems fell into various stages of the Product Cycle when the policy jolts hit. The acquisitions programs under discussion are those that would fall in Figure VIII.1 above in Stage 2, but most likely Stages 3, 4 and 5 from 1992 onward. They are not to be confused with new acquisitions programs that were in Stage 1 development when the policy jolts hit (not to deny the fact that these programs have not had their own "jolts" over time) and were not scheduled for production until the end of this century, if not later. Some of these programs are still controversial, i.e., the F-22 jet fighter, the V-22 Osprey tilt rotor and the Comanche RAH-66 helicopter procurements. The conventional arms that could be exported--from Stage 2 onward--had the potential to affect the U.S. arms transfer systems dramatically because the Defense Department would not be procuring several of them after certain dates. Although Vernon's model, Figure VIII.1 above predicts that net exporters will eventually become net importers of the same product, this outcome may not obtain with respect to conventional arms transfers. The United States has not been an importer of conventional weapons since World War

¹⁵⁰ Charles H. Anderton, "What Can International Trade Theory Say about Conventional Arms Trade?" 25.

I because of ownership rights and the technological sophistication of most major systems. Its alternatives to importing are to introduce new products, and/or upgrade existing ones.

Defense corporations have become dependent on existing "cash cows" until such time as the next generation of weapon systems--delayed by the policy jolts--is funded. Some of these weapons systems have enjoyed lucrative domestic and export sales (see Table VII.5 below) and have served the country as a "tool of Foreign Policy" during the Cold War. The fact that then economies of scale were dependent on domestic buys mattered less because the United States was buying more. Today, now in the absence of domestic buys and the "retooling" of Foreign Policy, the political role of transferable weapons systems has shifted. As the decade progressed and exports picked up the slack left by reduced domestic buys, exports became a means of insuring stability in the defense industry. And thus we enter an era wherein the U.S. production system's ability to work through to the next generation of weapons systems (now in Stage 1) in many ways became dependent on the continuing success of existing U.S. exports programs.

Several U.S. weapons systems have enjoyed long and profitable export histories. The table below represents some of the "cash cow"¹⁵¹ exports of U.S. arms transfers:

¹⁵¹ Cash cows according to Philip Kotler discussing The Boston Consulting Group's Growth-Share Matrix in *Marketing Management* (1984) "When a market's annual growth rate falls to less than 10 percent, the former star becomes a cash cow if it still has the largest relative market share. A cash cow is so called because it produces a lot of cash for the company. The company does not have to finance a lot of expansion since the market's growth rate is low. And since the business is the market leader, it enjoys economies of scale and higher profit margins." (53) The matrix also consists of "Question Marks," "Stars" and "Dogs."

Table VII.6
Export "Cash Cows"

Weapon System	Type	Company	Domestic buys status	U.S. Service Branch	Foreign Buyers	Comments
F-15* C, D, E	Fighter	Boeing (McDonnell Douglas)	Last acquisition was for 3 F-15E's in FY 98 budget	Air Force	Israel, Japan, Saudi Arabia	Unit cost to DoD approx. \$15 million* ¹
F-16 A/C C/D	Fighter	Lockheed Martin	U.S. scheduled to stop buying in 1995 but 6 funded in FY 97 and some RDT&E through FY 99	Air Force	Belgium, Denmark, Morocco, the Netherlands, Norway, Israel, Egypt, South Korea, Pakistan, Venezuela, Turkey, Greece, Singapore, Thailand, Indonesia, Bahrain, Portugal and Taiwan	Unit cost to DoD for C/D approx. \$20 million ¹
F/A-18 A/B C/D	Fighter	Boeing	Latest U.S. acquisition was for six in FY 1997.	Navy	Australia, Canada, Finland, Kuwait, Switzerland, Singapore, Thailand	Unit cost to DoD for A/B approx. \$24 million ¹
AIM 120B	AMRAAM (Advanced Mid-Range Air-to-Air Missile)	Hughes/ Raytheon	Current	Air Force, Navy	Used on F-15C, F-15E, F-16 and FA-18 A/B	Unit cost to DoD approx. \$386,000 ²
AH-64	Attack Heli- copter	Boeing	AH-64D Longbow upgrade program currently in production	Army	Egypt, Kuwait, UAE	No longer purchased by DoD; very approx. unit cost \$14 million
C-130 Hercules	Cargo plane	Lockheed Martin	U.S. currently purchasing C-130J version	Navy, Marine Corps, Air Force and Coast Guard	50 plus nations bought earlier versions	Unit cost to DoD approx. \$22.9 million ¹
TOW (Optically Tracked, Wire-Guided Missile)	Missile	Hughes	Latest 2A and 2B versions discontinued in 1997	Army	43 nations	Replacement unit valued at approx. \$180,000

Table VII.6 (continued)

Weapon System	Type	Company	Domestic buys status	U.S. Service Branch	Foreign Buyers	Comments
M1A2	Battle Tank	General Dyanmics	2,926 M1A2's funded for FY 91; production cut to 62 in FY 92; produced now only for export. Currently upgrading 1,079 M1A1 tanks to M1A2's.	Army	Kuwait, Saudi Arabia	N/A--DoD does not purchase any longer

* Corporate financial information on profit margins for weapons systems would enhance Table VII.6 but this type of data is proprietary and not available to the general public. Prices vary over time depending on how many copies of the same unit are acquired and if there are any foreign buys at the same time which would further lower the price as economies of scale increase. Prices would also vary if the transfers came from inventory or if they were assembled on order. The purchase figures for the Armed Services do not reflect the gain or loss to the defense contractor. It is difficult to extrapolate relative information from export sales data since prices are usually inflated to include offsets. However, mark ups for foreign sales may be substantial even if they are rough approximations. For example, the F-15 cost the Air Force approximately \$15 million per unit at program inception. Per an article in the *Seattle Times* (http://dailynews.yahoo.com/headlines/local/metros/seattle/story.html?s=n/times_news/seattle/19990212/19990212101), dated 12 February 1999, Greece will buy 60 F-15's for \$3.5 billion or approximately \$58,000 apiece).

¹ Information supplied by the Air Combat Command, Public Affairs Office; 115 Thompson St., Ste. 211; Langley Air Force Base, Va. 23665-1987

² It is also difficult to determine the value per export unit of the AMRAAM to the contractor because the Department of Defense will only export this item through the Foreign Military Sales Program.

The systems in Figure VIII.5 are truly cash cows because they have enjoyed economies of scale and high profit margins over an extended period of time. Defense contractors and the Department of Defense can now use the cash cows to support the rising stars, i.e., the future generations of weapons systems. These stars are now working their way through development and testing process and were incorporated in the Quadrennial Defense Review and Vision 2010 policy statement released by the Department of Defense in 1997. The Table VIII.6 below presents the fate of the cash cows. (The systems below are representative and not intended to be an inclusive list.)

Table VII.7

Today's Cash Cows and Tomorrow's Stars

Product (Cash Cow)	Company	Replaced by (Star)	Company	Status	Production Year	Competition
F-15	Boeing (McDonnell-Douglas)	F-22	Lockheed Martin	Test flight stage	2002	Eurofighter 2000, France's Mirage 2000-5 and Rafale (an aggressive competitor), Russia's MiG-29 and Su-27/30 (a desperate competitor) and Sweden's JAS-39 Gripen (a wildcard competitor since Sweden plans to buy 300 to 350 through 2010)
F/A-18 C/D	Boeing (McDonnell-Douglas)	F/A-18 E/F Super Hornet	Boeing	Severe wing problems in 1997 delayed production	Uncertain	See above plus the F-22 when available for export.
F-16	Lockheed Martin (General Dynamics)	Joint Strike Fighter (Navy, AF, MC)	Undecided	U.S. has yet to select a prime contractor	2001 approx., 2008 delivery	Difficult to predict but most likely all of the above plus the F/A-18 E/F when available for export. In this category a lot will depend on customer specifications and budgets. Also LM willing to upgrade engines for customers; ex. UAE but of F-16 C/D Block 60's.
AIM-120	Raytheon/Hughes	Will be used on F/A-18 E/F and F-22	N/A	Modifications funded through FY 99	Production to extend beyond 2000	MATRA-BAe Dynamics' MICA and new missile in development for Eurofighter.
AH-64	Boeing	Apache Longbow upgrade	Lockheed Martin, Northrup Grumman and Boeing (prime)	Upgrade program (Longbow) to existing AH-64 frames	Procurement through FY 99	Longbow sales to Netherlands and United Kingdom in 1995. Competes with Eurocopter's Tiger; Italy's Agusta SpA, Cascina Costa A-24 Marigusta; Russia-Israel Kanov 2; Israel's Ka-50 Black Shark, Russia's Mi-28 and U.S. Super Cobra.
C-130	Lockheed Martin	C-130J replaces C-130E	Lockheed Martin	Current funding	Production by 2000	A world leader in its class. Boeing's C-17 competes in certain categories. Europe's Future Large Aircraft could be a major competitor if program proceeds. Russia's An-70.

TOW	Hughes	??	Army looking for a follow-on successor; solicited proposals in fall 1997; Army dropped plans for follow-on in May 1998.	??	??	Sweden's Bofors Infantry Light Lethal Antitank Missile System; Russian AT-4, 5, and 6 and Franco-German Hot 2 and Milan 2
M1A2	General Dynamics	N/A	N/A	Upgrades funded through FY 99	N/A	United Kingdom's Challenger 2; Germany's Leopard 2, France's LeClerc, Russia's T-64, T-72, T-80, Israel's Merkava Mk-3 and Italy's C1 Ariete

(Source: Research by author, annual Defense budgets (passim), defense-related publications (passim), e.g., *Defense News*, *Defense Daily*, *Aerospace Daily*, newspaper articles and U.S. Department of Defense news releases and publications.)

The Focus on Corporate Performance

The defense contractors needed to adapt quickly to the policy jolts quickly in order to regain their equilibrium and new period of convergence. Conventional arms transfers provide a means of adjusting to the policy jolts. It is the presence or absence of four "organizational antecedents" that helps some organizations adapt quickly while others lag. To recap, the antecedents posited by Meyer are (1) strategy (organizational surveillance of market niches); (2) structure (task allocations, control and coordination among subunits); (3) ideology (shared beliefs that bind values to actions) and (4) slack resources ("cushions" that insulate organizations from external shocks).

While it is not possible to measure a bounded "before" and "after" similar to Meyer because adaptation to the policy jolts by the defense industrial base took place over a longer period of time than the hospitals studied by Meyer, the use of Meyer's methodologies can provide insights into how two of the antecedents may have affected the perception that the defense firms needed exports to regain their equilibria. Research points to perceived vulnerabilities in particular in two of the antecedents--"Slack Resource Deployment" and "Marketing Strategy." (Aspin and Perry had earlier addressed the "structure.") Slack resources are particularly important because they are indicators for management, investors and other stakeholders about areas of corporate stress ("cushion" levels in finance, productivity and human resources). When a corporation has no slack resources, its ability to achieve a new equilibrium after a period of discontinuous change may be doubtful. A distress signal goes out to competitors, stakeholders and the media if slack resources become stretched. The connection between slack resources and arms transfers is that the latter present themselves as one revenue-generating alternative to relieve pressure on the former. Marketing is the other antecedent over which the corporations have some control. Increased direct commercial sales accompanied by offset deals can often times generate the needed revenues to adjust to the jolts.

Shoring up Slack Resources

In the three sections listed below, conventional arms exports had the potential to alleviate inflated or deflated slack resources.

Financial Reserves and Current Debt

Financial health is key to future profitability. As David Platt stated, "Their financial performance and health will determine the ability of the nation to maintain key manufacturing capabilities in the short- and long-term."¹⁵² Financial reserves can assist a corporation to adjust

¹⁵² Defense Conversion Commission, "Defense Drawdown: Financial Overview and Strategies for the top 25 Prime Contractors," Annex E to *Adjusting to the Drawdown* (Washington, DC: GPO, 1993), p. 30.

to policy jolts. An increase in corporate debt as a temporary strategy to ease pressure on corporate activities, however, has the future potential to draw down a company's financial reserves if it does not remain suitably profitable. While the subject of leverage and its pros and cons is a topic unto itself, it is introduced here because corporate debt is an issue for all corporations but especially those that do business with the Department of Defense with its acquisition-based prohibition on paying interest costs. The corporations of the U.S. Defense-Industrial Base entered the Post Cold War era with a global competitiveness disadvantage insofar as the European allies with respect to debt. European firms had begun to reduce their debt levels just when U.S. corporations were assuming more in the 1980's. At the same time, all the major Western arms producers—the United States is no exception--suffered from excess capacity in relation to foreseeable demand. Overcapacity can normally be measured by analyzing longitudinally "the asset turnover ratio," which measures the level of sales generated by a given level of assets. The financial position of U.S. companies deteriorated during the 1980's as they took on debt for "working capital assets"--the costs of expansion and product development--and drained surplus funds from their treasuries.¹⁵³ Debt was also caused by losses from cost overruns on fixed-price development contracts.¹⁵⁴ Debt can be reduced by increasing cash flow by cost cutting measures such as layoffs, closing underutilized plants, selling holdings and reducing inventory levels. Reducing debt gives companies more flexibility although it may increase their tax obligation.

Moreover, high debt to equity ratios can dampen investor enthusiasm and send out red flags to industry observers. U.S. companies had assumed debt for capital expansion in the 1980's could be forced to assume more debt because of the complexity of the merger process. However, the financial processes involved in mergers are complex and beyond the scope of this paper. Table VII.7 below illustrates the current debt to equity levels for the years before and after an acquisition. The Current Debt to Equity Ratio is a measure of financial strength that compares what is owed currently to what is owned. It is a good measure of financial liquidity. The danger point, according to most rules of thumb, is reached at 80 percent.¹⁵⁵ For the sake of consistency, the corporations listed below have been drawn from Table VII.5, "Export Cash Cows."

¹⁵³ See Philip Finnegan, "U.S., European Industries Take Divergent Paths in Downturn," *Defense News* 6, no. 29 (22 July 1991): 1.

¹⁵⁴ See Philip Finnegan, "U.S. Contractors Cut Debt Load," *Defense News* 7, no. 22 (1-7 June 1992): 1.

¹⁵⁵ For a discussion of business ratios, see Sheldon Gates, *101 Business Ratios* (Scottsdale, AZ: McLane Publications, 1993).

Table VII.8

Current Debt to Equity Ratio*

Year	Current D/E Ratio (%)	Company	Acquisition	Year	Current D/E Ratio (%)
1996	n/a	Boeing	McDonnell-Douglas	1997	
1996	126	Lockheed	Northrup-Grumman	1997	
1995	80	Lockheed	Loral Corporation	1996	126
1994	92	Lockheed	Martin Marietta	1995	80
1993	82	Northrup	Grumman	1994	152
1995	117	Northrup-Grumman	Westinghouse Defense	1996	122
1994	47.5	General Dynamics	Bath Iron Works	1995	55
1996	102	Raytheon	Hughes Electronics	1996	46

(Source: Total current liabilities and shareholder equity figures from *Moody's Industrial Manuals*. The above figures are approximations as the figures are taken from corporate consolidated balance sheets.

*Current debt to equity levels show the amount of corporate debt (total current liabilities) divided by amount invested by shareholders in a corporation (total stockholders' equity) times 100 percent.

Companies already at risk from declines in defense spending may be reluctant to acquire more debt. Aware of the risk involved with excessive debt, usually caused by non-recoverable expenses, the Department of Defense announced a market incentive plan in 1993 to encourage firms to merge. To date restructuring payments of \$179 million have been made in five mergers. Restructuring payments were offered to subsidize the costs of merging if it could be shown that such a merger would ultimately result in savings to the Department. "The rationale for restructuring is that in the long run, the government will pay a lot less because industry has wrung out costs."¹⁵⁶ Contractors are expected to cut costs by at least twice the amount of restructuring payments. When first announced, the plan was quite controversial as many considered it a taxpayer-funded bail-out of the defense industry but Congress approved the process. Restructuring payments are used in severance packages for laid-off employees, the closure of redundant facilities and writing off excess equipment--all of which are non-recoverable costs according to existing defense acquisition regulations.

¹⁵⁶ William M. Bulkeley, "Loss of Reimbursement Program May Threaten Raytheon Deals, Defense-Sector Consolidation," *The Wall Street Journal*, 14 April 1997, sec. C, p. 2.

Backlogs

Backlogs are a slack resource as they represent the value of unfilled orders. They are important in the defense industry to smooth out earnings during the normal ebb and flow of the product acquisition process. "Backlog is not an important indicator for the defense industry," as *Defense News* quoted an industry analyst, "it is the only indicator. It shows future sales and earnings."¹⁵⁷ Filling orders earlier rather than later could mean avoiding layoffs and being able to generate income to reduce debt.

Merging with a company with a healthy backlog can also be a strategic move. For example, when General Dynamics purchased Bath Iron Works, Bath, Maine, in 1995 for \$300 million, it had a \$2 billion backlog. During the Cold War era, if backlogs dropped in volume, companies could bring the work in-house in order to protect their portion of the backlog. In the Post Cold War era, when many firms began to merge vertically [companies buying their suppliers], this possibility was minimized. Larger defense companies deriving 50 percent or more of their revenues from defense sales maintained high levels of backlogs in the 1980's but they began to decline by 1991. The following figure represents the a flat to declining level of backlogs entering the first round of policy jolts but begins to gain momentum again as the consolidation period begins:

Table VII.9
Industry Backlogs over Time
(All figures in millions of dollars)

Company	1996	1995	1994		1991	1990	1989
Lockheed Corp.	50,400	41,100	42,232	...	8,751	7,588	7,106
Loral Corp.				...	2,524	1,849	1,508
Martin Marietta Corp.				...	11,000	12,000	13,400
Boeing	114,173	95,488		...			
McDonnell-Douglas Corp.				...	30,448	36,544	32,531
General Dynamics Corp.	6,161	5,227	4,562	...	18,019	17,616	17,966
Northrop Corp.	12,400	9,947	12,173	...	8,561	6,703	5,593
Grumman Corp.				...	6,490	6,836	7,254
Raytheon Co.	12,066	10,531	8,070		7,969	8,809	9,595

(Source: *Defense News* and *Standard & Poor's Corporation Records*)

With the exception of General Dynamics (whose contract for the M1A2 Abrams tank was canceled in 1991), important backlogs were flat when the first policy jolt hit. Diversification or a

¹⁵⁷ Philip Finnegan, "Backlog Dips for Medium Defense Firms," *Defense News* 7, no. 37 (14-20 September 1992): 3.

concentric acquisition could defray this problem (as could leaving the industry). Such a plan would take time to put in place provided, according to Meyer, some organizational antecedents of corporate ideology and structure were effectively present. As we have seen, the prime contractors showed little inclination to change or recreate themselves. Logic would dictate that in the absence of new production orders, maximizing income from existing products and "cash cows" would capture the interest of managers and interested stakeholders who are observing events in the defense industrial base. Export orders are, of course, the most obvious way to improve declining backlogs.

Human Resources

Much has been said about keeping jobs in the economy through defense exports. This rationale was offered up primarily by spokespersons for the defense industry and has been disputed in the media.¹⁵⁸ While defense industry pronouncements may appear self-serving, corporations with some slack in their human resources are able to buffer themselves and respond more quickly to environmental changes and policy jolts by moving employees around and assigning additional manpower to projects, if needed. Corporations whose key positions are unmanned or whose personnel are already stretched too thinly will be slower to respond to environmental scanning. On the other hand, carrying too large a human resource base may be non-competitive and thus a drain on financial resources. When Northrup acquired Grumman Corporation in 1994, they cited competitiveness as a reason for reducing staff by 20 percent (9,000 out of 47,500 workforce), closing its corporate office and dissolving its aerospace and electronics group.¹⁵⁹ Corporate representatives painted a grim unemployment picture to the media. There are no exact figures about the number of jobs lost in industry during the budget cutbacks in defense spending but many estimates--a handful are listed below:

¹⁵⁸ See Eyal Press, "Prez Pampers Peddlers of Pain," *The Nation* 259, no. 10 (3 October 1994): 340-344.

¹⁵⁹ See Philip Finnegan, "Northrup Grumman Calls Layoffs 'Painful but Necessary,'" *Defense News* 9, no. 38 (26 September-2 October 1994): 26.

- ...slide in defense-related employment in U.S. estimated at 200 jobs per month. Jobs have fallen 20 percent since 1987.¹⁶⁰
- It [decline in defense spending] has cost U.S. contractors 1 million jobs and may eliminate another million before employment levels hit rock bottom.¹⁶¹
- [Discussing the Saudi Arabian buy of F-15's]"...would inject US\$5 billion into the economy, reduce the US trade deficit and sustain 40,000 US aerospace jobs and a corresponding number of jobs in the non-aerospace sector..."¹⁶²
- [On the subject of the Saudi Arabian buy of F-15's, *Aviation Week and Space Technology* wrote, "They [McDonnell Douglas officials] argue that if the U.S. does not approve the \$5 billion sale, some 40,000 U.S. jobs would be lost to Europe..."¹⁶³
- "Since 1990, more than 600,000 employees of primary and secondary contractors have lost their jobs, reports the National Commission for Economic Conversion and Disarmament..."¹⁶⁴
- "A \$200 billion annual military budget in 1997 would eliminate about 1.8 million jobs that were on Defense Department and military contractor payrolls in 1993. A \$150 Billion annual budget would eliminate about 2.5 million jobs."¹⁶⁵

Whether or not specific figures and dollar amounts can be attributed to the value of exports, the fact cannot be disputed that all of our stakeholders—both governmental and economic--share an interest in defense jobs. For Congresspersons keeping jobs in their districts is seen as effectively representing constituent interests. For the President, defense production keeps high paying jobs in the economy, unemployment figures low and GNP high. For the economic stakeholders, cutbacks may mean laying off skilled and well-educated workers. In the short- and long-term, releasing defense workers back into the general economy is worrisome for the Department of Defense. There would be no trained personnel to man cold production lines in the event of a national emergency; and in the long-term, the defense industry/national readiness

¹⁶⁰ Jeff Cole and Sarah Lubman, "Weapons Merchants Are Going Great Guns in Post-Cold War Era," *The Wall Street Journal*, 28 January 1994, sec. A, p. 1.

¹⁶¹ Debra Polsky Werner, "Industry Faces a Second Wrenching Wave of Cuts," *Defense News* 9 (11-17 April 1994): 1.

¹⁶² Pamela Pohling-Brown, "New Administrations Signals Sales Onslaught," *International Defense Review* 7, no. 26 (July 1993): 557.

¹⁶³ John D. Morrocco, "Fighter Makers Struggle as World Markets Shrink," *Aviation Week and Space Technology* 137, no. 10 (September 1992): 101.

¹⁶⁴ Mary H. Cooper, "Arms Sales" *CQ Researcher* 4, no. 46 (9 December 1994): 1089.

¹⁶⁵ "Reduce Military Spending: Create More Jobs," *The Defense Monitor* 23, no. 6 (Center for Defense Information, Washington, DC), p. 2.

levels may suffer a "brain drain" if too many high technology skills are transferred to other sectors of the economy.

Marketing Strategy

Marketing strategy is another antecedent that allows corporations to adapt to jolts. Under marketing strategy, there are two "options" available for many but not all defense corporations under Marketing Strategy. These options are commercial sales and offset deals.

Commercial Sales

Some major defense contractors have "dual-use" or commercial divisions. However, many conventional weapons systems do not have a corresponding commercial base. Apart from proliferation concerns and prohibitive costs, it is difficult, and sometimes impossible to "retrofit" weapons systems for commercial use. There are the defense security issues in technology transfer, who owns the rights to the R&D and product development and the market for the product in the private sector. Sometimes, defense products can be converted for commercial use. For example, cargo planes can be modified for commercial sales. Lockheed is planning to do this with its new C-130-J as the older version, the C-130-D, no longer has domestic funding.¹⁶⁶ Acquisitions and mergers can also take place with an eye toward commercial diversification. A good example of this is the Boeing-McDonnell Douglas merger; Boeing has strong commercial sales (second only to Airbus Industries worldwide) while McDonnell Douglas was a leader in military aircraft with the F-15 and F/A-18. Of course, not all weapons systems lend themselves to commercial adaptation because no commercial use exists--a jet fighter costs millions of dollars, years to training to fly and seats two at most.

Offsets

The use of offsets is discussed in Chapter VIII as a policy issue of the President and the U.S. Department of Commerce. The Post Cold War era has witnessed an increase in offset deals.¹⁶⁷ It is cumbersome to participate in offset arrangements, but the hands of the defense corporations are virtually tied because in today's market most conventional arms transfers come with some kind of offset demand. The U.S. economic stakeholders have little choice but to go along with buyers' requests and offer the most competitive packages possible. As a marketing strategy, the corporations have little latitude except perhaps to try and offer bigger and better offsets than any of the competition.

¹⁶⁶ See David Rogers, "Lockheed Counts on Congress's Backing to Sell its C-130," *The Wall Street Journal*, 14 April 1997, sec. A, p. 16.

¹⁶⁷ See, for example, U.S. General Accounting Office, GAO/NSIAD-96-65, "Military exports, offset demands continue to grow."

Summary

The defense industry is not a "growth" sector of the economy. Contractors that once enjoyed support--even if cyclical in nature--know the Post-Cold War downsizing is *permanent*. Corporations with high exposure to defense spending went through a period of consolidation and mergers to reduce their overcapacity but did not reorient or reconstitute themselves. After the mergers, they converged with their fellow defense contractors that had not for their own reasons responded in the same way to the policy jolts. As an industry, they sought to find a new equilibrium. Declines in slack resources point to the advantages of exports to raise profits and ease corporate debt.

The export markets provide the U.S. defense industrial base with a tool that will help it to remain profitable in the short-term until U.S. funding for new long-term programs becomes available. All stakeholders have an interest in maintaining the stability and production capabilities of the remaining defense industrial base. In order to assure favorable outcomes for U.S. arms transfer deals, the President, sometimes not in accord with his advisors at the U.S. Department of State and Commerce, and in collaboration with representatives from the industrial base, has developed a series of policy initiatives designed to enhance the marketability in foreign markets of U.S. conventional arms products.

CHAPTER VIII
THE PRESIDENT OF THE UNITED STATES
AND HIS RELATIONSHIP WITH CONGRESS AND
THE DEPARTMENTS OF STATE AND COMMERCE

Introduction

Since the President of the United States is responsible for setting the tone of foreign policy for the country, this chapter is written from the perspective of the President, his interactions with the Congress and in collaboration and consultation with advisors in the U.S. Departments of State and commerce. The U.S. Department of Defense is referred to in this chapter and is the major theme in Chapter IX. The President is a major stakeholder in arms transfers because historically they have provided him with the tools to exert the wishes of the United States over other nations.

The promise of U.S. arms in return for some desired behavior on the part of the recipient enables the President to exercise power vis-a-vis other nations. Sislin has shown that during the Cold War U.S. arms transfers were effective negotiating tools, among others, as positive sanctions ("carrots") for influencing the direction of another country's foreign policy.¹⁶⁸ One important conclusion that Sislin drew may no longer be applicable in thinking about arms transfers as a tool of foreign policy. It was that single suppliers make recipients more vulnerable to influence attempts. Sislin also concluded that the United States' successes in the Post-Cold War environment appear to be related to American power prior to the period of hegemonic decline. Chapter V has already discussed the trend from single client to multiple client relations in the Post Cold War era and noted that hegemonic alliances may not be necessary precedents for arms transfer negotiations. The 1990's has become a buyer's market with deals sealed by extensive offset packages. At the same time, the two Post-Cold War Presidents have been under pressure to keep defense jobs in the economy. The ascendancy of economic performance in relation to arms transfers has put pressure on the necessity of "promotion" rather than "restraint."

In the Post-Cold War era, "restraint" carries the same meaning at both the international and national levels as it did during the Cold War. Presidents are mandated by law to exercise restraint—to do otherwise could have serious political repercussions. However, during the Cold War arms race, a certain degree of "promotion" was deemed necessary to maintain the political and military security of the Western Bloc and other friendly nations. Now in the Post-Cold War era, absent a security threat, could "promotion" take on a new direction which points to the economic well-being of the domestic Defense-Industrial Base? If the Presidents believe that exports serve some useful purpose, such as helping to keep production lines open and high paying jobs in the economy while faced with declining U.S. defense procurement budgets, then it

¹⁶⁸ John Sislin, "Arms as Influence, the Determinants of Successful Influence," *Journal of Conflict Resolution* 38, no. 4 (December 1994): 665-689.

would seem that many of their "promotional" activities would have primarily, predominantly domestic outcomes, i.e., benefits that directly affect the welfare of the corporate Defense-Industrial Base.

Presidents Nixon, Carter and Reagan

How much promotion or restraint was exercised by the Cold War Presidents has varied depending on each one's opinion about the use of arms transfers as effective "tools of foreign policy." President Richard Nixon (1969-1974), whose arms transfer policy derived from The Nixon Doctrine, appeared to favor promotion over restraint. In the aftermath of Vietnam, President Nixon believed that popular opinion would not endorse the notion of sending American soldiers to fight again in foreign wars. Instead, Nixon sent U.S. arms to support friends and allies instead of U.S. troops. The goals of Nixon's policy were to contain Soviet influence and keep revolutionary and nationalist movements at bay. The Nixon Doctrine did little to enhance the positive aspects of arms transfers, according to William D. Hartung, as "it spawned an unprecedented spree of U.S.-supplied violence and repression on the part of despots on three continents."¹⁶⁹ High export levels coupled with stories of scandal and greed among arms exporters provoked Congress into exerting its control over the Executive by passing the Nelson Amendment to the 1974 Foreign Assistance Act which called for a 20-day notification period to Congress of any major arms sale. Congress then went on to pass the Arms Export Control Act two years later. President Gerald Ford (1974-1977), under the guidance of Henry Kissinger, followed his predecessor's lead.

President Jimmy Carter (1977-1981) promised to reduce arms exports during his campaign against Gerald Ford. He "spoke of the 'almost completely unrestrained' environment associated with conventional arms sales," and further described it as "cynical and dangerous."¹⁷⁰ Once in office, Carter issued Presidential Directive Order (PDO) 13 in May 1977 which indicated that "arms transfers would henceforth be viewed as an 'exceptional foreign policy instrument,' and that this policy objective would be implemented both through an annual ceiling on U.S. arms transfers and through multilateral discussions with other supplier and recipient countries."¹⁷¹ Under PDO-13 dollar ceilings were set on new arms orders beginning in 1978 purchased through the Military Assistance and Foreign Military Sales programs. President Carter also initiated bilateral Conventional Arms Transfer (CAT) talks with the Soviet Union in late 1977, although no treaty resulted.

The most frequently-mentioned instance of Carter's restraint policy, however, was a cable sent to American missions overseas concerning how staff were to "respond to requests for assistance from U.S. business representative who were *marketing* defense products to foreign

¹⁶⁹ William D. Hartung, *And Weapons for All*, (New York: HarperCollins Publishers, Inc.), 27.

¹⁷⁰ Larry A. Mortsolf, "Only Yesterday," 2.

¹⁷¹ *Ibid.*, 3.

governments."¹⁷² The cable specified that "embassies and military representatives abroad will not promote the sale of arms..."¹⁷³ and "...only in instances where it can be clearly demonstrated that the transfer contributes to our national security interests."¹⁷⁴ This cable quickly became known as the "leprosy cable"¹⁷⁵ by defense industry representatives who complained that the action put them at a competitive disadvantage.

The Carter Doctrine of restraint seemed to please no one. Hartung (1994) claims that arms control advocates were disappointed that President Carter did not go far enough and was subverted by hard-liners and mid-level bureaucrats. Cottrell, Hanks and Moodie (1980) argue that faulty data used by Carter in his "arms restraint" policy produced faulty conclusions and that the President was not sensitive to international politics. A lesson learned belatedly by all concerned was that multilateral arms agreements may be difficult to reach because of competing national interests but unilateral restraint, especially during the Cold War, did not curb international arms transfers. William W. Keller writes,

But the Carter policy was too radical for its time, and it could not be implemented. Few of the president's senior advisers fully supported it. Some saw it as naïve or unrealistic in the context of cold war assumptions about Soviet motivations and actions in arming the developing world. They viewed the arms trade as an element of foreign policy, not as an arms control issue. Others feared the administration would be duped by the Europeans, who would seize on unilateral American restraint as an opportunity to increase and consolidate their position in foreign arms markets.¹⁷⁶

Andrew Pierre commented that,

Some of the administration's early statements led to exaggerated expectations. And after that, its arms transfer policy was constantly buffeted by both sides. Liberal critics saw it as a sham, a policy of exceptions, and a failure in the goal of cutting back on arms sales. More conservative observers, and those in the defense industry, viewed the policy as naïve, unworkable, and hypocritical.¹⁷⁷

¹⁷² Ibid.

¹⁷³ Ibid.

¹⁷⁴ David Silverberg, "Industry Looks to U.S. Government to Assist with Foreign Defense Sales," *Defense News* 5, no. 35 (27 August 1990): 13.

¹⁷⁵ Mortsolf, "Only Yesterday," 3.

¹⁷⁶ William W. Keller, *Arm in Arm* (New York: BasicBooks, A Division of HarperCollins Publishers, Inc., 1995), 179.

¹⁷⁷ Andrew J. Pierre, *The Global Politics of Arms Sales*, 58-59.

When all was said and done, President Carter approved a number of significant arms transfers: \$4.8 billion for 60 F-15's to Saudi Arabia; \$1.3 billion for seven AWACS to Iran; \$50 F-5Es to Egypt; 15 F-15's and 75 F-16's to Israel. Carter's change of behavior is explained by Hartung that in his attempt to use U.S. arms transfers to support national interests, the President "succumbed to the host of strategic and political rationales for arms exports underlying the Nixon Doctrine."¹⁷⁸

Whereas the Carter policy regarded arms transfers as "exceptional," President Ronald Reagan (1981-1989) routinized their use. President Reagan viewed them "as an essential element of its global defense posture and an indispensable component of its foreign policy."¹⁷⁹ According to Mortsof, Reagan was interested in arms transfer restraint, he downplayed Carter's unilateral restraint to achieve global arms control and was more pragmatic in dealing with the world the way it was, not as it was supposed to be. In July 1981, the "leprosy letter" was reversed. A State Department newsletter later noted that "American diplomatic and military personnel abroad have already been instructed to provide the same services to representatives of American firms with valid munitions control licenses as they would to U.S. firms promoting the sale of other types of products."¹⁸⁰

A government policy of arms sales facilitation was implemented through a series of reforms to provide quicker delivery of U.S. arms by the establishment of the Pentagon's Special Defense Acquisition Fund (DoD's stockpile of exports available for international crises). In addition, Reagan increased the funding available to allies under the Foreign Military Sales program. Some of the arms transfers under the "Reagan Doctrine" of supporting anti-Communist efforts did little to earn the United States any of the benefits such as those proposed by Sislin. Instead transfers to the Contras in Central America, Iran and Angola proved embarrassing and counterproductive. While President Reagan supported arms transfers, the high point for Foreign Military Sales during his Administration was approximately \$6 billion for 1985-86 (in current year dollars) as opposed to 1993 when agreements spiked to \$35 billion after the Gulf War.

¹⁷⁸ William D. Hartung, *And Weapons for All*, 82.

¹⁷⁹ Mortsof, "Only Yesterday," 4.

¹⁸⁰ *Munitions Control Newsletter*, U.S. Department of State, No. 90, 8/81, p. 6.

President George Bush

President Bush's (1989-1993) arms transfer policies varied little from his predecessor's. Although the President spent a lot of time attempting to distance himself from the Iran/Contra scandal. He also tried to reclaim Executive power in arms transfers as tools of foreign policy. In a 1991 statement to Congress he noted that "security assistance has long been an indispensable element in U.S. policy...."¹⁸¹ Keller writes,

In his address to a joint session of Congress following the end of the Persian Gulf War, President Bush pressed Congress for greater latitude in arms transfers. "It's time," he said, "to put an end to micro-management of foreign and security assistance programs, micro-management that humiliates our friends and allies and hamstring our diplomacy."¹⁸²

Following the 1991 Gulf War, then-Secretary of State James Baker testified that there would be no dramatic restrictions on conventional arms sales to the Middle East.¹⁸³ President Bush, however, attempted to restrain the wholesale import of arms to the Middle East by engaging the Big Five--United States, Russia, People's Republic of China, Britain and France--in a multilateral agreement. The group first met in July 1991 and agreed to create an arms restraint regime in the Middle East and also to meet once a year to "promote legitimate self-defense, appropriate and proportionate response to threats and follow United Nations guidelines for regional or other collective arrangements."¹⁸⁴

Negotiations folded a year later in the fall of 1992 after China dropped out in protest. China's withdrawal came when the talks spread to specifics and implementation. For example, the U.S. wanted participants to be notified of arms sales prior to their consummation, similar to the Wassenaar Arrangement. Some observers also felt that China was particularly upset and showed its displeasure when President Bush announced a controversial sale of F-16's to Taiwan. The Big Five's effort may have head off a regional arms race, but sales remained steady and the United States continued to sell arms to the Middle East. Meanwhile in the United States, the contractors that were responsible for overseeing and producing such an impressive array of state-of-the-art weapons had begun to face the realities of the first wave of policy jolts.

¹⁸¹ Mortsof, "Only Yesterday," 6.

¹⁸² William W. Keller, *Arm in Arm*, 91.

¹⁸³ David Silverberg, "Baker Sees Arms Sales Playing Future Key Role." *Defense News* 6, NO. 21 (27 May 1991): 3.

¹⁸⁴ David Silverberg, "Mideast Peace May Not Stem Sale of Arms," *Defense News* 6 (28 October 1991): 38.

Bush Initiatives to Direct Favorable Outcomes for the Defense-Industrial Base

As President Bush came under increasing criticism for the state of the nation's economy, he engaged in diverse activities around conventional arms transfers. He supported two controversial jet fighter sales and repealed the collection of recoupment fees in Direct Commercial Sales. In all three cases, Bush reversed either his own or his predecessor(s)'s policies.

F-15's to Saudi Arabia

After the Gulf War, Saudi Arabia sought to add to their fleet of fighter aircraft but between the James Baker peace initiatives in the region, the start-up of the Big Five arms restraint regime and an indefinite delay of a \$14 million funding package in January 1991, a U.S. response to a Saudi tender did not appear feasible. Defense industry representatives were not optimistic about controversial sales being approved after the first half of 1991 as statutory notification periods did not coincide with the Congressional calendar. Expectations were not high for 1992 either as it was an election year and protests could be expected by arms control groups, some members of Congress and the Israelis.¹⁸⁵ However, representatives of McDonnell Douglas Corporation went ahead and launched an intense lobbying effort for the White House to allow sales to resume to Saudi Arabia.¹⁸⁶

In August 1992, James Caldwell, then Director of New Business Development for McDonnell Douglas Corp., gave a briefing to White House staff members about the sale of F-15's to Saudi Arabia. Caldwell warned that thousands of employees would lose their jobs if McDonnell Douglas was forced to shut down the production line. Senator Christopher Bond (R-MO), had told the President, Chief of Staff Baker and other senior advisors that "it was a matter of timeliness."¹⁸⁷ He advised them that the F-15 production line was closing and employees would be laid off. After November the cost of restarting the F-15 production line would increase by \$1 billion.

The pressure to approve the marketing of F-15's to Saudi Arabia mounted when the British Government decided not to buy any additional British Aerospace Ltd.'s Tornado fighters for themselves after September 1992. By the time the United States entered the Saudi competition, the British had mounted a full-scale lobbying effort of their own in the Kingdom in order to extend the Tornado's production life. (Note: the Tornado is scheduled to be replaced by

¹⁸⁵ See David Silverberg, "U.S. Stalls Arms Sales to Mideast," *Defense News* 6 (21 October 1991): 1.

¹⁸⁶ David Silverberg, "Bush May Announce F-15 Sale to Saudis Next Month," *Defense News* 7, no. 33 (17-23 August 1992): 1.

¹⁸⁷ *Ibid.*

the Eurofighter 2000 after the turn of the Century.) During this same time period, Germany bowed out of its development role in the Eurofighter program, leaving the consortium with a serious funding gap. There was some speculation that Saudi Arabia could join Eurofighter as an equity partner, if they could not buy what they wanted from the United States. President Bush approved the sale of F-15's in September 1992. There was considerable Congressional reaction to his announcement because the deal (72 F-15XP's--the equivalent of one tactical fighter wing) might disturb the balance of power in the region. (Israel also has three squadrons with 62 F-15's; Saudi Arabia has four squadrons with 70 F-15C's and 25 F-15D's.)¹⁸⁸ Supporters of the sale said it could contribute to strengthening the U.S.-Saudi alliance by improving the ability of U.S. forces to rapidly deploy to the area.

F-16s to Taiwan

Just prior to the Saudi F-15 approval, President Bush also reversed his own and his predecessors' policy with regard to selling advanced fighter aircraft to Taiwan. In a July 30 1992 radio interview on the Texas State News Network, President Bush was asked about charges by then-Governor Ann Richards that his opposition to the sale would cost 6,000 jobs. The President stated,

I respond to [the reporter] that I have an overall responsibility for the foreign policy of this country and that I understand this issue well, and we are taking a hard look at whether this can be done in accord with international agreements made by in 1972 by the United States. And, of course, we'd like to see [the F-16 production] line stay open. We have the same arguments in other states with other defense plants. But I have to make this determination, and we are now taking a new look at this to see if this sale of planes can go forward.¹⁸⁹

The day before President Bush made the above statement, General Dynamics, the manufacturer of the F-16 (now Lockheed Martin), announced that over the next two years 5,800 jobs out of 20,000 would be eliminated as production levels would drop to as low as four planes per month by mid- to late-1990s [implying that the Taiwan deal would keep the 5,800 jobs]. On September 2, President Bush approved the U.S. deal after more than a decade of repeated refusals by two Presidents before him to sell Taiwan advanced planes.

McDonnell-Douglas also marketed their F/A-18s and F-15s to the Taiwanese as an alternative to the General Dynamics F-16. The Taiwan Defense Ministry first announced the F/A-18 the winner but then reversed itself and bought the F-16. A scandal ensued in Taiwan over the switch. In a further surprising announcement, in addition to the 150 F-16s, Taiwan also purchased 60 French Dassault Mirage 2000-5 fighters (a sophisticated and expensive twin-

¹⁸⁸ *The Military Balance 1997/98*, The International Institute for Strategic Studies (London: Oxford University Press, 1997), pp. 128-130 and pp. 139-140.

¹⁸⁹ David Silverberg, "McDonnell to Offer F/A-18 Fighter to Taiwan," *Defense News* 7, no. 31 (3-9 August 1992): 3.

engine multi-role fighter). The United States tried to talk France and Taiwan out of the Mirage purchase for numerous reasons, mostly concerning the regional balance of power and protests by the Peoples' Republic of China, but the sale still went forward.¹⁹⁰

Reversal of Recoupment Fees on Direct Commercial Sales

In addition to his policy reversals concerning jet fighter sales to Taiwan and Saudi Arabia, in the 1992 election year George Bush issued an Executive Order that eliminated recoupment fees on some industry-negotiated sales (Direct Commercial Sales licensed by the State Department). (Note: Recoupment fees still applied to Foreign Military Sales transfer agreements.) Recoupment is a policy by which the United States government attempts to recover the initial or non-recurring expenses of research and development in the buyer's sale price.¹⁹¹ (Recoupment fees paid by foreign arms buyers are returned to the U.S. general fund.) Industry officials had long complained that recoupment fees "drove up the price of U.S. defense equipment marketed abroad and discouraged efforts to convert defense technologies to civilian use."¹⁹² President Bush's action was also a reassertion of Executive privilege into conventional arms trading since recoupment was mandated by the Arms Export Control Act of 1976 (AECA). Recoupment fees were an attempt by Congress to ensure that foreign buyers of U.S. defense equipment did not reap the benefits of research and development paid for with U.S. taxes. An industry official estimated in 1990 that the U.S. government received between \$1.2 million and \$1.5 million in research and development recoupment costs for each F-16 sold abroad.¹⁹³ Such a measure was also a risky change in policy, especially during an election year. One possible outcome of the repeal would be the lowering of prices in Direct Commercial Sales and thus make U.S. exports more competitive.

President Bush's executive decisions supported industry, kept jobs in the economy and set a precedent for his successor. His reversals on the Saudi sale, Taiwan and recoupment policies provided favorable outcomes for the Defense-Industrial Base with respect to arms transfers. The President risked political capital during an election year by his initiatives. It was a gamble for President Bush to approve controversial arms sales, but it was close to Election Day, he was down in the polls and he assumed that economic issues were more important than arms control issues.

¹⁹⁰ Paul Lewis and Barbara Opall, "Taiwan, Wary of China, Makes Aircraft Deals," *Defense News* 7, no. 47 (23-29 November 1992): 6.

¹⁹¹ David Silverberg, "Bush ends arms export R&D recoupment fee." *Defense News* 7, no. 25 (22-28 June 1992): 1.

¹⁹² *Ibid.*

¹⁹³ See Barbara Amouyal, "Air Force May Promote Foreign F-16 Sales to Control U.S. Costs," *Defense News* 5, no. 51 (17 December 1990): 16.

President Bill Clinton

When President Clinton assumed office, there was considerable overcapacity in the U.S. Defense-Industrial Base. Industry was slow to begin the rationalization process on its own. It was not until after the 1993 "last supper" address by then-Undersecretary of Defense William Perry to corporate representatives that the realization hit home there would not be enough work to maintain all of the prime contractors in the future. To support the domestic economic conversion process from the Cold War to the Post-Cold War, President Clinton initiated some programs involving "dual-use" technologies. ("Dual-use" is defined as "technology that has both military and commercial applications."¹⁹⁴) These initiatives attempted to move defense contractors back into civilian projects and at the same time increase U.S. economic competitiveness by developing high technology civilian-use exports. Some of the initiatives included the reorganization of DARPA (Defense Advanced Research Projects Agency) into ARPA (Advanced Research Projects Agency) and the start up of the Technology Reinvestment Project (TRP) and several projects at the National Institute for Standards and Technology. However, support for these dual-use programs was substantially cut beginning with the 104th Congress.

While efforts were underway to convert the defense economy to a civilian one, President Clinton and Vice President Gore took on the task of increasing U.S. economic competitiveness in the world marketplace at the beginning of their first term. Secretary of State Warren Christopher sent an unclassified cable to Ambassadors "making the advancement of U.S. economic interests the primary priority in U.S. overseas posts."¹⁹⁵ At the last moment two paragraphs from Lynn Davis, then-Undersecretary of State for International Affairs, on the need to assist defense vendors were removed. Such a statement could be interpreted that arms transfers were an means of increasing economic competitiveness.

While it appeared to some academicians that government-sponsored "dual-use" programs meddled with free market economics,¹⁹⁶ the Clinton Administration did not direct the consolidation process of the defense industrial base. It did, however, take initiatives to ensure favorable outcomes for U.S. defense corporations in the international arms trading system. President Clinton repealed recoupment on Foreign Military Sales and his Administration successfully put in place a loan guarantee program for financing arms exports. President Clinton also continued U.S. support for defense contractors at international military shows and reversed a 20-year arms embargo to Latin America to open up more sales markets. What set the tone for the Clinton Administration's policy, however, was the President's Conventional Arms Transfer Policy set forth in Presidential Decision Directive 34.

¹⁹⁴ Linda Brandt, "Defense Conversion and Dual-Use Technology: the Push Toward Civil-Military Integration," *Policy Studies Journal* 22, no. 2 (1994): 360.

¹⁹⁵ David Silverberg, "Clinton Defies Wisdom, Backs Defense Sales," *Defense News* 8 (17-23 May 1993): 3.

¹⁹⁶ See Aaron L. Friedberg, "The Changing Relationship between Economics and National Security," *Political Science Quarterly* 106, no. 2 (1991): 265-276; Jean-Claude Derian, *Struggle for Leadership in Technology* (Cambridge, MA: MIT Press, 1990).

Presidential Decision Directive 34

President Clinton had been under pressure since he assumed office to issue a statement about his Administration's Conventional Arms Trade policy. Both arms control advocates and industry representatives had been lobbying for his official statement since he assume office. While both sides pushed for clarification, no real test cases forced him to show his hand.¹⁹⁷ On February 17, 1995, the White House at last issued Presidential Decision Directive 35 (PDD-34).¹⁹⁸ Industry and the Department of Defense agreed that "President Bill Clinton and his administration's policy did not represent a dramatic break with the written Reagan policy nor with President Bush's continued practice of that policy."¹⁹⁹ In other words, it was business as usual--arms transfers would be a tool of foreign policy. However, there were a couple of new twists. One was the use of the word "restraint" and the other was mention of the defense-industrial base.

PDD-34 is curious document. It contains the proper wording as befits the office of the President of the United States. The words "restraint," "multilateral" and "unilateral" appear frequently in the approximately 1,600-word document. In the U.S. Department of State Dispatch, February 27, 1995 (full text in Appendix F), the words "multilateral restraint" appear together in the following instances:

- The centerpiece of our efforts to promote multilateral restraint is our initiative...
- While pursuing multilateral restraint through this...
- U.S. conventional arms transfer policy promotes restraint...
- A critical element of U.S. policy is to promote control, restraint, and transparency...
- ...effective international controls, and to promote restraint--particularly to regions...

"Restraint" also appears in a unilateral sense twice:

- "...the United States will exercise unilateral restraint in cases where overriding national security or foreign policy interests require us to do so."
- "The United States will act unilaterally to restrain the flow of arms in cases where unilateral action is effective or necessitated by overriding national interests. Such restraint would be considered on a case-by-case basis..."

One lesson learned from President Carter's unilateral effort was that it was noble in the abstract but bad for business in reality. President Clinton had the benefit of history concerning

¹⁹⁷ Philip Finnegan, "Clinton Export Stance Emerges," *Defense News* 8, no. 29 (July 26-August 1 1993): 1.

¹⁹⁸ See Lora Lumpe, "Clinton's Conventional Arms Export Policy: So Little Change," *Arms Control Today* 25, no. 4 (May 1995).

¹⁹⁹ Mortsolf, "Only Yesterday," 7.

unilateral restraint. "Unilateral restraint" has a negative connotation in practice as President Carter's arms transfer policies were ineffective and generally proved to policymakers that unilateral approaches are not successful. President Clinton is not under the same Cold War arms race influences as President Carter; but with several nations still retaining production overcapacity, unilateral restraint means that someone else makes the sale if the United States does not compete--in other words, arms will still be transferred one way or the other. The President reminds voters that he is not another Jimmy Carter by adding that "...restraint would be considered on a case-by-case basis..." The term "case-by-case basis" is also an interesting turn of phrase as we shall see.

The term "Multilateral restraint" or a multilateral connotation has a positive denotation. Presidents are expected to show "restraint" in arms transfers. Efforts toward imposing multilateral restraint are politically popular. They are indicative of statesmanship and imply taking the moral high road. However, as noble as the sentiment is, multilateral restraint in conventional arms transfers in any era is difficult to achieve. There have been some successes with certain control regimes in nuclear arms, ballistic missiles and biological and chemical warfare but very little in conventional arms transfers. In the Post Cold War world, we have two good examples of the difficulties involved--the Wassenaar Arrangement and the Big Five effort after the Gulf War. "Multilateral" restraint is more positive insofar as one can take the moral high road and take the political credit if the effort is successful but know that in its absence the door is open for a "case-by-case" review.

The term "case-by-case" also appears frequently which signals to all parties that there is no presumption of denial of a sale. PDD-34 states,

Given the complexities of arms-transfer decisions and the multiple U.S. interests involved in each arms-transfer decision, decisions will continue to be made on a case-by-case basis.

The paragraph continues,

These case-by-case reviews will be guided by a set of criteria that draw the appropriate balance between legitimate arms sales to support the national security of our friends and allies and the need for multilateral restraint against the transfer of arms that would enhance the military capabilities of hostile states or that would undermine stability.²⁰⁰

What the wording in PDD-34 comes down to is a policy that says right things but actually leaves the door open to considerable discretion. The "case-by-case" feature of the Clinton Conventional Arms Transfer policy coupled with "multilateral restraint" appeared first in a "One-on-One" interview with then-Under Secretary of State for Arms Control and International Security Affairs Lynn Davis of the State Department in a November 1994 issue of *Defense News*:²⁰¹

²⁰⁰ U.S. Department of State Dispatch, vol. 6, no. 9, 27 February 1995.

²⁰¹ One-on-One Interview with Lynn Davis, *Defense News* 9 (November 28-December 4, 1994): 38.

Q. How does President Clinton's conventional arms transfer policy differ from Ronald Reagan's and George Bush's?

A. We look at arms transfers on a case-by-case basis against a set of goals and criteria. We take individual requests and make decisions and then we step back and look at how they may or may not compare to previous administrations. It is not a question of being different in the abstract, but a question of being sure that arms transfers serve our national security purpose.

A major difference is how we approach multilateral aspects of restraint. We believe our approach is marked by change and innovation in how to bring about restraint in the transfer of conventional armaments by making restraint multilateral and making it focused on new threats to security in the post Cold War world.

The criteria for exercising that discretion includes the statement about the impact of arms sales on the welfare of the Defense-Industrial Base. In the absence of an international inclination toward control regimes, decisions are made pragmatically on a case-by-case basis. This opens the door too for inclusion of other criteria to enter into the decision making process, such as domestic economic well being. PDD-34 takes advantage of this opportunity. The fifth of the five goals in PDD-34 reads,

5. To enhance the ability of the U.S. defense industrial base to meet U.S. defense requirements and maintain long-term military technological superiority at lower costs.²⁰²

And a criterion, among others, against which the decision will be made includes,

- The impact on U.S. industry and the defense industrial base whether the sale is approved or not.

PDD-34 is a policy that promises to engage the Clinton administration in multilateral and unilateral restraint exercises while allowing them to make decisions on a case-by-case basis. The examples of multilateral constraint that one can point to, the Wassenaar Arrangement (which was more of a Congressional initiative than a Clinton one²⁰³), is a weaker arrangement than its COCOM predecessor and further serves to illustrate the difficulties of multilateral conventional arms restraint arrangements in the Post Cold War era. Of course, the United States frequently engages in unilateral economic sanctions which by their nature preempt arms transfers. In a 1997 report entitled "Unilateral Economic Sanctions" by The President's Export Council (a group of economic stakeholders) estimated that the effect of such sanctions resulted in lost export revenue in 1995 at \$15 billion to \$19 billion, affecting 200,000 to 250,000 export-related jobs. The conclusion that one can draw about "unilateral" restraint policies or multilateral

²⁰² U.S. Department of State Dispatch, vol. 6, no. 9, 27 February 1995.

²⁰³ Barbara Opall, "White House Calls for Export Parity," *Defense News* 9, no. 23 (13-19 June 1994): 4.

conventional arms control initiatives is that they are well intended but their outcomes far from those desired.

PDD-34 could be interpreted as a signal to the defense industry that the Clinton Administration was interested in favorable outcomes for U.S. conventional arms trade deals. Read another way, PDD-34 could be considered a market incentive if corporations faced with the decision to stay the course or leave the marketplace had confidence that the Administration would support export sales absent domestic buys. Lynn Davis sums up the Clinton Administration's policy which is as important in what it does not say as what it says,

The overall Clinton Administration approach is to liberalize export controls and redesign export control procedures and processes in light of the dramatic changes in the world, and keep controls focused only on weapons of mass destruction, missiles, dangerous conventional arms and other threatening military capabilities.²⁰⁴

The terms "...missiles, dangerous conventional arms and other threatening military capabilities," especially "dangerous conventional arms" leave a lot of "wiggle room," while everyone is pretty much in agreement about the meaning of "weapons of mass destruction."

The President's decision was long awaited by the economic stakeholders and arms control advocates.²⁰⁵ Many parties were dissatisfied, particularly arms control community. Strong criticism came from the Presidential Advisory Board on Arms Proliferation Policy that was authorized by Congress as part of the FY 95 Defense Authorization Act. The Board was enacted to advise the President on U.S. conventional arms transfer policy and other issues related to arms proliferation. The Advisory Panel released its report in June 1996. It warned that shrinking global arms trade threatens the security of the U.S. and its allies and called for U.S. policymakers to stop approving some weapons exports to prop up declining U.S. defense firms and for the sake

²⁰⁴ Lynn E. Davis, "Export Controls and Non-proliferation regimes in the Post-Cold War world," *The DIASM Journal* 16, no. 3 (Spring 1994): 65.

²⁰⁵ See Lora Lumpe, "Clinton's Conventional Arms Export Policy: So Little Change," (1995).

of jobs.²⁰⁶ It is not possible to attribute arms transfers agreements and delivery figures to "official policy," e.g. PDD-34, because it was issued in 1995 and the most current ACDA figures are from 1996. However, ACDA figures for the first Clinton Administration in comparison with other international suppliers indicate robust activity in conventional arms trading. These figures are found in Table VIII.1 below:

²⁰⁶ See Jeffrey R. Smith, "Arms Trade Menaces U.S. Security, Panel Says," *The Washington Post*, 14 June 1996, sec. A, p. 9. And, Theresa Hitchens, "Panel: Security, not Economy Should Drive U.S. Arms Sales," *Defense News* 11, no. 25 (24-30 June 1996): 1.

Table VIII.1

Value of Arms Transfer Deliveries and Agreements, 1986-1996 (ACDA Table IV) By Major Supplier and Recipient Region
(In Billions of Current Dollars)

Deliveries

RECIPIENT SUPPLIER	WORLD a	UNITED STATES b	UNITED KINGDOM	RUSSIA SOVIET UNION c	FRANCE	GERMANY	CHINA	ISRAEL	CANADA	OTHER WESTERN EUROPE	OTHERS EASTERN EUROPE	OTHER EAST ASIA	Others
1986	55.8	14.0	3.6	21.5	4.4	1.3	1.2	0.7	0.5	2.6	4.5	0.6	0.9
1987	64.1	17.9	5.1	23.1	2.9	1.5	1.9	.9	.7	3.5	4.4	.8	1.3
1988	63.4	17.5	4.9	22.0	2.0	1.8	3.0	.8	.7	3.4	3.8	1.3	2.1
1989	55.5	17.2	5.0	19.4	2.4	1.1	2.7	1.2	.5	1.8	2.3	.8	1.0
1990	54.2	20.9	4.6	14.5	5.2	1.7	2.0	.7	.6	1.8	1.1	.5	.5
1991	46.7	25.5	4.9	6.2	2.2	2.3	1.4	.7	.6	1.6	.7	.3	.3
1992	41.5	24.7	4.7	2.5	1.8	1.4	1.1	.6	1.2	2.4	.3	.3	.5
1993	39.5	23.5	4.6	3.2	1.2	1.7	1.1	.6	.8	1.4	.4	.3	.6
1994	37.0	21.6	5.2	1.5	1.4	1.6	.7	.7	.7	1.6	.7	.2	1.1
1995	39.9	22.2	5.1	3.7	2.1	1.7	.6	.8	.4	1.5	.8	.2	.8
1996	42.6	23.5	6.1	3.3	3.2	.8	.6	.7	.5	2.4	.6	.2	.8
Total	540.2	228.6	53.8	121.0	28.8	17.0	16.4	8.4	7.1	24.2	19.6	5.4	9.9

AGREEMENTS

RECIPIENT SUPPLIER	WORLD a	UNITED STATES b	UNITED KINGDOM	RUSSIA SOVIET UNION c	FRANCE	GERMANY	CHINA	ISRAEL	CANADA	OTHER WESTERN EUROPE	OTHERS EASTERN EUROPE	OTHER EAST ASIA	Others
1986	62.8	21.0	1.3	21.0	1.9	1.8	1.8	0.2	0.6	4.5	6.4	0.5	1.8
1987	72.5	20.9	1.7	24.7	3.5	2.6	4.4	2.8	.9	5.3	3.4	1.2	1.0
1988	95.8	30.6	36.6	14.8	2.0	1.2	2.5	.5	.7	1.8	2.5	1.4	1.3
1989	66.4	31.4	1.9	15.5	1.5	6.0	1.4	.9	1.9	1.9	1.8	.7	1.6
1990	71.8	45.6	2.2	11.6	2.9	2.0	2.2	.4	.5	1.9	.8	1.0	.7
1991	78.1	61.0	1.1	6.2	3.4	1.7	.6	.3	.8	1.4	.8	.4	.4
1992	46.8	30.4	2.3	1.8	6.4	1.4	.5	.6	.2	2.0	.4	.3	.5
1993	74.1	58.6	3.3	2.4	5.0	1.0	.6	.5	.5	.9	.4	.5	.6
1994	58.2	38.7	1.1	3.9	8.8	1.3	.8	.3	.5	1.8	.4	.2	.4
1995	49.0	28.5	1.0	8.2	2.7	2.1	.2	.6	.3	2.2	1.3	.5	1.5
1996	57.5	37.4	4.8	4.1	3.1	.3	.5	1.6	.4	1.7	2.3	.7	.7
Total	733.3	404.1	57.2	114.1	41.2	21.4	15.6	8.8	7.3	25.5	20.4	7.3	10.5

DELIVERIES

NOTE: US arms exports in dollar value terms in Main Tables II-IV of WMEAT 1997 have been revised upward significantly from previous editions, with new estimates for a major component, commercial arms sales. See the article, "Revision of U.S. Arms Exports Data Series," on the ACDA website under WMEAT 1997.

All things being equal, jobs are more likely to influence voters than the moral dilemmas of arms sales. President Clinton took a political risk in issuing a conventional arms transfer policy that would upset the arms control community in favor of export decisions being made using the welfare of the Defense-Industrial Base as a criterion. In the context of the timing of PDD-34, the Clinton Administration was reeling from the loss of the Democratic majority with the election of the 104th Congress. Certainly the President was at a low ebb politically at that point with several failed policy initiatives and the Whitewater and Travelgate scandals hounding him. There was speculation he would be a one-term President and powerless to curb the agenda of Speaker of the House Newt Gingrich. Faced with a tough decision, the President acted expediently--he opted for support from the Defense-Industrial Base. Later, the Clinton stance on arms sales was also tied to campaign donation violations by China.²⁰⁷ The speculation was that Loral Corporation and Hughes Electronics both received favorable White House reviews on trade policy with China in exchange for financial support.

A Challenge to President Clinton's Executive Power

There was a NATO effort at a Code of Conduct for international arms transfers already in place when President Clinton assumed office in 1993. It was the legacy of former U.S. NATO Ambassador William Taft IV whose parting act in 1990 was to initiate an arms trading agreement on a code of conduct among the NATO allies. The new code was envisioned as a key to the future of NATO as a trade organization and a defense alliance. It was intended to establish rules for free and open trading in defense goods among the NATO allies. However, weapons trading is a politically sensitive subject for the NATO allies because it touches not only on national prerogatives for weapons buys but also on industrial policy. On the U.S. side, particularly for the Chief Executive, codes of conduct touch on executive privilege in the area of foreign policy making. By 1993, the talks, that had been envisioned as easing trade barriers, had caused additional tension and were stalled on both sides of the Atlantic over language in a glossary.²⁰⁸ President Clinton evinced little interest in using his influence to unlock the stalemate and the NATO initiative drifted into oblivion.

Efforts in the Congress to pass a unilateral Code of Conduct have appeared and failed every year since 1995. The latest and almost successful effort was the Code of Conduct for Arms Transfers Act of 1997 which was reintroduced by Representative Cynthia McKenny (D-GA) in its 1995 version when it was jointly sponsored by Sen. Mark Hatfield (R-OR). (Rep. McKenny is one of the House's most vocal arms control advocates; Senator Hatfield had the same role in the Senate when he held office.) (There is also an international version of a Code of Conduct that has found more support in Europe.) The Code of Conduct legislation held on

²⁰⁷ Roberto Suro and Juliet Eilperin, "Loral Denies Any Benefits in Return for Donations," *The Washington Post*, 19 May 1998, sec. A, p. 3. And, John Mintz, "How Hughes Got What It Wanted on China," *The Washington Post*, 25 June 1998, sec. A, p. 1.

²⁰⁸ Theresa Hitchens and David Silverberg, "Clinton Inherits Defense Code Decision," *Defense News* 8, no. 2 (18-24 January 1993): 3.

tenaciously in the 105th Congress but was eventually defeated. The reason that a Code of Conduct has difficulty passing is that it does not serve the interests of all the stakeholders to decrease the international trade of conventional weapons. The Code calls for the State Department to make that decision based on four eligibility criteria:

- democratic form of government
- respect for internationally-recognized norms of human rights
- non-aggression against neighboring states
- participation in the U.N. Register of Conventional Arms.²⁰⁹

(The State Department publishes the 655 List but there are many human rights organizations with their own lists of violators.) The United States already transfers conventional arms to a number of countries on the 655 List. In a few of these countries, the United States has a considerable military presence besides the arms transfer programs, e.g., Turkey and Saudi Arabia.

A House version of the Code required the President to submit two lists in the annual Executive Budget of states requesting arms transfers. The first list would consist of states that promote the above-listed criteria. The second list would show those states that did not meet the criteria but "which the president determined should receive U.S. military assistance and weapons transfers in the interest of U.S. national security."²¹⁰ Any member of Congress could introduce legislation to block military aid and arms transfers to any nation on the second list. Currently, the Administration proposes sales to Congress after clearing the transfers; under the Code--amended before the Floor vote--any member of Congress could introduce legislation to preemptively block a sale. Congress already has power to block sales under the AECA, although it has not done so since 1986. When the Congressional version of the Code was drafted, Egypt, Israel, Saudi Arabia and Turkey would have fallen on the second list.

The President opposed the bill as hindering his ability to conduct foreign policy. The Clinton Administration strongly opposed the Code on several grounds. It felt that Presidential Decision Directive 34 already took code criteria into consideration thereby making the code redundant for a second time (the first being the AECA). When first introduced in 1995, Undersecretary of State Lynn Davis testified against the code, calling it an "insurmountable intrusion into the executive branch's ability to conduct foreign policy."²¹¹ According to the April 1997 issue of *Arms Control Today*, "Opponents of the legislation, including the Clinton administration, argued the bill would hinder the president's ability to conduct foreign policy."²¹²

²⁰⁹ See Lora Lumpe, "Ban on *Illicit Arms Complements* "Code of Conduct" on *Legal Trade*," *FAS Public Interest Report* 50, no. 4 (July/August 1997).

²¹⁰ "'Code of Conduct' Rejected Again in Committee Vote," *Arms Control Today* 27, no. 2 (1997): 40.

²¹¹ Michael S. Lelyveld, "Bill Backed by Rights Groups has Weapons Exporters up in Arms," *Journal of Commerce* (28 April 1997): 1.

²¹² "'Code of Conduct' rejected again in committee vote," (1997), 40.

Defense News reported, "The White House opposed legislation and says it casts a single-dimensional pall over a complex foreign policy issue...[The proposed criteria] should not be the only criteria considered in an arms sale."²¹³ The amendment was seen as "an unworkable unilateral sanction"²¹⁴ and could embarrass allies like Israel and Saudi Arabia on human rights abuse issues. The Code has been defeated twice and in the meantime has gained support among arms control organizations, NGOs, church groups and international relief organizations. However, defeat of the Code was seen as a victory by the arms control community for President Clinton in continuing his arms transfer policies set forth in PDD-34.

Repeal of Recoupment Fees on Foreign Military Sales

Congress challenged Executive authority in the Code of Conduct but it also repealed recoupment fees on Foreign Military Sales. President Bush eliminated recoupment fees of non-recurring costs on industry-direct sales. President Clinton publicly supported the elimination of recoupment fees on government-to-government arms sales (Foreign Military Sales) as early as 1993.²¹⁵ By 1995, the Department of Defense tried to eliminate the same fees on Foreign Military Sales by including a provision for such action in the 1995 Federal Acquisition Reform Act (The Federal Acquisition Reform Act [FARA] says that competitions should be held to the maximum extent practical. This lifts some of the burdens on contracting officers to document the fairness of their competitions and promises to reduce paperwork.)

The goal of eliminating recoupment fees in FARA (HR 1670) was to "level the playing field" for the Department of Defense as it appeared to Department of Defense that industry-direct sales had become more attractive as the recoupment fee could be bypassed. Overall foreign arms transfers--whether industry-direct or government-to-government under the Foreign Military Sales program--financially benefit the corporate defense-industrial base. Some countries opt out of participating in the FMS program, but many nations cannot afford FMS because of the high administrative and recoupment fees involved. (Foreign Military Sales have always had three percent 'administrative fees' included in the price.) The same President's Advisory Board on Non-Proliferation that chastised the "promotion" of arms transfers for the sake of jobs, in the same report recommended the repeal of recoupment fees. The rationale was that the U.S. government helps other industries with R&D and does not recoup those fees through exported products.

Language was included in the FY 1996 Defense Authorization Act that gave the President the right to waive recoupment fees if in his judgment it appeared "likely" that a sale

²¹³ Barbara Opall, "Proposed Code of Conduct Would Limit U.S. Arms Exports," *Defense News* 11, no. 5 (6-12 February 1995): 10.

²¹⁴ Michael S. Lelyveld, "House Committee Declines to Set Limits on Arms Sales," *Journal of Commerce* (2 May 1997): 1.

²¹⁵ Philip Finnegan, "Clinton Export Stance Emerges," *Defense News* 8, no. 29 (July 26-August 1, 1993): 1.

would be lost or if exports of the item in question would lower the cost of Pentagon purchases for the same weapon. The waiver could only be exercised if the President proposed and Congress passed in the same budget year an amount that would "offset" the lost revenue. Then-Senator William Cohen proposed legislation that the recoupment offset funds could come from the sale of national defense stockpile goods; the measure passed in June 1996. Since NATO member recoupment fees were already waived by the AECA, increases in sales figures from Foreign Military Sales would be expected from non-NATO countries. Still Foreign Military Sales have plummeted in the late 1990's in comparison to Direct Commercial Sales.

Interventions in the Market Process

President Clinton used his office to intervene on behalf of the defense industry and the Department of Defense to enhance the possibilities of outcomes favorable for U.S. conventional arms export deals.

Indirect Marketing Support

U.S. participation in air shows has been a contentious issue. International military air shows have in the past and today continue to play an important role in the promotion of arms transfers. Participation in air shows can be considered a long-term marketing strategy by the U.S. government and defense corporations. Their purpose is to show the flag and dazzle prospective buyers; many of the high tech weapons displayed are not even for sale. The most well-known and longest running air shows are Paris, France and Farnborough, England, held in alternating years. Over the past two decades, Paris and Farnborough have been supplemented by shows in Dubai, Singapore, Jakarta, Bangalore and Santiago--to mention a few. (Not all service branches participate in all shows, nor do countries host shows annually.) George Bush, toward the end of his Presidency, reversed Jimmy Carter's policy of not supplying personnel and materiel for air shows at government expense. However, Representative Howard Berman (D-CA), sponsored an amendment (the Berman Amendment) to the 1993 Defense Authorization Act, Section 1082, that charged the President to notify Congress 45 days in advance of planned U.S. participation in an international show and to certify why involvement was in the national security interests of the United States including an estimate of the direct costs to be incurred by the Pentagon.²¹⁶ The costs to taxpayers annually, if the government pays for participation in air shows opposed to industry picking up the tab, run into the millions. The government must also bear the liability burdens if there is a costly accident.

The Berman Amendment and a reduced Department of Defense budget were cited by then-Deputy Secretary of Defense William Perry in 1993 declining Pentagon participation in the Paris show. According to William Hartung, "the Clinton Administration opted against direct Pentagon involvement, because, as a Pentagon spokesperson put it, the administration wanted to avoid the appearance of giving a 'handout to industry' at a time when domestic programs were

²¹⁶ See David Silverberg, "Pentagon Stands Firm on Its Air Show Policy," *Defense News* 8, no. 18 (10-16 May 1993): 14.

starting to be hit with serious budget cuts."²¹⁷ The restraint initially shown by the President was superseded by then-Commerce Secretary Ron Brown's attendance at the Paris show as the President's official representative. In a letter to Les Aspin, former Secretary of Defense, Brown is quoted as saying, "We must do more to highlight our competitive edge, expand export opportunities and help keep our industrial base strong through technology leadership."²¹⁸ Appointing a representative at the Cabinet level sent a positive signal to industry leaders; buoyed by the President's behavior, corporate representatives lobbied to get Department support at future air shows.

The lobbying appears to have had its desired effect because the Defense Department began direct participation with the February 1994 Asian Aerospace Exhibition in Singapore. "The Clinton administration explained its decision to participate as necessary to demonstrate Washington's 'commitment to the Pacific region.' In a report sent to Congress, Aspin said, 'with the reduction of U.S. forces worldwide and the closing of facilities in the Philippines, the United States needs to show that the security of the Pacific region remains a top priority.'"²¹⁹ The spirit and intent of the Berman Amendment appears to have been ignored as personnel and material were sent there on a "training mission" which reputedly cost the same amount (\$575,000) as the direct participation costs. Since 1994, the Department of Defense has continued to bear the lion's share of the costs of U.S. participation at regional air and weapons shows.

Direct Marketing Support

When the stakes were high, the President often intervened at the state level. In December 1995, *The Washington Post* reported that President Clinton called Sheik Zayed bin Sultan Nahayan, President of the Federation of Arab Sheikdoms on the Persian Gulf, concerning the sale of 80 F-16 strike planes.²²⁰ William Hartung reports that President Clinton lobbied a Dutch government representative at a White House function shortly before the Netherlands purchased a fleet of AH-64 Apache helicopters in the spring of 1996.²²¹ At the time, both the McDonnell Douglas (now Boeing) Apache helicopter and General Dynamics' F-16 (now Lockheed Martin)

²¹⁷ William D. Hartung, "Welfare For Weapons Dealers: The Hidden Costs of the Arms Trade," p. 26 (New York: World Policy Institute at the New School, 1996 Edition, accessed 30 March 1999); available from <http://worldpolicy.org/arms/hcrep.txt>; Internet.

²¹⁸ David Silverberg, "U.S. Will Use Paris Showcase," *Defense News* 8, no. 13 (5-11 April 1993): 4.

²¹⁹ Lee Feinstein, "Pentagon Renews Direct Support For U.S. Arms Makers at Air Show," *Arms Control Today* (March 1994): 35.

²²⁰ John Lancaster, "U.S. Presses to Put More Arms in Gulf States' Bulging Arsenals," *The Washington Post*, 4 April 1997, sec. A, p. 16.

²²¹ William B. Hartung, "Welfare for Weapons Dealers: The Hidden Costs of the Arms Trade."

were almost dependent on export sales. *Jane's Intelligence Review*²²² has also reported that an inter-agency team of representatives from the Departments of Commerce, State and Treasury, plus staff from the National Security Council and the CIA became involved in 1996 in helping Raytheon win a \$1.4 billion surveillance system contract from Brazil. President Clinton himself wrote a personal letter on Raytheon's behalf to the President of Brazil. (A "surveillance system" is not a conventional weapon but it is interesting that Jane's--a publishing company for military affairs books and periodicals--reported this action by leading with the sentence, "The Clinton Administration went one step further than Directive 34.")

Export Loan Guarantees

U.S. government-sponsored export loans for financing conventional arms sales has a long history of defeat in Congress. U.S. industry had long complained that it was disadvantaged by the fact that the United States had no government-sponsored export loan guarantee program enjoyed by the Western European allies.²²³ (The Europeans, on the other hand, often accused the United States of subsidizing American exports through the Foreign Military Sales program.²²⁴) As early as 1990, the U.S. Departments of State, Defense, Commerce and Treasury, plus the Office of Management and Budget, the National Security Council, the U.S. Trade Representative and the then-U.S. Arms Control and Disarmament Agency had formed a working group with the Export-Import Bank (Eximbank) to discuss defense export financing. The 1990 Defense Authorization Act required the President to report on various aspects of defense sales including the "feasibility and desirability" of using existing or new U.S. government guarantees to support U.S. defense exports.²²⁵

Several government organizations lined up on either side of the debate on whether the Export-Import Bank should offer loan guarantees on conventional arms transfers. At this point in time, the Eximbank had not granted a weapons loan since 1974 and had "\$1.5 billion to \$3 billion in currently unused loan guarantees that could be used to promote defense exports."²²⁶ The Eximbank under then-President John Macomber resisted the challenge to use the bank's funds for defense loans and contended that it would require major legislative changes to its charter and the creation of a reserve fund that would tie up appropriated money at a time of tight

²²² "Arms as a Commodity," *Jane's Intelligence Review* (May 1997): 235.

²²³ See Barbara Opall, "U.S. Industry Pushes Export Finance Fund," *Defense News* 9, no. 6 (14-20 February 1994): 4. And, David Silverberg, "U.S. Export-Guarantee Battle Escalates," *Defense News* 8, no. 23, (14-20 June 1993): 1.

²²⁴ See Giovanni de Briganti and David Silverberg, "Trans-Atlantic Subsidy Tensions Intensify," *Defense News* 6, no. 23 (10 June 1991): 1.

²²⁵ See David Silverberg, "Eximbank, Agencies Battle over Defense Loans," *Defense News* 5, no. 19 (7 May 1990): 1.

²²⁶ *Ibid.*

budgets. Traditionally, the Eximbank had financed loans for trade in civilian goods and services. The Treasury Department sided with the Eximbank against financing conventional arms transfers. An amendment to the Export Administration Act that would have required Eximbank to establish a loan guarantee program for NATO allies and Japan failed to pass the House and Senate. The Senate effort had been led by Chris Dodd (D-CN, and a consistent proponent of pro-defense trade legislation) who denied the economic factors involved; he stated, "it is not an economic question, it is a political, military effort."²²⁷

Secretary of State James Baker had told the Senate Appropriations Foreign Operations Subcommittee in May 1991 that he would not object to finding export financing outside of the Eximbank, such as at the Defense or State Departments. Accordingly, the Administration supported proposed legislation that gave credit guarantee authority for \$1 billion to the State Department for commercial sales of defense-related items to NATO allies. This measure was also unsuccessful in the House. There was a strong lobby effort in 1993 to have U.S. government-guaranteed loans for defense exports in the 1994 Pentagon budget. Questioned again was the source of funding for the guarantee by "the U.S. government that it will cover the costs of a commercial loan for countries purchasing U.S. defense equipment if the loan goes into default."²²⁸ This provision was again unsuccessful in passing. Frustrated industry representatives persisted and met in 1994 with then-Secretary of Defense William Perry to push for a financing facility at the Pentagon that would guarantee loans similar to the Eximbank.

Industry pushed for a favorable policy but President Clinton had little to say for several reasons:

- President Clinton was preparing his Conventional Arms Transfer policy (PDD-34) and did not want to take on the Eximbank in a jurisdictional dispute before he announced his policy. Although the month before PDD-34 was released (February 1995), the Eximbank changed its position by stating that "it is ready to provide financing for international customers of U.S. weaponry should President Clinton determine it is appropriate."²²⁹ This reversal in its position over loans for weapons transfers may have been prompted by Macomber's departure. A new Chairman, Kenneth Brody, stated in November 1994, "if the decision is to go forward [with government-backed loans for arms purchasers], then Exim Bank would be willing and able to get started overnight."²³⁰
- The Clinton Administration was not in agreement over export loans. The Commerce and Defense Departments were in favor while they were opposed by the State Department, the

²²⁷ David Silverberg, "Opposition Rises to Defense Export Financing Plan," *Defense News* 6, no. 13 (1 April 1991): 12.

²²⁸ David Silverberg, "U.S. Export-Guarantee Battle Escalates," 1.

²²⁹ Barbara Opall, "U.S. Arms Export Financing Awaits Clinton OK," *Defense News* (23-29 January 1995): 16.

²³⁰ *Ibid.*

Arms Control and Disarmament Agency and the Office of Management and Budget. Lynn Davis, then-Under Secretary of State for Arms Control and International Security Affairs, was so opposed to a industry-government financed facility, she stated, "Our arms transfer decisions will not occur and are not approved simply for commercial considerations."²³¹

- The question of loan guarantees was a contentious issue that the President may have wished deferred until after the release of PDD-34. Historically, loan guarantee provisions had not been well received in Congress and arms control groups have protested them saying they will increase arms proliferation and are "hand-outs" to industry.²³²

Instead of the Export-Import Bank, the DELG program is housed in the Department of Defense. The timing proved fortuitous as the impetus of PDD-34, coupled with the stunning mergers and acquisitions in the industrial base, the shrinking world market and the second round of defense budget cuts, created enough momentum to get the "Defense Export Loan Guarantee" (DELG program) approved in the 1996 Defense Authorization Act. Proponents also noted that U.S. national security objectives would be furthered "by encouraging standardization and interoperability of defense systems with our allies, lowering purchase cost of defense items to DOD, preserving critical defense skills, and maintaining the stability of the industrial base by facilitating the export of American-made products."²³³ The program skirted arms proliferation issues by restricting sales to NATO allies and major non-NATO allies such as Israel, Australia, New Zealand and several Asia-Pacific countries. Moving the administration of the program to State and the Pentagon also depublicized this type of loan guarantee by taking the process out of the spotlight of the Eximbank. Because funding would fall outside the U.S. Eximbank, it would not arouse opposition from commercial exporters concerned about increased competition for the limited funds available for financing exports.

The DELG program would have allowed the Department of Defense to guarantee up to \$15 billion in private sector loans to underwrite the sale or lease of U.S. weapons or related products or services to eligible nations. U.S. companies could have asked the Defense Department in advance if their potential customer qualified for the loan guarantee program (same qualifications as Eximbank used). If the sale went through, the country buying the weapons would apply for the loan guarantee paying an "exposure fee" based on its credit rating. The recipient country then could have used this guarantee, backed by a credit rating of the U.S. government, to get a commercial loan. If the loan goes into default, the lender is paid off by the U.S. Treasury.²³⁴ For something that was sought for so long by so many, the DELG program

²³¹ Ibid.

²³² Philip Finnegan and Barbara Opall, "U.S. Industry Takes New Tack on Loans," *Defense News* 10 (January 30-February 5, 1995): 3.

²³³ *Federal Register* 61, no. 218; 8 November 1996; pp. 57853-5785; <http://frwebgate3.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID=342239969+0+0+0&WAIAction=retrieve>; Internet.

²³⁴ See Jeff Erlich and Barbara Opall, "DoD Loan Program to Debut Amid Debate," *Defense News* 11, no. 37 (16-22 September 1996): 25.

proved unpopular with foreign buyers and was disbanded in early 1999. The DELG program was expensive to maintain because little revenue was generated. During its short life, it only made one loan (for lack of applicants).

Latin America

The United States had for many years sent stripped down or "mothballed" weapons to Latin America for drug trafficking interventions and coastal patrolling but otherwise had imposed an arms embargo to that continent. Since the mid-1980's, the U.S. State Department had restricted arms transfers to Argentina and Chile because of human rights violations by repressive military regimes in those countries. (Since the Carter Administration, the United States had sold Latin American countries advanced platforms that were stripped down for use in counter-narcotics operations or those intended for transport. A limited amount of "mothballed" weapons were also transferred through the "Excess Defense Article Program" [EDA]).

After Chile announced her intention to modernize her armed forces in 1994, the State Department reversed its position. The possibility of opening up Chile and other Latin American countries to sales gained momentum when Russia offered to sell MiG fighters to Chile. A review of U.S. policy was instigated by defense industry executives and their Congressional supporters who contended that restrictions ceded a growing market to overseas competitors and Latin American sales could keep production lines open for weapons that the U.S. was no longer buying.²³⁵

In 1995 the State Department, withstanding Defense Department and industry pressure, drafted a paper that suggested the time was not right to lift a ban on sales and instigate another arms race in Latin America. That continent was to remain off limits to advanced fighter planes and attack helicopters since the weapons of choice for transfers included F-16 fighters, AH-1 or AH-64 Apache attack helicopters and Tube-launched Optically tracked Wire-guided (TOW) anti-armor missiles. However, former Secretary of State Warren Christopher, an earlier advocate of the ban, signed a memorandum in 1996 before he left office along with former Secretary of Defense William Perry urging President Clinton to change the policy.

Once past election year, the Administration announced its new Latin American policy. The Administration released the plan--subject to a two-year policy review--on August 1, 1997. Contrary to its earlier stand, the State Department announced that the policy will "not contribute to an arms race in the region."²³⁶ A State Department spokesman is quoted as saying,

...the policy does not 'end an embargo' on high-tech sales to the region. ...the United States previously 'had a presumption against sales, and now we said we

²³⁵ See Thomas E. Ricks and Jeff Cole, "Clinton Ends Latin America Embargo, Opening Way for U.S. Arms Suppliers," *The Wall Street Journal*, 4 August 1997, sec. A, p. 20.

²³⁶ Eric Green, "U.S. Elaborates on Arms Sales Policy to Latin America," A USIA news release, 20 August 1997.

would treat them on a case-by-case basis. We will examine the specific needs of the nation requesting the weapons.²³⁷

The Clinton initiative promised a whole new vista for defense marketing. The Administration stated that it did not want to "'disadvantage' any U.S. firms in competition for future sales if the policy is eventually altered."²³⁸ The new policy toward Latin America "opens the discussion 'basically anything from 3rd-generation night-vision equipment to secure communications equipment, from high-tech torpedoes to missiles to essentially anything newer than 1970s...'"²³⁹ The change in arms transfer policy to Latin American countries could be considered a Clinton success although debate has been heated. Arms control groups point to human rights violations and the possibility of another arms race. Opponents counter that the transition to democracy is not yet secure and this change in policy could divert funds from economic development. The Administration asserts that the shift to democratic rule and civilian control of the armed forces is permanent.

President Clinton's about face in Latin American policy is a good example of taking the moral high road by pointing to a failed multilateral effort (Summit of Americas in April 1997) while proceeding on a case-by-case basis. Eight months before Lockheed Martin was given permission to market the F-16 to Chile, the President endorsed, along with 26 Latin American incumbent leaders, the idea of a two-year moratorium on high-tech imports into Latin America. The purpose of the moratorium was to develop a regional arms-control regime. All parties agreed in principle that "expenditures on expensive weapons systems divert scarce foreign exchange from more effective investments, including education. They also compel neighbors to spend more on defense and, by doing so, generate international tensions."²⁴⁰

President Clinton predicated the United States being a signatory of the moratorium on the support of all Latin American leaders. The Presidents of Chile, Argentina, Brazil and Peru did not sign because all of those countries were at the time either in the arms buying market or seriously thinking about modernizing. The arms control issue did not make the agenda for the Summit of Americas conference that took place a few months later in April 1997. The Clinton Administration "appeared" willing to take the moral high road by agreeing to a moratorium (if everyone else did) but did not take a leadership role. When Saab and Dassault began marketing efforts in Santiago, the President decided on a new case-by-case review approach because it did

²³⁷ Ibid.

²³⁸ Wade Boese, "Clinton Moves Closer to Easing Limits on Arms Sales to Latin America," *Arms Control Today* 27, no. 2 (April 1997): 37.

²³⁹ David Ruppe, "New Latin Arms Policy Covers More Than Fighters," *Defense Week* 18, no. 32 (11 August 1997): 1.

²⁴⁰ David Ruppe, "Latin Arms-Trade Control not on Santiago Agenda," *Defense Week* (20 April 1998): 16.

not want to "'disadvantage' any U.S. firms in competition for future sales....²⁴¹ The Clinton Administration took much criticism over this particular policy reversal.²⁴² However, a year later and after a 39 percent plunge in the price of copper Chile--the country that instigated the policy review--kept backing away from any decision. *The New York Times* noted,

The wave of arms sales that many predicted--for better (more exports for American arms makers) or worse (a dangerous arms race)--has not materialized. And with the economic slowdown that hit Asia last year still rippling around the world, there are few signs that any country in South or Central America will soon be able to afford the sophisticated weapons.²⁴³

Offsets

Offsets add to the complexity of conventional arms trading and transfers. Most high ticket arms sales have offset packages attached to them even if they are not mentioned in the media as part of the deal. Offsets have been defined as

The entire range of industrial and commercial compensation practices provided to foreign governments and firms as inducements or conditions for the purchase of military goods and services. They include coproduction, technology transfer, training, investment, marketing assistance, and commodity trading.²⁴⁴

Both governmental and economic stakeholders complain about offsets but nobody--Congress, the White House, Department of Defense or defense contractors—does anything about them. Protests are lodged from time to time by the Department of Commerce which represents the constituency hardest hit by the practice, the second-tier defense contractors. However, with respect to offsets, the best policy seems to be "no policy." Indeed, offset packages have become a way of life for international arms deals in the Post Cold War world. The use of offsets is not a Post Cold War phenomenon but their rise in usage is.²⁴⁵ Countries require offsets for a variety of reasons: to ease (or "offset") the burden of large defense purchases on their economies, to

²⁴¹ Wade Boese, "Clinton Moves Closer to Easing Limits on Arms Sales to Latin America," 37.

²⁴² For example, Thomas E. Ricks and Jeff Cole, "Clinton Ends Latin America Embargo, Opening Way for U.S. Arms Suppliers."

²⁴³ Steven Lee Myers, "The Latin Arms Explosion that Fizzled," *New York Times*, 3 December 1998, sec. A, p. 3.

²⁴⁴ David Ruppe, "New Latin Arms Policy Covers More than Fighters," *Defense Week* 18, no. 32 (11 August 1997): 1.

²⁴⁵ U.S. General Accounting Office, GAO/NSIAD-96-65, "Military Exports, Offset Demands Continue to Grow."

increase domestic employment, to obtain desired technology, or to promote targeted industrial sectors. Governments sometimes impose offset requirements on foreign exporters, as a condition for approval of major sales agreements in an effort to either reduce the adverse trade impact of a major sale or to gain specified industrial benefits for the importing country.

There are two types of offset agreements: the first is "direct" which relates directly to the weapon system sold and the second is "indirect" which involves unrelated defense or non-defense goods or services. An example of a direct offset is Lockheed Martin setting up a plant in the United Arab Emirates that assembles the tail pieces for UAE's F-16's (if the deal went through). An indirect offset would be if a buyer, Greece for example, requested help in finding new commercial outlets for its olive oil in the United States in consideration of an arms purchase. In this case, the contractor would have to become an expert on importing food products and distribution channels on imports to the United States.

Offsets are reported to the Department of Commerce's Office of Strategic Industries and Economic Security, Bureau of Export Administration, by defense corporations with offset agreements of \$5 million or more, as authorized under the 1992 amendment to Section 309 of the Defense Production Act of 1950. The last offset report, entitled "Offsets in Defense Trade," was issued on September 15, 1996 and included data for 1995 and the years 1993-1994 included for comparison. The 1995 report (issued in 1996) indicated that U.S. manufacturers entered into 45 new offset agreements valued at over \$6 billion and reported a total of 671 offset transactions valued at \$2.7 billion. (Note the differences between "agreements" and "transactions" which are similar in a sense to the difference between "sales" and "deliveries" discussed in Chapter IV.)

Table VIII.2

1994 Offset Transactions Subgrouped by Type

Offset Type	Actual Transaction Values			Values Credited Toward Offsets		
	Value (\$000s)	Percent of Category	Percent of All	Value (\$000s)	Percent of Category	Percent of All
Total	\$1,935,325	100.0%	100%	\$2,205,875	100.0%	100%
Purchase	601,701	31.1%	100%	682,829	30.9%	100%
Subcontractor Activity	360,323	18.6%	100%	372,379	16.9%	100%
Credit Transfer	3,494	0.2%	100%	21,639	1.0%	100%
Technology Transfer	462,569	23.9%	100%	495,849	22.5%	100%
Training	107,912	5.6%	100%	191,520	8.7%	100%
Other	149,602	7.7%	100%	164,230	7.4%	100%
Licensed Production/Assembly	45,424	2.3%	100%	67,629	3.1%	100%
Co-production	111,895	5.8%	100%	112,185	5.1%	100%
Investment	92,405	4.8%	100%	97,614	4.4%	100%

Source: *Arms Trade News* based on "Offsets in Defense Trade," U.S. Department of Commerce (see footnote 247).

Some terms are defined below:

- Subcontractor production of a U.S.-origin article usually involves a direct commercial arrangement between the U.S. manufacturer and a foreign producer but does not necessarily involve license of technical information.
- Technology transfer is an agreement to conduct research and development abroad, to provide technical assistance to a subsidiary or joint venture of overseas investment, or to perform other activities under direct commercial arrangement between a U.S. manufacturer and a foreign entity.
- Licensed production of a U.S.-origin article involves transfer of technical information under direct commercial arrangements between a U.S. manufacturer and a foreign government or producer.
- Co-production permits a foreign government or producer to acquire the technical information to manufacture all or part of a U.S.-origin article.

Closing international transfer deals in the 1990's has become tied to the attractiveness of the accompanying offset package²⁴⁶ and may be indicative of the fact that in the international system political allegiance is not as binding to transfers as it was during the Cold War. Under conditions of fierce international competition in the 1990's, frequently the company with the best offset package makes the deal. Offset deals may be costly for sellers, but there are still profitable enough to make it worthwhile to pursue sales. The Post Cold War mergers and acquisitions era would favor the U.S. over Europe in offset capacity because large, powerful companies can command more resources. Also offset marketing is associated with high administrative costs since efforts can begin a year or more before any weapons transfer agreements are made. Foreign buyers take the offsets seriously and have established governmental Offset Committees to review the offers and make recommendations.

²⁴⁶ Theresa Hitchens and Brooks Tigner, "Europe Reaps Offset Gains/U.S. Renews Call for Restrictions as Demands Pass 100%," *Defense News* 11 (15 September 1997): 1.

Offset arrangements are designed to equal some percentage of the contract award in "revenue" for the buying country. The rule of thumb is that the higher the "revenue" percentage, the higher the effort of production is transferred to the buyer. A United Arab Emirates buy in 1995 called for creating joint-ventures that generated profits equal to 60 percent of the value of the contract (an indirect offset).²⁴⁷ The 1995 purchase by the Netherlands of 30 US-built AH-64 Apache attack helicopters valued at \$720 million required McDonnell-Douglas to spend 120 percent of the contract value (\$875 million) in Holland (a combination of direct and indirect offsets).²⁴⁸ The positive effects of offsets are that when they approach or exceed 100 percent of the value of the weapons sold, domestic industry benefits by expanding foreign market presence, increases in economies of scale in production, boosts in export earnings and diversification of operations (when the offset is not directly related to the product provided). The negative effects are that offset deals affect U.S. preparedness through technology transfer, reduce U.S. industrial competitiveness, send jobs overseas and increase our trade deficit with the purchasing country. The growth in technology transfer has serious security implications as well as economic ones. Offsets transfer "know-how" that can upset fragile regional balances of power. Technology transfer can also undermine one of the goals of PDD-34, which is to ensure that defense contractors will continue to "maintain long-term military technological superiority at lower costs."²⁴⁹ Offsets in theory create "negative" competition for the United States. In addition, bribery scandals in arms trading are often linked to corruption in offset deals.²⁵⁰

While lesser developed nations require offset technology transfers in order to build their own military production facilities, the NATO allies also request indirect offsets to offset Buy America provisions.²⁵¹ According to Commerce Department data, European allies demanded

²⁴⁷ See Philip Finnegan, "Offsets Tangle UAE Market," *Defense News* 10, no. 46 (20-26 November 1995): 4.

²⁴⁸ See Giovanni de Briganti, "Dutch Lawmakers Give Green Light to Apaches," *Defense News* 9 (22 May 1995): 14.

²⁴⁹ U.S. Department of State Dispatch, vol. 6, no. 9. (27 February 1995), p. 155.

²⁵⁰ The General Accounting Office has examined diverse offset activities undertaken by defense contractors in "U.S. GAO, GAO/NSIAD-99-35, "U.S. Contractors Employ Diverse Activities to Meet Offset Obligations," by Katherine V. Schinasi, 18 December 1998.

²⁵¹ Buy America (U.S. Code 10, Sections 2533-2534) permits the Secretary of Defense to procure certain types of items only from manufacturers in the national technology and industrial base. These restrictions are aimed at excluding foreign competitors from competing for contracts to provide goods and services even though they may do so at a lower price than U.S. companies. ("Buy America" clauses [not necessarily limited to defense procurement] are frequently included in enabling procurement legislation.) Such actions were intended to protect manufacturing self-sufficiency and later to protect jobs as well. The argument for self-sufficiency persists: the U.S. should not be held captive to foreign parts suppliers for items that may be critical in a time of national emergency. Beginning in 1996, however, lawmakers and Department of Defense officials began softening their stance on Buy America. The Department's then-Chief of

"\$5.2 billion worth of offsets on \$4.9 billion in new sales agreements in 1995, meaning offsets were worth 104.3 percent of total contracts."²⁵² In 1995, U.S. prime contractors entered into new offset agreements worth slightly more than \$6 billion, based on export contracts worth \$7.4 billion; of the 45 new offset deals, European governments made up 26 of those deals. However, the actual balance of defense trade runs 5 to 1 in favor of the United States. ACDA figures for 1995 indicate that the United States delivered \$3.1 billion of defense goods to Western Europe while Western Europe delivered only \$60 million in goods to North America.²⁵³ The reason the NATO allies demand so much in offsets is that they cannot export defense items to the United States because of restrictive tariffs and Buy America Provisions. Since they import so much from the United States and are prohibited from exporting, they demand some form of compensation for the imbalance in trade. This is an "uneconomic" way of doing business but one of the few available to even out the trade ratios. Former Commerce Secretary Mickey Kantor, heading an interagency group called the Trade Promotion Coordinating Committee in 1996, considered a U.S. government effort to launch multi-lateral negotiations to eliminate or cap offsets. His efforts were rebuffed by the British, German and French unless the United States was willing to allow them to compete more freely in the American market. The U.S. Commerce Department warned the delegates that they should be cautious in making any decision to unilaterally limit offsets because subcontractors would be particularly hard hit.

The defense industry prime contractors see offsets as a necessary evil or as a valuable tool "to keep both a military industrial base and high paying jobs in America amid a global downturn in defense spending."²⁵⁴ The use of offset deals is seldom criticized by industry-- although they add extra administrative burdens. In a rare exception Joel Johnson, International Vice President of Aerospace Industries Association, criticized the "auctioning off" of offsets in the General Dynamics-McDonnell-Israeli buy in 1993, when he said in a *Defense News* interview that the U.S. government ought to act as a referee in this instance. "At a time when we are laying off 100,000 Americans a year in the aerospace and defense industry, it is hard to justify two American companies competing to place work offshore when there are no foreign competitors and the purchase will be paid for by U.S., not Israeli, taxpayers."²⁵⁵

Procurement Dr. Paul Kaminski led an effort to include certain specified items in an open bidding process. In 1997, Secretary of Defense Cohen gave his support to increased procurement opportunities and support for international programs.

²⁵² Theresa Hitchens and Brooks Tigner, "Europe Reaps Offset Gains/U.S. Renews Call for Restrictions as Demands Pass 100%," *Defense News* 11 (15 September 1997): 1.

²⁵³ *The Military Balance 1997/98*, 266.

²⁵⁴ Charles M. Sennott, "US Sees Conflict of Interest over Arms," *The Boston Globe*, 10 May 1996, Supplement, p. 1.

²⁵⁵ David Silverberg, "Israeli Offset Request May Test Clinton Trade Policy," *Defense News* 8, no. 6 (15-21 February 1993): 1.

Unlike the prime defense contractors, subcontractors are more vocal about their dislike of offsets because as a group they are particularly affected by offsets. Work that would normally be subcontracted by the primes to second-tier companies is sent overseas. *Arms Trade News* reports that a Commerce Department survey found that 170 of 204 firms responded that they were "negatively impacted by offsets."²⁵⁶ Addressing the subject of subcontractors, William Reinsch, Commerce Department undersecretary for Export Administration was quoted in *Defense News* as stating, "Offsets are bad for the international marketplace, eventually coming back to haunt all sides with negative impacts such as high prices and excess capacity."²⁵⁷

Congress has not imposed itself much into offset regulation. Banning the process or imposing ceilings on offsets has no supporters as it smacks of President Carter's failed unilateral arms trade policies. U.S. Senator Russell Feingold of Wisconsin became annoyed by Northrup (before it became Northrup-Grumman) lobbying a large U.S. paper products company to buy Finnish paper cutting machinery in direct competition with a Wisconsin firm as part of an "indirect offset" deal between Northrup and the Government of Finland. It appears that Northrup offered the U.S. paper company a \$3 million incentive to consider the Finnish equipment. (The Wisconsin company expressed indignation that offering a \$3 million incentive was unfair competition.) Senator Feingold appended an amendment which bears his name to the 1995 State Department Authorization Act that prohibits "defense contractors from offering payments to induce American companies to purchase goods or services from foreign countries that have purchased U.S. military equipment."²⁵⁸ The Feingold Amendment applies only to defense articles or services sold under the AECA, e.g., Foreign Military Sales. It does not apply to commercial sales, which are licensed under, but not sold under, the AECA.

It is uncertain if the Feingold Amendment has been effective. The State Department (OTC) was given responsibility for implementing the Feingold Amendment but was taken to task over its poor performance in doing so by the General Accounting Office.²⁵⁹ The GAO findings indicated that among other things, the State Department had given it a low priority in the face of more pressing matters. Also, Foreign Military Sales have fallen recently with respect to Direct Commercial Sales that are not covered by the Amendment.

In the final analysis perhaps a "no policy" policy, absent a multilateral effort, is the only way to manage offsets. A unilateral policy would certainly be as effective as unilateral arms

²⁵⁶ "Technology Seepage Is Offset Concern," *Arms Trade News* (June 1996, accessed 1 April 1999); <http://www.clw.org/pub/clw/cat/atn0696.html>; Internet.

²⁵⁷ See Theresa Hitchens and Brooks Tigner, "Europe Reaps Offset Gains/U.S. Renews Call for Restrictions as Demands Pass 100%."

²⁵⁸ "Justice Department to Investigate if McDonnell Douglas Broke Offset Law," *Aerospace Daily* 181, no. 2 (3 January 1996): 15.

²⁵⁹ See U.S. General Accounting Office, GAO/NSIAD-97-189, "Military Offsets: Regulations Needed to Implement Prohibition on Incentive Payments," by Katherine V. Schinasi, (1997).

transfer policy by the United States--which is to say not effective at all. Any attempt to manage offsets--even define them--may drive them underground and then disadvantage all but the most powerful corporations. In a September 12 interview Joel Johnson said, "a key problem is statistical data on offsets involve 'a certain amount of smoke and mirrors' and do not reflect the fact that the dollar value assigned to offsets does not reflect reality. 'It is in our interest to make an offset deal look as sweet as possible to the customer, but then it looks politically unpalatable back here in Congress.'"²⁶⁰

Summary

Both Presidents Clinton and Bush risked a great deal of unfavorable publicity in their support of U.S. arms transfers but with different timing. President Bush came out in favor of arms sales and repeal of recoupment fees right before the Presidential election. He was losing in the polls and supporting defense contractors in Texas and Missouri was a political move that could have resulted in favorable outcomes for both himself and for the Defense-Industrial Base. President Clinton nibbled around the edges of an Conventional Arms Control policy for two years before announcing one in early 1995—mid-way in his first term. The wording of PDD-34 was very controversial because of the emphasis on maintaining the Defense-Industrial Base. PDD-34 did not capture the public's or the general media's attention and never became a political "hot potato" for President Clinton (he had others). Like President Bush, Clinton tried to regain Executive prerogative over conventional arms transfers from Congress through the repeal of recoupment fees. President Bush repealed Direct Commercial Sales by Executive Order. President Clinton "supported" the repeal on recoupment for Foreign Military Sales which authority was granted in an annual defense authorization bill. Throughout his Presidency, Clinton used his office to direct favorable outcomes and ensure that U.S. companies "made the sale" but these efforts were rarely noted outside of trade publications and arms control newsletters. However, President Clinton's most striking effort to direct favorable outcomes for conventional arms exports was his lifting of the embargo on Latin American sales. The planning and announcement followed his election to a second term. The policy to review Latin American sales on a case-by-case basis has been in place since 1999 but after an initial flurry of trade visits, the establishment of corporate offices and announcements, the Latin American nations began to postpone buys and delay opening competitions. There have been no sales and thus no favorable outcomes with respect to new markets in Latin America.

²⁶⁰ Theresa Hitchens and Brooks Tigner, "Europe Reaps Offset Gains/U.S. Renews Call for Restrictions as Demands Pass 100%," *Defense News* 11 (15 September 1997): 1.

CHAPTER IX

THE U.S. DEPARTMENT OF DEFENSE

Introduction

The policy jolts and the Bottom Up Review reduced force levels and weapons acquisition programs but still the Pentagon must maintain an adequate defense infrastructure. First and foremost to U.S. conventional arms transfers is the annual U.S. Department of Defense fiscal year budget. Simply put, without a domestic demand or input (acquisition programs), there would be no output for export. Some of the key input items are as follows:

- Overall Budget Levels--Fewer dollars mean that tough decisions must be made about the value of certain programs in achieving military objectives. The defense budget has gone from a peak of \$390 billion in 1985 (in constant fiscal year 1997 dollars) to \$252 billion in 1997--a reduction of about 35 percent.²⁶¹ The annual budget categories and their funding levels appear below:

²⁶¹ Congress, Senate, Subcommittee on Acquisition and Technology of the Senate Committee on Armed Services, Statement of John B. Goodman, Deputy Undersecretary of Defense for Industrial Affairs, 105th Cong., 1st sess., 15 April 1997, 1.

Table IX.1

U.S. National Defense Budget Authority, 1985, 1990, 1996-2002

(Constant 1998 US\$bn)	Actual				Req.	Planned				Real fall (%)	
Fiscal Year	1985	1990	1996	1997	1998	1999	2000	2001	2002	1985-97	1985-02
Military Personnel	100.0	100.2	73.7	71.8	69.5	68.1	67.5	67.3	67.1	28	33
O&M	114.3	109.3	98.8	95.7	93.7	89.9	88.7	88.5	84.9	16	26
Procurement	136.7	96.7	44.2	45.1	42.6	49.7	54.6	56.9	62.6	67	54
R&D, Test & Evaluation	45.0	43.9	36.5	37.4	35.9	34.3	32.0	30.9	31.5	17	30
Military Construction	7.9	6.1	7.2	6.0	4.7	4.2	4.1	3.9	3.1	24	61
Family Housing	4.1	3.8	4.4	4.2	3.7	3.8	3.8	3.7	3.6	+3	12
Other	6.7	-1.0	2.6	-3.7	0.6	0.8	0.6	0.6	0.4	155	94
Total - DoD	414.7	359.0	267.4	256.5	250.7	250.8	251.3	251.8	253.0	38	39
DoE - defense related	10.6	11.9	11.2	11.6	13.6	11.6	10.7	10.1	9.6	+10	9
Other defense-related	0.7	0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	+40	+32
Total-National Defense	426.0	371.7	279.6	269.1	265.3	263.4	263.0	262.9	263.8	37	38

DoD=Department of Defense DoE=Department of Energy Req.=Request

Notes ¹Data for FY 1990-92 exclude *Operations Desert Shield* and *Desert Storm* costs and receipts.²FY 1997 figures assume Congressional approval of proposed supplemental appropriations and rescissions.Source: The Military Balance, 1997/98, p. 14.

- Research and development--R&D keeps weapons systems current and ensures that the United States military forces are provided with state-of-the-art equipment. Without research and development efforts, weapons systems would become obsolete and less competitive as newer ones entered the worldwide market provided by foreign competitors.
- Procurement--The annual procurement budget has had a tremendous effect on current production lines with regard to exports. "The procurement budget has declined more steeply than the DoD budget as a whole--from about \$125 billion (fiscal year 1997 dollars) in 1985 to about \$44 billion in 1997, a 65 percent reduction."²⁶² If the DoD chooses not to fund or stops funding a procurement program, then hypothetically
 - the production line could close
 - expertise (worker skills) could be lost
 - U.S. military "superiority" or "dominance" would diminish.

The above three items are related not only to the Department of Defense but to the welfare of the Defense-Industrial Base which is dependent upon government financing. In turn, the nation's security welfare is dependent on the ability of the Defense-Industrial Base to produce weapons systems. In order to retain strength and competitiveness, the same number of defense firms that profited during the Cold War could all not survive and remain strong into the future because there would not be enough work. Carrying excess Cold-War capacity would eventually weaken them. ("Excess capacity" is defined as unused or underutilized floor space and capital equipment.²⁶³) Certain key producers would eventually become unprofitable, noncompetitive and forced to leave the market. In order to avoid weakness and loss, the Department of Defense encouraged the "rationalization" of the Defense-Industrial Base through mergers and acquisitions (Chapter VII). It did not, however, direct the process unless it felt that it needed to take "*special* action to preserve an industrial capability."²⁶⁴ In his testimony, Deputy Undersecretary of Defense for Industrial Affairs John B. Goodman stated that the U.S. Department of Defense would not interfere with the market forces, according to the 1996 DoD Directive 5000.60, "Defense Industrial Capabilities Assessments" and accompanying Handbook 5000.60-H, "Assessing Defense Industrial Capabilities," unless for the following reasons:

- There was a valid national security requirement for a product or service.
- The capability was truly unique.

²⁶² Ibid.

²⁶³ U.S. Department of Defense, Office of the Secretary of Defense, "Report on the effects of mergers in the defense industry," March 1997, 1. (The role of the Department of Defense with regard to industrial consolidation was reported in compliance with Section 826 of the FY 1997 National Defense Authorization Act and in testimony on Capital Hill.)

²⁶⁴ Subcommittee on Acquisition and Technology of the Senate Committee on Armed Services, Statement of John B. Goodman, Deputy Undersecretary of Defense for Industrial Affairs, 4.

- The unique capability was "genuinely at risk."²⁶⁵

The report concluded that "Although the defense industry is experiencing significant reductions and downsizing, we found very few cases where essential capabilities are endangered, even given low production rates."²⁶⁶ 'Capability' has not presented itself as the issue that 'competitiveness' has, however. The pressure remains in the Post-Cold War era to produce weapons in a competitive fashion. Some recent events illustrate problems with domestic competitiveness. The first is the Lockheed Martin and Northrup Grumman merger. The parties involved appeared to be heading to court in the fall of 1998 after the U.S. Justice Department and the Pentagon denied their approval of the merger. This was the first defense merger opposed on anti-trust grounds. The second event was a Navy competition for high-tech DD-21 destroyers for which only one team responded. *The Washington Post* reported that, "The Navy has tried to put a brave face on what congressional sources say was an embarrassing example of how little control the Pentagon has over the lack of competition in the industry."²⁶⁷ Competitiveness plays out in the international trading system too because competitively-priced domestic buys equal competitively-priced exports for foreign buyers. A preemptive move by General Dynamics (Electric Boat) to acquire Newport News Shipbuilding may be the second merger not approved by the Department as it would consolidate nuclear-powered shipbuilding capability into one company.²⁶⁸ In 1998, the GAO investigated the consolidation process in the defense industry with respect to competition and reported in testimony that, "Many defense industry transactions are recent, and there is little evidence that the increased consolidation has adversely affected current DOD programs."²⁶⁹ The testimony went on to recommend several approaches that the Department of Defense could take to maintain competition. However, it also cautioned that the Department lacked "adequate visibility" into the lower tiers [second and third tiers] of the industrial base.

²⁶⁵ Ibid., 5.

²⁶⁶ Ibid., 8.

²⁶⁷ Tim Smart, "Navy Crafts New Rules on Rivalry," *The Washington Post*, 7 July 1998, sec. E, p. 1.

²⁶⁸ Tim Smart, "General Dynamics' Bid for Rival is Threatened," *The Washington Post*, 5 March 1999, sec. E, p. 1.

²⁶⁹ U.S. General Accounting Office, GAO/T-NSIAD-98-112, "Defense Industry Consolidation, Competitive Effects of Mergers and Acquisitions," Statement of David E. Cooper (4 March 1998), p. 1.

Keeping a Low Profile over Exports

Much of the negative media attention over conventional arms exports is directed toward corporate representatives of the Defense-Industrial Base. The Defense Department, however, seems to escape the spotlight, or at least to a larger degree than industry. This does not imply that the Defense Department is not somehow involved, only that its profile is lower. U.S. Department of Defense representatives do not often give their vocal support in the general media to arms transfer deals or policy changes that would affect future exchanges. One possible reason for this reticence is that in the Post-Cold War world, arms transfers receive a good deal of unfavorable press, and the Department wishes to avoid unfavorable publicity in a sensitive area. The issues of Latin America, loan guarantees and recoupment were discussed in Chapter VIII. The sections below describe the Department of Defense's 'public' reaction to those issues.

Latin America

The U.S. Department of Defense was reticent on the subject of President Clinton's 1997 reversal of Latin American arms transfer policy. There is a certain logic to this behavior because the embargo was a foreign policy issue but nonetheless also an important one for the Department of Defense. It would allow for a stronger U.S. military presence in that hemisphere and provide more opportunities for Foreign Military Sales. The following sampling of media articles illustrates the Department's behavior:

- Before the ban was repealed, an April article in *Arms Control Today* reported that the Clinton Administration had granted Lockheed Martin and McDonnell Douglas permission to submit technical specifications on the F-16 and F/A-18 respectively in compliance with Chile's provisions for a force modernization buy of jets. The Department of Defense is mentioned only once, "Military contractors, with the support of the Pentagon..."²⁷⁰ [Pentagon "support" is, of course, de facto because without it, no trading could take place.]
- An article in *The Washington Post* dated August 2 had no mention of Department of Defense. The article emphasized "intense" pressure on the White House by "defense and aerospace contractors to let them compete for sales..."²⁷¹
- An August 4 article in *The Wall Street Journal* had no mention of the Defense Department. The article implied that advocates for change were U.S. defense companies: "U.S. aerospace companies had long sought the reversal of the policy on arms sales to Latin American nations."²⁷²

²⁷⁰ Wade Boese, "Clinton Moves Closer to Easing Limits on Arms Sales to Latin America," *Arms Control Today* 27, no. 2 (April 1997): 37.

²⁷¹ Thomas W. Lippman, "U.S. Ends Ban on Latin Arms Sales," *The Washington Post*, 2 August 1997, A-12.

²⁷² Thomas E. Ricks and Jeff Cole, "Clinton ends Latin America Embargo, Opening Way for U.S. Arms Suppliers," *The Wall Street Journal*.

- In a *Defense Week* article on August 11, the a State Department spokesperson (Assistant Secretary of State Thomas McNamara) is quoted at length while a Defense Security Assistance Agency Latin American specialist's opinion is sought only about the types of equipment eligible for transfer. In the same issue, another article presents the State Department's defense of its new policy while no mention is made about the Department of Defense.²⁷³

Loan Guarantees

The U.S. Department of Defense, which would theoretically benefit from the loan guarantees, appeared to be publicly lukewarm in its support while industry representatives lobbied for years for government support. Loan guarantees were actually an industry initiative that was supported by the White House, and the U.S. Department of Defense and Commerce. Industry officials had long favored a loan underwriting program as they felt disadvantaged in comparison to allied nations'--Britain, France, Germany and Canada--government subsidies. Both Presidents Bush and Clinton supported loan guarantees by the U.S. Export-Import Bank for conventional arms transfer financing, but President Clinton did not mention loan guarantees in PDD-34 much to the disappointment of industry representatives.²⁷⁴ Loan guarantees for U.S. arms transfers had long had their detractors (David Obey, D-WI, Jeff Bingaman, D-NM, Dale Bumpers, D-AK) and supporters (Chris Dodd, D-CT, Joseph Lieberman, D-CT) in the House and Senate, and over time the Democratically-controlled Congress managed to defeat all initiatives. Industry fared better with the Republican majority when legislation in the FY 96 Defense Authorization Act created the Defense Export Loan Guarantee program (DELG). In the lobbying process to press Congress for loan guarantees, an industry official made the following statement:

...that revival of the failed plan [loan guarantees] will require heavy lobbying, not only among congressional opponents of U.S. government-assisted arms sales, but the Pentagon leadership which has been lukewarm and equivocal on the issue, according to sources.²⁷⁵

A few months later, *Defense News* reported that some Pentagon officials had shed their neutrality and were speaking out on the necessity of a loan guarantee program. The Defense Department

²⁷³ See David Ruppe, "New Latin Arms Policy Covers More than Fighters," *Defense Week*. And, David Ruppe, "State Department Official Defends Latin Arms Policy," *Defense Week* 18, no. 32 (11 August 1997): 13.

²⁷⁴ See Philip Finnegan and Barbara Opall, "U.S. Industry Takes New Tack on Loans," *Defense News*.

²⁷⁵ Barbara Opall, "U.S. Industry Pushes Export Finance Fund," *Defense News* 9, no. 6 (14 February 1994): 4.

program manager's remarks were countered by William Schneider, Chairman of the State Department's Defense Trade Advisory Group, who stated,

'It is true the issue has the support of the people on a professional level who deal with security assistance. But when it gets up to the senior policy level, that's where the disagreements arise.'²⁷⁶

Mr. Schneider's remarks implied that senior policy makers at the State Department and The White House were not at that point considering an Administration push for loan guarantees.

By 1994, there was an initiative sponsored by then-Rep. Dirk Kempthorne, R-ID, to have a financial facility separate from the Export-Import Bank housed in either the State Department or the Defense Department (Commerce supported the Defense Department while State and ACDA did not). Diehl McKalip, then-Deputy Director of the Pentagon's Defense Security Assistance Agency, stated in May 1994 that the Pentagon would not push for a finance facility, "considering congressional opposition to enhanced U.S. arms exports."²⁷⁷ The pressure for establishing the facility would have to come from industry, not the Department of Defense. He stated that,

People in the legislative branch are not particularly enthused about arms sales, period. And when you ask them to finance them, they don't take to that very well. So the push will have to come from industrial organizations, not from government. They (will) have to craft a bill that will be all things to all men. It will have to be a bill that would not result in proliferation, not serve to delay defense conversion and provide a program that can be controlled in a way to do the right things for the right people in the right way.²⁷⁸

The same sentiment persisted into 1995. *Defense News* again reported in a statement by an unnamed Defense Department official that,

the new proposal, regardless of its no-cost element, is unlikely to be approved by a Congress opposed to the proliferation of advanced weaponry. The official noted that the idea is being met with some interest in the Pentagon, but is unlikely to pass muster with the State Department and other government agencies. "We won't oppose it, but you're not going to see real strong support from us. I just don't think it has much of a chance.... It's not a bad idea, but the fact that people aren't keen on defense exports, and that the lack of loan guarantees has not

²⁷⁶ Barbara Opall, "Pentagon Sides with Industry on Export Financing," *Defense News* 6, no. 25 (30 June 1994): 1.

²⁷⁷ *Ibid.* It is not clear what to what 'congressional opposition' McKalip refers. He could be referring to past defeats in Congress to have The Ex-Im Bank provide guarantees for conventional arms sales.

²⁷⁸ *Ibid.*, 1.

diminished our position as the number one arms exporter in the world, does not bode well for this proposal."²⁷⁹

Recoupment

The Department supported repeal of recoupment fees but made public statements of neutrality concerning their value to Foreign Military Sales. According to many news reports, the Department of Defense sought to repeal the recoupment fees added to items transferred under the Foreign Military Sales program because they made U.S. products higher priced and, therefore, less competitive. However, the Defense Department did attempt to neutralize the effects of the repeal of recoupment on Foreign Military Sales in the FY 1996 Defense Authorization bill. The Pentagon's Defense Security Assistance Agency's then-Deputy Director Diehl McKalip took the position that recoupment penalized nations that wanted to go FMS instead of a commercial sale while the Air Force's Major General Joseph Hurd, then-Deputy Assistant Undersecretary of the Air Force for International Affairs, stated that the surcharge harmed the competitiveness of all products in general.²⁸⁰ McKalip conceded that repeal would be difficult because of arms control considerations. He added that "his agency officially is neutral and does not actively promote the FMS program over direct commercial sales."²⁸¹ He added,

'The general policy of the U.S. government is that we are agnostic. But there are three situations where we'll insist on an FMS sale as opposed to dealer's choice,' McKalip said. According to McKalip, international customers must procure through FMS when: Training services and items are produced or provided exclusively by the U.S. government. Classified items or new technology is to be transferred, such as cryptographic or electronic warfare gear.²⁸²

The Department of Defense's Unusual Role

The Department of Defense appears to be more interested in the welfare of the Defense-Industrial Base than in exports per se. The examples provided above of Pentagon "neutrality" were intended to illustrate that the Department of Defense does not lobby for conventional arms exports in the same manner as defense corporations. They were also intended to illustrate how the Department's behavior differs towards arms transfers as contrasted to its activities regarding its rationalization management of the Defense-Industrial Base in the wake of the policy jolts. It directed the process in the sense that the Defense Department did encourage the downsizing of

²⁷⁹ Philip Finnegan and Barbara Opall, "U.S. Industry Takes New Tack on Loans."

²⁸⁰ See Barbara Opall, "Pentagon Seeks to Jettison R&D Surcharge Law," *Defense News* 9, no. 22 (6-12 June 1994): 1.

²⁸¹ *Ibid.*, 1.

²⁸² *Ibid.*, 1.

the military-industrial base, although such encouragement was not official policy.²⁸³ A Department of Defense spokesperson stated, "Both Pentagon and industry leaders believe larger companies will be more efficient at stretching limited budget dollars and carrying out big ticket projects that characterize defense spending in the late 1990s."²⁸⁴ The Department allowed the market to correct itself for overcapacity through the merger process. In other words, it did not pick and choose a list of corporations that could 'stay' and be supported by future contract awards. The Department of Defense had always retained the right to disapprove of mergers and acquisitions to the U.S. Department of Justice regarding anti-trust issues of competitiveness under a 1994 agreement. It did not, in fact, weigh in with an opinion until it expressed concerns about the Hughes-Raytheon acquisition in 1997²⁸⁵ and then did not sanction the Lockheed Martin-Northrup Grumman merger in the same year.²⁸⁶

The Department of Defense has guided the rationalization process in two other ways: one way was to offer reimbursement to corporations for restructuring costs and the other was to sponsor legislation blocking foreign investors from purchasing U.S. defense firms. As an incentive to merge, the Department of Defense reimbursed some corporations for their restructuring costs from mergers and acquisitions in order to speed the rationalization process. These restructuring costs also ensured that the corporations would not take on additional debt which could have a debilitating effect. Restructuring costs include such items as relocation expenses, retraining, property disposition and severance packages. The Defense Department also saw to it that foreign buyers could not buy out ailing U.S. defense contractors. The Department of Defense was responsible for revamping legislation on foreign investment in the U.S. defense industry when Thomson-CSF of France tried to buy the bankrupt LTV Corp. in 1992.

Figure V.1 illustrates the President and the Department of Defense engaging in activities that were designed to produce favorable outcomes as the defense industry responded to the

²⁸³ "One-on-one with Joshua Gotbaum," *Defense News* 10, no. 8 (27 February-5 March 1995): 38.

²⁸⁴ John Mintz, "How a Dinner Led to a Feeding Frenzy," *The Washington Post*, 4 July 1997, sec. G, p. 1. See also Steve Weber, "Lockheed Martin Garners DoD Nod," *Defense News* 9, no. 48 (5-11 December 1994): 3.

²⁸⁵ See John R. Wilke and William M. Bulkeley, "Raytheon Deal Faces Changes by Pentagon," *The Wall Street Journal*, 9 May 1997, sec. A, p. 3. See also Jon G. Auerback, William M. Bulkeley and Jeff Cole, "Raytheon's Picard Does It His Way, Pulling off Deal for Hughes Assets," *The Wall Street Journal*, 17 January 1997, sec. A, p. 1; John Mintz, "Raytheon to Buy Hughes from GM for \$9.5 Billion," *The Washington Post*, 17 January 1997, sec. G, p. 1 and "Raytheon Bid Leads for Units of Hughes," *The Wall Street Journal*, 13 January 1997, sec. A, p. 3.

²⁸⁶ See Tim Smart, "Justice Dept. Sues to Halt Lockheed-Northrop Deal," *The Washington Post*, 24 March 1998, sec. A, p. 1. And, Jeff Cole, Thomas E. Ricks and Frederic M. Biddle, "U.S. Seeks to Bar Purchase of Northrop," *The Wall Street Journal*, 24 March 1998, sec. A, p. 3.

policy jolts. The rationale behind both President Clinton's and President Bush's policies appears to have been targeted toward keeping jobs in the economy through exports, although President Bush was more direct about it. Chapter VIII discussed how President Clinton made many of his decisions with an economic bias which assured favorable outcomes for the corporate defense industrial base competing in the international market place. The nature of Defense Department initiatives was slightly different than those of the Chief Executives, however. Presidents operate from a leadership role and political perspective; and while it would be difficult to argue that the perspective of the Department of Defense is not often political too, its concerns are more centered on the mechanics of acquisition and procurement than on jobs in the economy, and thus its scope narrows and becomes more organizationally centered. The Department of Defense, as noted above, was concerned with "competitiveness" issues in primarily a domestic procurement sense and not in an international trade competitiveness sense. In other words, it sought favorable outcomes on behalf of itself within the defense industrial sector. With respect to conventional arms exports, it is necessary to keep in mind that they are important by-products of domestic production because of their utility. They keep production lines open for security purposes; keep domestic acquisition prices lower because allies and the Defense Department share the costs of procurement; and also enhance interoperability that could provide the United States with a strategic advantage from a military standpoint. However, the Defense Department's initiatives to assure favorable outcomes were directed toward assuring that competitiveness originated at the domestic acquisition process level and not just on behalf of exports.

A Relationship Based on Contingency

The exigencies of the Post-Cold War era has produced varied relationships between government and industry based on contingencies. This is particularly applicable in the arms transfer arena where there are no trading patterns that characterize the 1990's. One area in which government and corporate relations have been strengthened is in Integrated Product Teams (IPTs). IPTs are a acquisition process reform initiative led by former Secretary of Defense William Perry and his Under Secretary of Defense for Acquisition and Technology, Dr. Paul Kaminski. Members of IPTs represent technical, manufacturing, business and support functions that are critical to the development, procurement and support of a program. The purpose of forming IPTs was to enable a group, whose individual members saw themselves a part of a team and not attached to a parent organization, to respond more quickly to alternatives and make faster and better decisions. The Defense Department attempted with IPTs to emulate a process that had been successful in industry. The initiative received praise from the corporate sector.²⁸⁷

One area in which economics could establish a competition between the Defense Department and private industry is in FMS vs. DCS. The Department's security assistance program is run by the Defense Security Cooperation Agency (DSCA) (formerly the Defense Security Assistance Agency [DSAA] per Chapter I). DSCA is a self-funding agency from the administrative fees (3-5 percent) and other charges it adds to Foreign Military Sales items, that

²⁸⁷ See, Jeff Erlich and Philip Finnegan, "Firms Emerge Lean, Strong," *Defense News* 10, no. 46 (20-26 November 1995): 17.

competes with industry for export sales.²⁸⁸ Any Foreign Military Sale benefits both DSCA and the defense contractor but as a self-financing agency, it has a vested interest in making the sale itself, although it has given industry a hand rather than lose sales altogether. On one occasion, DSCA was creative in its use of Foreign Military sales regulations in order to help a contractor. It came to the rescue of a potential sale of 100 AIM-120 Advanced Mid-Range Air-to-Air Missiles (AMRAAMs) by Hughes Electronics to Sweden when by skirting the recoupment issue. DSCA negotiated a direct commercial contract which would be administered by the U.S. Air Force. Hughes and Raytheon were thus exempt from adding the surcharges estimated at \$114,000 per missile that Sweden would have incurred under a government-to-government sale. (President Bush had already repealed recoupment fees on direct commercial sales.) Sweden got the missiles, the Air Force which was procuring AMRAAMs for itself helped to reduce the costs and industry was full of praise for the effort.²⁸⁹

Who Makes the Sale--FMS or DCS?

"Who makes the sale?"--the FMS or private industry?--is an interesting question that might not have been asked during the Cold War years when the market was larger and more customers were willing to spend. Official Defense Department policy is to be neutral as to whether a sale is contracted through the government or a U.S. contractor. Government neutrality, "as codified in U.S. security assistance manuals and regulations, is the operative and guiding principle."²⁹⁰ The U.S. government is prohibited from losing money or profiting per se from Foreign Military Sales. However, the Post-Cold War era has seen a decline in the FMS customer base with long-time customers, such as the United Arab Emirates, Australia, Britain, Singapore and the Netherlands, switching to Direct Commercial Sales.²⁹¹ Purchases through FMS have become more expensive and the process more laborious than through direct commercial sales. All DSCA jobs (approximately 5000 which includes world-wide support employees) are dependent on the surcharges attached to these sales.

Foreign Military Sales, however, are at an all-time low. According to *Defense News*, "Year-end tallies by the Pentagon's Defense Security Assistance Agency (DSAA) show 1997

²⁸⁸ DSAA, according to the DoD Organizational Guidebook, "serves as the DoD focal point and clearinghouse for the development and implementation of security assistance plans and programs, monitoring major weapon sales and technology transfer issues, budgetary and financial arrangements, legislative initiatives and activities, and policy and other security assistance matters through the analysis, coordination, decision, and implementation process."

²⁸⁹ Barbara Opall, "Pentagon Uses Loophole to Gain Edge in Foreign Sales," *Defense News* 9, no. 34 (August 29-September 4 1994): 22.

²⁹⁰ Barbara Opall, "Government Bonds: Does National Security or Job Security Guide Sales?" *Defense News* 13 (9 February 1998): 32.

²⁹¹ Barbara Opall-Rome, "Pentagon Begins Overhaul of FMS," *Defense News* 13 (25 June 1998): 1.

FMS agreements of \$8.8 billion, down from 1996's \$10.5 billion and drastically lower than the \$33 billion in 1993 contracts signed in the aftermath of the 1991 Persian Gulf War."²⁹² International customer dissatisfaction has become so prevalent with many long-time buyers switching to direct commercial sales, that DSAA is revamping the FMS program. Business practices were being reviewed with the hope that an action plan could be in place by the end of 1998. Edward Ross writes that reengineering FMS will be challenging because "The FMS system--in reality a system of systems--uses the same processes and infrastructure the U.S. government employs to procure its own weapons." He continues,

FMS depends on the Defense Department's acquisition laws and regulations, on service logistics and transportation systems, and on the Pentagon's finance and accounting system. Principally concerned with promoting U.S. interests, it is dependent on the interagency technology security and release process which is foreign policy, not business oriented.²⁹³

DASA's continued existence appears to be in peril because Foreign Military Sales are at an all time low. Larry Mortsoff in *The DISAM Journal* makes an interesting observation that FMS and DCS levels historically have appeared to have an inverse relationship, although he cautions about oversimplifications because "it is likely that several factors are involved from a purchaser nation's perspective: budget levels, threat perceptions, modernization plans and so forth."²⁹⁴ Whatever is the cause of the decline in sales, the situation is serious because delivery and sales figures for the same year do not correlate with each other; traditionally sales figures are (1) higher than deliveries and are (2) indicators of what might be shipped out two or three years from the current year. Many deals fall apart or are renegotiated between the "agreement" and the "delivery." In this case, if agreements in 1996 were worth \$10.5 billion, then hypothetically transfers (real income) in 1998 would be closer to \$8 billion and 1997 agreements worth \$8.8 billion would realize around \$6.5 billion in 1999. Thus, if FMS deliveries in FY 1996 are \$12.5 billion (see Table XI.2 below) and FMS agreements are only \$10.5 billion, the future of the FMS program does not look rosy. *Defense News* reports that, "DSAA has collected enough money through surcharges on the \$219 billion in open FMS cases to sustain its bureaucracy through 2002, especially if the agency continues to trim its work force."²⁹⁵

²⁹² Barbara Opall, "Fms Receipts Hit 10-Year Nadir in '97," *Defense News* 13 (9 February 1998): 33.

²⁹³ Edward Ross, "Foreign Military Sales Enhancements Instrumental to Strong Global Ties," *National Defense* (September 1998): 4.

²⁹⁴ Mortsoff, "Only Yesterday," 13.

²⁹⁵ Barbara Opall-Rome, "Pentagon Begins Overhaul of FMS," 1.

Table IX.2

U.S. World-Wide Arms Exports FY 1990-96

(in \$000)	FMS Deliveries	FCS Deliveries	DCS Deliveries	Total
FY1990	\$7,725,883	\$643,684	\$6,215,959	\$14,585,526
FY1991	\$8,745,013	\$769,616	\$5,165,782	\$14,680,411
FY1992	\$10,074,419	\$147,937	\$2,667,219	\$12,889,575
FY1993	\$11,100,568	\$588,714	\$3,808,085	\$15,497,367
FY1994	\$9,297,301	\$59,159	\$2,098,686	\$11,455,146
FY1995	\$11,704,841	\$25,165	\$3,620,117	\$15,350,123
FY1996	\$12,589,804	\$83,018	\$705,851	\$13,378,673
Totals	\$71,237,829	\$2,317,293	\$24,281,699	\$97,836,821

Note: FMS are Pentagon-negotiated foreign military sales; FCS are Foreign Construction Sales, DCS are direct U.S. industry sales.

Source: Foreign Military Sales, Foreign Military Construction Sales and Military Assistance Facts, 1996, published by the Directorate for Information Operation and Reports, Department of Defense (available from GPO).

One of the ways DCSA can retain the sale is to insist on a FMS buy versus a commercial sale for national security reasons, although it has insisted that it "does not artificially promote protectionism for FMS cases."²⁹⁶ For example, the Defense Department restricts sales of TOW's (the Army's Tube-launched, Optically tracked, Wire-guided antiarmor missile) to FMS deals for security reasons. By doing so, the Army guarantees work for 200 plus employees at its Huntsville, AL facility. The argument for national security is flimsy as this is a popular export: 43 countries have purchased the system, but there are no domestic acquisitions (and also no new replacement acquisition program which may be why DCSA sells TOWs only under FMS). Similar national security justifications have arisen with the popular--and sophisticated--Raytheon-Hughes AIM-120 AMRAAM (Advanced Medium Range Air-to-Air Missile). The Army has also tried to leverage sales of its Stinger missiles under the FMS program.²⁹⁷

Who Makes the Sale--The Service Branches Compete Too

Who makes the sale extends beyond FMS-DCS or contractor-to-contractor rivalry. Sometimes the military services compete amongst themselves for sales, although these are still Foreign Military Sales. For example in 1994, after domestic buys for F/A-18 were canceled, the Navy and Air Force, under its Coalition Force Enhancement program, competed to sell off their used fighters to Spain. The Navy offered to sell Spain 36 older model F/A-18A's at a discount price of \$8.5 million apiece compared to an average unit cost of \$5.5 million for the Air Force's

²⁹⁶ Ibid., 32.

²⁹⁷ George I. Seffers, "U.S. Army Targets Former Buyers for New Stinger Sales," *Defense Week* 11, no. 44 (4-10 November 1996): 15.

F-16's. (The F/A-18 may be priced higher but in comparison it is a twin-engine, multi-role fighter with greater distance and combat capacity than the single-engine F-16). Lockheed Martin jumped in to show support for the Air Force's F-16 sale as it held the potential for support contracts, spare parts and add-ons. Spain chose the Navy's F/A-18.

The Air Force in particular kept a close eye on its F-16 fighter program. The Pentagon was scheduled to stop its buys of the fighter jet in 1995 (originally 1993) under the Bottom Up Review. In order to protect the manufacturer, then-General Dynamics, the Air Force decided to sell some of its F-16's in inventory with the idea that the proceeds from those would allow them to buy new F-16's. In 1994, the Air Force began its Coalition Force Enhancement (CFE) Program. Under this program, buyers would have to pay for extensive engine and airframe upgrades performed in the United States. Sales would be made under the FMS program at a price of \$ 7 million per F-16. Interestingly, the CFE was not a success and the Air Force abandoned the program in 1996 without selling a single plane. The price was deemed too high making the up-graded F-16 comparable in price to a new one.²⁹⁸ The Air Force dropped the price of their used F-16's to \$3 million each, and Portugal placed an order for 25!

According to *Defense Week*,²⁹⁹ for the first time, the U.S. Navy lent marketing support to commercial shipbuilders in order to promote ship exports. The U.S. Navy and shipbuilders need exports because the Navy is building fewer ships which may cause diminished capacity for the United States. Traditionally, foreign navies have not been interested in U.S. Navy ships because they are too large. The Army, too, has established conventional arms transfer process action teams or "CAT PATS" to streamline the way the service manages the transfer of conventional arms.³⁰⁰ The teams were designed to correct the inefficiencies that have plagued the transfer of Army weapons due to the number of offices that are involved.

What Gets Sold or Given Away?

Weapons systems can be exported in one of several life-stages. Each type has its own benefits, downsides and stakeholders:

New Platforms

Purchase orders for custom-ordered equipment are financially beneficial for both the corporate manufacturer and the Department of Defense if they are sold under the Foreign

²⁹⁸ See Theresa Hitchens, "Sales of Used F-16s Elude U.S. Air Force," *Defense News* 11, no. 18 (6-12 May 1996): 15.

²⁹⁹ David Ruppe, "Navy and Industry to Promote Ship Exports," *Defense Week* 18 (23 June 1997): 7.

³⁰⁰ See "New Arms Transfer Teams to Help Army Streamline Weapons Sales Abroad," *Inside the Pentagon* 12, no. 20 (16 May 1996): 1.

Military Sales program. They are particularly beneficial to industry if the sale is a Direct Commercial one. New purchase orders allow industry to keep employees on the payroll and add, hopefully, to increasing corporate shareholder wealth. New purchases (as well as up-grades) with respect to exports is the crucial area for arms transfers where the Department of Defense and industry work together and have overlapping interests. For the governmental stakeholders, there are positive linkages with the GNP and the foreign trade balances. For economic stakeholders, not only is income generated from the current sale, but the future looks promising for training, spare parts and up-grades. U.S. elected representatives with manufacturing facilities in their districts keep local employment rates high and benefit politically. The Department of Defense furthers its military alliance with the buyer, enhances interoperability if ever needed and keeps domestic procurement costs low. Sales for new weapons sometimes compete with up-grades and excess equipment on the basis of cost.

Upgrades

Export sales for up-grade kits to major weapon platforms are offered for a number of reasons. In an era of budget and program cuts, upgrade systems extend the life of existing products, often increasing their capacity. They allow production lines to remain open so the kits can be assembled. Up-grades allow allies and friends the ability to increase the capacity of their current systems for less cost than buying new weapons. They are an effective, pre-emptive way to avoid a bidding war for new equipment, although most countries announce well in advance whether they will bid for new weapons systems or up-grade existing platforms. Up-grades can be sold either government-to-government funded under the FMS program or through direct-commercial sales. Both governmental and economic stakeholders, U.S. Department of Defense, corporate manufacturers, the President and Congress, benefit in up-grade transfers quite similar to new platform sales. Up-grades, since they are less costly to purchase, may preempt sales of more expensive new weapons.

Upgrade transfer sales in the Post Cold War era have been lucrative for the United States, especially when done in conjunction with upgrades for weapons in current in U.S. inventories, since many weapons systems that are exported are no longer purchased by the U.S. government. When upgrade deals involving both allies and the United States can be arranged, all parties benefit because the unit price drops. An example of a multi-nation program was a Belgium, Dutch, Norway and Denmark joint purchase of midlife update kits for their F-16's when the United States was preparing to update 132 of its own aircraft in 1992. The success of the program was in doubt after Belgium bowed out citing budget constraints and the Dutch began to waiver fearing the price per unit would rise. Norway eventually agreed to buy Belgium's surplus F-16's and the \$1.85 billion contract was salvaged.³⁰¹

³⁰¹ See Giovanni de Briganti and Theresa Hitchens, "Europeans Reverse on F-16 Update," *Defense News* 7, no. 50 (14-20 December 1992): 1.

Excess Defense Articles (EDA)

Under the Foreign Assistance Act of 1961 (Section 506), the President can draw down defense articles that are in inventory (not all items in inventory are necessarily eligible for export, however) and give them on a grant basis to foreign nations in response to military emergencies, disaster relief, international narcotics control, POW/MIA recovery efforts and refugee assistance. In FY 1996, narcotics control support to three South American and seven Caribbean countries totaled \$75 million. Support to Israel for counterterrorism efforts amounted to \$22 million; \$100 million went toward achieving stability in Bosnia.³⁰² The U.S. government stakeholders for grants are the Department of Defense and the President. The Defense Department is released from the costs of carrying dated equipment in its inventory. It also makes strategic connections with the recipient country. For the President, transfers of excess equipment that achieve humanitarian and peacekeeping purposes are truly "tools of foreign policy" and sometimes "domestic policy" if they counter drug trafficking and help in the recovery of the remains of U.S. POW's and MIA's.

On the other hand, Excess Defense Articles (EDA) are weapons that have been dropped from the Defense Department inventory if they are in excess of the Approved Force Acquisition Objective and Approved Force Retention Stock levels. These articles may be sold to eligible buyers under the Foreign Military Sales program or transferred on a grant basis. Unlike transfers of new weapons systems and upgrade kits, EDA transfers are reported to Congress in annual transfer reports, but the full Congress does not debate or vote on surplus arms grants. The U.S. government stakeholder in the EDA program is the Department of Defense for the same reasons listed above. The following table provides some figures for the EDA program.

³⁰² Figures from the *DIASM Journal* (Summer 1997): 46.

Table IX.3
EDA Grants and Sales

EDA Grants and Sales							
Program	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998
EDA Grants (\$M) ^a	178	290	170	308	615	b	b
EDA Sales (\$M) ^a	52	88	97	196	270	b	b

Source: *The DISAM Journal*, Summer 1997

^a EDA figures reflect current value at time of notification. According to data in the *Congressional Presentation for Foreign Operations, Fiscal Year 1999*, EDA Grants were \$309 million for FY 1997.

^b EDA transfers are not projected for future years. According to data in the *Congressional Presentation for Foreign Operations, Fiscal Year 1999*, EDA Sales were \$69.36 million for FY 1997.

New Directions

Since the end of the Cold War, two new directions in marketing have emerged. The first has been to find loopholes in the FMS process or encourage "creative financing" as was illustrated in the case of Norway's AMRAAM buy. Of course, finding loopholes to circumvent recoupment fees is no longer necessary since their repeal. Another tactic has been to put together a hybrid commercial-FMS type package. This has been successful in the Japanese Airborne Warning and Control System, the Israeli F-15I fighter buy and the Netherlands purchase of attack Apache helicopters in 1995. This hybrid FMS-direct commercial sale, often described as FMS-Plus or FMS Plus-Plus allows the purchaser to maintain the military-to-military connection while getting the best possible pricing deal through the private sector. Army Lt. Gen. Michael Davison, director of the Pentagon's FMS and Security Assistance Program, is quoted as saying in *Defense News*, "the Pentagon is not averse to combination FMS-direct commercial deals, and in fact has administered several such cases. 'We need to be open to creative ways of satisfying customer requirements.'"³⁰³

The second new direction is to offer a product still in the developmental stage to foreign buyers in order to drive down costs through economies of scale. This developmental stage marketing initiative should not be confused with joint development projects for which the United States has not been an enthusiastic participant in the past. (The Joint Strike Fighter may reverse that trend.) There are numerous problems with marketing an in-development system, the foremost one being technology transfer for the next generation of U.S. weapons systems such as

³⁰³ Barbara Opall, "Government Bonds: Does National Security or Job Security Guide Sales?" *Defense News* 13 (9 February 1998): 32.

the F-22 and the V-22 Osprey. *Aviation Daily* reported that the U.S. Navy international programs office is "encouraging" Britain to buy the V-22 tiltrotor aircraft in order "to help reduce the unit cost."³⁰⁴

The most publicized effort to attract export sales during product development has been for the Lockheed Martin F-22 "Raptor." The Air Force studied the issue of F-22 Foreign Military Sales for two years before pushing for permission to market it in early 1997. Preliminary marketing of the F-22 and the sharing of some sensitive data with treaty partners and allies was deferred until after the first flight of the fighter in September 1997. Other officials were not anxious to commit to foreign sales until after the system had been deployed with U.S. troops (around 2000). Even then export versions would be fitted with "less-capable" components than the U.S. buys along with anti-tamper software to thwart attempts at reverse engineering. However, the F-22 is highly integrated in its avionics, propulsion controls and flight surfaces and thus it may be difficult to devise an export version of lesser capability for export. Air Force procurement calls for the purchase of 438 aircraft at a unit procurement cost of at least \$91 million, and more likely \$108 million, per plane.³⁰⁵

The Lockheed Martin-Air Force effort to export the F-22 was rebuffed by former Air Force Chief of Staff Gen. Ronald Fogleman and congressional appropriators who insisted "the service must devote all efforts to producing and fielding a domestic fleet within budget and on schedule."³⁰⁶ The message sent by the government stakeholder was that the economic stakeholder could not count on a financial bailout from export sales. Interest in the F-22 has been expressed by Britain, Israel, Japan and South Korea. A proposal put forth by Lockheed Martin calls for a shared NATO buy similar to an earlier buy of AWACS aircraft by the same alliance. A NATO-coalition owned fleet would circumvent the problems with shipping out an export version because the U.S. is a member of NATO. At the moment, chances of selling the F-22 to NATO are slim because of shrinking defense budgets and competition with the next generation of fighter aircraft being fielded by European nations, such as the Eurofighter 2000. A source at the Air Force stated that,

the service hoped to keep a low profile on attempts to readdress the F-22 export issue, given language included in the 1998 defense budget. According to the language, sponsored by Rep. David Obey, D-Wis., [David Obey did not vote for the export loan guarantee program either] none of the funds appropriated for the F-22 could be used to approve or license the sale of F-22 to any foreign government.³⁰⁷

³⁰⁴ "USN HELP," *Aerospace Daily*, 186, no. 3 (1 June 1998): 335.

³⁰⁵ See Barbara Opall, "Government Bonds: Does National Security or Job Security Guide Sales?" 32.

³⁰⁶ Barbara Opall, "AF Chief to Review Policy for F-22 Sale," *Defense News* 12 (15 December 1997): 1.

³⁰⁷ *Ibid.*

Summary

The U.S. Department of Defense responded to domestic competition issues by encouraging rationalization and then halting the process when it felt it was going too far afield. The Department has, however, not managed to stay competitive with respect to Foreign Military Sales. The Defense Security Cooperation Agency has become too sluggish and bureaucratic to keep up with the fast-paced business world. FMS agreements have plummeted--which is also a symptom of a dwindling market. FMS are the conventional arms transfers behind the 'tool of foreign policy.' Defense Deputy Secretary John J. Hamre stated that,

FMS remains an indispensable tool in fostering U.S. interests. There will always be a need to address its mission of promoting regional stability, fostering military cooperation through interoperability and cementing government-to-government relationships through training follow-on services.³⁰⁸

In the meantime, the 'tool of foreign policy' is taken off the shelf less as buyers have turned to Direct Commercial Sales where economic trade principles dominate the marketplace.

³⁰⁸ Robert H. Williams, Pentagon Pledges to Cut Red Tape in Foreign Military Sales Procedure," *National Defense* 83 (July/August 1998): 40.

CHAPTER X

WESTERN EUROPE

Introduction

This chapter on the Western European allies provides a comparison and a framework for exploring the policy jolts in another context. The "policy jolts were not a uniquely American phenomenon. The NATO allies faced their own severe budget cuts after the collapse of the Warsaw Pact. The jolts did not happen all at once in Europe as they did in the United States because Europe embodies more nations making decisions at different times, with different forms of government and with different defense needs. European defense issues also have been shaped differently due to the close proximity to the former Soviet Bloc nations, NATO alliances and non-NATO alliances, the European Union, and in the Post-Cold War environment adjusting to the reunification of Europe and the reestablishment of commercial and political ties with Eastern European nations. With respect to conventional arms trading, there are some similarities and dissimilarities between the European allies and the United States in the Post Cold War era in the aftermath of the policy jolts. They are as follows:

Table X.1

A Comparison of the United States and the Western European Allies

	United States	Europe
A.	One large defense industrial base with economies of scale	Many smaller defense industrial bases with smaller economies of scale; "National Champions"
B	Publicly-held corporations	Defense corporations in Italy and Spain are state-run; some in France are state-run, others publicly held
C.	Exports subject to regulation by EAA and AECA	Subject to diverse national policies
D.	Exports regulated by several departments	Some European countries have central agencies for arms exports
E.	Policy change: Export sales subsidized by U.S. government	On-going policy: Export sales subsidized by national government
F.	NATO member	NATO member
G.	Subject to policy jolts--reduced defense acquisition budgets	Subject to policy jolts but not all at once; some more or less severe than others depending on national circumstances
H.	Rationalization began in 1990's and has created powerful companies	Rationalization began in the 1980's and stalled.

I.	Government attempts to absorb uncertainty with policies favorable to conventional arms transfers	Most governments attempt to absorb uncertainty through multi-national organizations
J.	Export market share increased in Post Cold War World	Export market share decreased in Post Cold War World

A discussion of items A-J follows.

	United States	Europe
A.	One large defense industrial base with economies of scale	Many smaller defense industrial bases with smaller economies of scale; "National Champions"

The Defense-Industrial Base of the United States consists of hundreds of companies, both large and small. Its size and the vast resources (factor endowments) contribute to its powerful capabilities. The European nations in comparison each have smaller defense industrial bases in proportion to their physical size, resources and budget constraints. The United States enjoys greater economies of scale because of larger domestic procurements. Some European firms are considered 'national champions.' National champions have government 'support' insofar as they are industrial leaders and accorded certain privileges, such as underwriting promotional activities for trade show exhibitions, tax breaks and concessions. U.S. defense companies also receive concessions from the federal government in the form of tax breaks, financial incentives to rationalize, guaranteed loans and the repeal of recoupment fees on Direct Commercial Sales.

	United States	Europe
B.	Publicly-held corporations	Defense corporations in Italy and Spain are state-run; some in France are state-run, others publicly held

U.S. Defense contractors are publicly- or privately-held corporations. The top prime contractors are publicly-held and their stocks are traded on the New York Stock Exchange. The trend in Europe is away from state-run defense industries. Publicly-held corporations are responsible to their shareholders to be profitable and must be responsive to market forces. State-run companies are responsible to government officials and insulated from market forces. Having state-run industries ensures having that particular industry will remain in-country, but they can become financial burdens for the state and not as efficient as their publicly-held counterparts. In the United Kingdom and Germany defense corporations are publicly-held (the governments may own stock in defense companies but they are not majority shareholders). France has a confusing mixture of both public and state-run corporations. Italy and Spain are state-run although Italy appears willing to privatize her defense industries if the opportunities arose (Italy's defense industrial base is financially weak).

French government has a particularly complicated marketing arrangement in addition to being the majority stockholder in major defense companies. The French Defense Ministry

markets French naval weapons worldwide through a government-owned company called Direction des Constructions Navales (DCN), armored vehicles through Pro-GIAT and submarines through Pronav. These marketing companies are incorporated as independent companies subject to commercial law. Their shares are owned by the French government but controlled by the companies. They are legally forbidden to sign contracts and agreements so private companies have to be named as prime contractor for export contracts.

	United States	Europe
C.	Exports subject to regulation by EAA and AECA	Subject to diverse national policies

There has been more activity in Europe in amending arms trading legislation since the end of the Cold War than in the United States. The legislative activity can be attributed to the embarrassment many European nations suffered having been identified as arms suppliers to "rogue" states. For example, German firms were implicated in the supply of chemical agents and other equipment to Libya, Iraq and Iran.³⁰⁹ As a result, the German Bundestag approved a number of changes to the Foreign Trade and Payments Act which increased maximum penalties for violations of United Nations sanctions to 10 years in prison and revised the requirements for export permits for dual-use goods. For first time illegal exports became a criminal offense; a large number of dual-use products became subject to strict control procedures, and 54 foreign countries were listed by the government as sensitive destinations for them. A newly-formed Export Office in the Economics Ministry was given regulatory responsibility. German defense companies claimed that stricter regulations on exports put them at a competitive disadvantage in the global defense market. Tight controls cramped Germany's marketing niche which was "quick and reliable"--although expensive because of high labor costs. In 1997, *Defense News* reported that the German Bundestag wanted to revise the country's arms export regulations. "The German attitude," Holger Mey, of the Institute for Strategic Analyses said, "has been that arms exports are morally wrong. However, there now is more political concern that overly restrictive arms export policies could affect Germany's ability to defend itself by destroying the country's industrial base."³¹⁰ German export regulations are summarized below:

³⁰⁹ Giovanni de Briganti, "German Companies Decry Export Laws," *Defense News* 16, no. 37 (16 September 1991): 28.

³¹⁰ Jack Hosehouer, "Germany: Export or Perish; Association Forecasts Collapse of Industrial Base," *Defense News* 12, no. 11 (17-23 March 1997): 1.

Table X.2

Federal Republic of Germany Arms Export Laws and Regulations

Export law and regulations	
Legal authority	War Weapons Control Act, implementing Article 26(2) of the Basic Law; Foreign Trade and Payments Act of 28 April 1962; Foreign Trade and Payments Regulation of 18 December 1986.
National policy statement	Political Principles adopted by the Government of the Federal Republic of Germany governing the Export of War Weapons and other Military Equipment.
International Agreements	European Union principles on arms transfers; OSCE principles on arms transfers
Control Lists	
Proscribed destinations	No exports to UN or EU embargoed countries; no separate list of excluded destinations available.
Differentiation between destinations	Distinction between exports to NATO or 'NATO equivalent' countries (e.g. Australia, Japan, Sweden, Switzerland) and third countries; Export to third countries only permitted if FRG has a 'vital interest' and the goods are used for defensive purposes.
List of controlled items	War Weapons listed as annex to War Weapons Control Act.
Licensing procedures	
Licensing authority	Ministry for Economic Affairs.
Consultative process	Federal Foreign Ministry, Ministry of Defense and with other Ministries if appropriate.
Enforcement	
End User Certificate	Exporter must provide documentation indicating final destination and information on when and by what means weapons are being exported.
Licensing of negotiations and pre-shipment activities	No authorization required for negotiating a contract.
Licensing exemptions	
Revocation of licenses	Possible only under specific legal conditions: 1.False statements in license applications. 2.Licences must be revoked if there is reason to believe that the weapons are to be used for war purposes or for actions contrary to the international obligations of the FRG. 3.In cases of military equipment other than weapons, it is possible to revoke a license in the event of paramount public interest.
Maximum penalty for non-compliance	1. Illegal arms exports can incur prison sentences of up to 10 years. 2.Proceeds of illegal exports can be seized without compensation. 3.Attempts to export arms without a license can incur prison sentences. 4.New export licenses will not be issued to an exporter or to a country receiving weapons if there is a suspicion or proof that the receiving country made a false statement regarding the final use of the weapons.

Advice offered to industry	
Licensing for temporary exports	Licenses are granted on the condition that the exporting party provides evidence to the Federal Export Office that the goods have been re-imported.
Categorization of licenses	There is no distinction between licenses based on destination; Exports within the framework of an intergovernmental cooperation project are covered by a general license.
Volume of licenses approved	Approximately 15000 (including all military equipment).
Staff involved in licensing	Approximately 80.

(Source: SIPRI, as of February 1996, <http://www.sipri.org/projects/expcom/natexpcom/UK/uk.htm>)

Belgium also strengthened her laws in the early 1990's with new comprehensive legislation to regulate exports of military and dual-use equipment. According to a 1997 U.S. Department of State publication,

Belgian controls apply to the export and re-export of military (conventional weapons) and dual-use items, as well as materials for weapons of mass destruction. Belgian companies send all applications for export and re-export to the Office of Quotas and Licenses in the Ministry of Economic Affairs. At that point, the process varies depending on whether the export is a conventional weapon/dual use item or a nuclear-related item.

If the item is a conventional weapon or dual use item, the Office of Quotas and Licenses will first determine whether, based on law and its experience, it will approve the item for export. If the Office makes a positive determination, it then sends the request for further approval to one of two federal ministers depending on the location of the Belgian company involved in the export. Export licenses for Flemish companies are sent for approval to the Foreign Minister, while Walloon company export licenses are sent for approval to the Minister of Foreign Trade. Once approved or disapproved by the respective ministry, the applications are returned to the Office for final disposition.³¹¹

Belgium adheres to list of restricted or prohibited goods and technologies that is in accord with EU guidelines and those of any CoCom successor regimes such as the Wassenaar Arrangement. The Government is also required to make an annual report to Parliament on the law's application.

The United Kingdom has strict new arms export restrictions favored by the Tony Blair government. This could have been a political move in an attempt by Blair's Labor Government

³¹¹ U.S. Department of State, "Country Report for Belgium," [report on line] available from http://www.state.gov/www/about_state/business/com_guides/1997/europe_canada/belgium97.html#Trade; Internet; accessed 23 March 1999.

to differentiate itself from its Conservative predecessors because the government has continued to approve arms transfers as deals come along.³¹² In announcing the government's position Robin Cook, Foreign Secretary, stated,

Today I set out Labour's commitments to ensure that the arms trade does not strengthen repressive regimes or heighten regional tensions. Labour will not grant an export license for arms or dual use equipment where they should be used for internal repression or external aggression. If the Conservative Government had applied that test to Saddam Hussein, they would not have ended up in the arms-to-Iraq scandal.³¹³

Blair's policy received international praise from arms control advocacy organizations. The new British policy follows:

Table X.3
United Kingdom Export Laws and Regulations

Export law and regulations	
Legal authority	Import, Export and Customs Powers (Defence) Act 1939.
National policy statement	Statement of criteria to be used in considering licence applications for the export of conventional arms, July 1997. [Statement of Criteria is attached as Appendix G.]
International Agreements	European Union principles on arms transfers; OSCE principles on arms transfers; "G-7" Declaration on conventional arms transfers and NBC Nonproliferation; P-5 Guidelines for conventional arms transfers.
Control Lists	
Proscribed destinations	Angola, Armenia, Argentina, Azerbaijan, China, Liberia, Myanmar, Nigeria, Rwanda, Somalia, Sudan, Syria, Republic of Yemen, territories of former Yugoslavia, Zaire.
Differentiation between destinations	
List of controlled items	Export of Goods (Control) Order, 1994 up to and including amendment 3 of 1997.
Licensing procedures	
Licensing authority	Department of Trade and Industry.
Consultative process	Foreign and Commonwealth Office, Ministry of Defence.

³¹² Alexander MacLeod, "Big Export for Britain Clashes with New Ethic," *The Christian Science Monitor*, 12 August 1997; <http://www.csmonitor.com/todays/paper/graphical/today/intl/intl.4.html>; Internet.

³¹³ Press release, Universal News Services (U.K.), "Press statement from Robin Cook, shadow foreign secretary," 13 February 1977.

Enforcement	Customs and Excise.
End User Certificate	Provision of end-user certificate including obligation not to re-export needed.
Licensing of negotiations and pre-shipment activities	No authorization needed for negotiating contracts unless classified information has to be released.
Licensing exemptions	Government-to-government transfers, Companies acting on behalf of their governments: exemption on the grounds of Crown Status Government-to-government collaborative projects.
Revocation of licenses	Secretary of State for Trade and Industry may revoke export licenses at any time and for any reason.
Maximum penalty for non-compliance	
Advice offered to industry	Provided on request.
Licensing for temporary exports	Temporary licenses, goods must be returned within 12 months.
Categorization of licenses	
Volume of licenses approved	Approx. 15000 per year.
Staff involved in licensing	50

(Source: SIPRI, as of January 1998; <http://www.sipri.org/projects/expcom/natexpcom/UK/uk.htm>)

Tony Blair also sponsored a Code of Conduct in arms transfers during his EU Presidency; the code was strong on human rights and short on transparency, however. Blair proposed a code and then turned its passage into a special project known as the "UK Presidency Project" when it was his turn (the United Kingdom's turn) to provide leadership for the EU between January and June 1998. (EU leadership rotates every six months among the member nations.) The EU Code (the Blair-sponsored EU Code) appeared to have strong grass roots support in Europe, similar to that which supported the International Treaty to Ban Land Mines. (Blair's EU code should not be confused with the on-again, off-again attempts to establish a NATO Code of Conduct which would have been less encompassing had it ever passed because not all NATO members are EU members.) The EU Code, ratified in June 1998, is attached as Appendix G. The Code is strong in the Human Rights area although critics would have preferred stronger definitions of "equipment" and "internal repression" and less dependency on the United Nations or the EU identifying a priori governments that violate human rights (Criterion Two). Notification of a sale by one seller that was previously denied by another remains between the second seller and the first denying-seller; all Member States are not notified of said sale (Operative Provisions). Finally, there is also no mention of releasing an annual report to the public; annual reports to other Member States are to be in confidence (Operative Provisions). The Code is also similar to the Wassenaar Arrangement insofar as reporting sales is done after the fact and not before. The EU Code is not a legally binding document so there are no sanctions against violators. A Congressionally-sponsored U.S. Code of Conduct would be a legally-binding document and violations would be punishable by federal law.

	United States	Europe
D.	Exports regulated by several departments	Some European countries have central agencies for arms exports

France and the United Kingdom have single government entities responsible for providing arms export support while the United States provides support through many different agencies. France and the United Kingdom have single government entities "within their defense ministries with responsibility for identifying defense export opportunities abroad, promoting and facilitating defense exports, providing assistance with defense equipment demonstrations and trade shows, and providing advice to industry regarding offsets."³¹⁴ In France, there is the DRI and the DESO in the United Kingdom. The organization responsible for promoting arms exports in France is called the Delegation for International Relations (DRI). It assigns defense attaches to overseas posts and subsidizes some missions to trade shows. It also acts as a liaison between the French Ministries of Industry and Defense. While DRI facilitates sales, it does not make them; sales are usually direct commercial sales. The DRI is a shareholder in the Defense Conseil International (DCI) that acts as a consultant to foreign governments in defining their military specifications and operational needs. The United Kingdom's Ministry of Defense's Defense Export Services Organization (DESO) acts as in a consultant/clearing house capacity to U.K. defense companies. It advises industry and government on markets, provides sales support and financing information. Other European countries that do not have comparable organizations but joint-venture with either France or the U.K., enjoy the indirect benefits of their promotional activities. (Eurocopter is an example of Germany being able to take advantage of French marketing.)

In the United States, there is no centralized government organization with a comparable promotion role. The U.S. Department of Defense's DSCA Security Assistance personnel are stationed in American embassies world-wide to provide support for Foreign Military Sales. The State Department's role is administrative with respect to its activities in the United States. If a foreign nation were contemplating an arms buy, U.S. government representatives stationed at the respective embassy and the military attachés would no doubt be involved in the review and decision making process by the host government. The Department of Commerce has more promotional-type activities but those would be on behalf of "dual-use" products. The Commerce Department sponsors trade shows, trade delegations and facilitates connections between interested buyers and sellers. Congressional delegations to foreign nations can also promote "dual-use" items. U.S. defense contractors do promote their products overseas and many will open marketing offices in the buyer's capital when sizeable deals are in the offering. There are no rigid demarcation lines between private and public, however. When traveling overseas, defense contractors will prevail on embassy personnel to lend their assistance in making appointments with government officials, networking and maintaining good will. Corporate and

³¹⁴ U.S. General Accounting Office, GAO Report NSIAD-95-86, "Military Exports: A Comparison of Government Support in the United States and Three Major Competitors," Letter 5:3.

government officials join up for attendance and participation at military shows which are marketing events and subsidized by both private and public funds, and corporate designees are often invited to join Congressional trade delegations, at their own expense, traveling overseas.

Both France and the United Kingdom are not reticent about high-level government advocacy for arms sales, and the United States has become less so in the 1990's. Another area in which the United States has become similar to Western European countries is in advocacy by high-level government officials on behalf of arms deals. France and the United Kingdom have historically sent high-ranking government officials--ambassadors, ministers and prime ministers--to lobby foreign buyers for their products. Germany has traditionally kept a lower profile because arms exports are a sensitive political issue for that country. U.S. defense contractors have asked for support from State Department embassy officials which has often not been forthcoming, depending upon the views of the Administration at the time. President Clinton has directly intervened³¹⁵ and his Administration has joined the ranks of France and the United Kingdom in sending high-level representatives abroad. The late Commerce Secretary Ron Brown attended a defense trade show and Secretary of Defense Cohen visited Latin America in the wake of the 1997 U.S. policy reversal on the arms embargo to that continent.

	United States	Europe
E.	Policy change: Export sales subsidized by U.S. government	On-going policy: Export sales subsidized by national government

European allies have long provided exporters access to financing for their buyers whereas in the United States until the FY 1996 Defense Authorization Act financing was only available through the FMF program. U.S. economic stakeholders changed long-standing programs after the policy jolts in an effort to direct favorable outcomes to make U.S. sales. Until the U.S. Defense Export Loan Guarantee (DELG) program was authorized in the FY 1996 Defense Authorization Act for \$15 billion in private sector loans guaranteed by the Department of Defense, most U.S. financing for arms transfers was handled through the Foreign Military Financing (FMF) program. (Guarantees are similar to risk insurance for lenders if for some reason buyers are unable to pay back loans.) Before the DELG program, the United States did not guarantee commercial financing for defense exports and the Export-Import Bank was prohibited from doing so unless requested by Presidential order. (The later did happen in 1990 when President Bush approved \$1.37 billion in loan guarantees to support a potential sale of helicopters to Turkey.³¹⁶) In other efforts to increase the competitiveness of U.S. arms exports, President Bush in 1992 repealed the recoupment fees on direct commercial sales; later, President Clinton repealed these fees on Foreign Military Sales.

³¹⁵ John Lancaster, "U.S. Presses to Put More Arms in Gulf States' Bulging Arsenals," *The Washington Post*, 4 April 1997, sec. A, p. 16.

³¹⁶ See David Silverberg, "Eximbank Guarantees First Loan for Defense Export Since 1974," *Defense News* 5, no. 34 (20 August 1990): 27.

Most European allies--particularly France, Germany and the United Kingdom--have provided exporters access to financing for their export buyers or for buyers borrowing directly from banks. Only the United Kingdom provides figures that indicate what percentage of their guaranteed export loans cover defense items. The United Kingdom did announce in 1995 that it would "enhance its loan guarantee program and government support in light of tougher international competition for a shrinking market."³¹⁷ Before that announcement, guaranteed loans in the United Kingdom for defense exports were slightly under 50 percent of all government guaranteed loans (approximately \$6 billion) for exports.³¹⁸ For 1996 and 1997, defense guaranteed loans had fallen to 14 and 24 percent respectively of all program loans (approximately \$1.2 billion).³¹⁹ (Information was not available on why the amount dropped so drastically.)

	United States		Europe
F.	Export market share increased in Post Cold War World		Export market share decreased in Post Cold War World

European arms transfers have fallen substantially in the 1990's. SIPRI bar graphs are provided in Appendix H to illustrate the decline in European conventional arms exports in the Post-Cold War era. Comparisons can be made with ACDA Table V in Appendix B or ACDA Table IV in Chapter VIII.

	United States		Europe
G.	NATO member		NATO member

The United States and her NATO allies have had an important but often difficult relationship over time. Currently there are issues in general about whether the United States should remain in NATO for strategic reasons (although it looks likely she will) and if she stays in, what costs will she carry. They are already considerable. According to *The Military Balance, 1996/97*,

Collectively, European NATO countries spent some \$35bn on procurement and \$12bn on research and development (R&D) in 1996--a total of \$47bn or 26% of total defense spending [\$158,101bn] under NATO definitions. By comparison, the US spent \$77bn or 28% of total defense spending [\$266,018bn]. The most significant difference between NATO Europe and the US is expenditure on R&D;

³¹⁷ Charles Miller, "U.K. to push arms exports," *Defense News* 10, no. 11(20-26 March 1995): 1.

³¹⁸ U.S. General Accounting Office, GAO/NSIAD-95-86, "Military Exports," 14.

³¹⁹ Government of the United Kingdom, "ECGD Annual Report and Trading Accounts, 1997, 98," available from <http://www.ecgd.gov.uk/furtherinfo/default.htm>.

Europe collectively spent just \$12bn in 1996 while the US spent \$35bn. The search for ways to deal with the imbalance has long occupied policy-makers in NATO, the Western European Union (WEU) and, increasingly, the European Commission, although the last has no direct competence for defence procurement.³²⁰

In the statement above, *The Military Balance* implied concern that such an imbalance may eventually leave Europe dependent on the United States for state-of-the-art conventional weaponry if NATO countries do not spend more on R&D. In fact, funding R&D may become more complicated in cross-border mergers and next generation products as the number of competing demands will rise as more parties come to the table at one time. To counter the gap, one choice the United States has is to raise its share of support to NATO. These issues were recent subjects for debate when NATO members voted to enter into accession talks (1997) with three former Soviet bloc nations: Hungary, Poland and the Czech Republic (since admitted in March 1999). The U.S. Congress voted to proceed with the NATO expansion plan, but there was considerable debate over the merits of expanding NATO, what the implications of such a move would be for European security and what the expansion costs would be for the United States. The NATO estimate of the U.S. share of common-funded enlargement costs was about \$1.5 billion over 10 years; the U.S. Department of Defense estimate was \$4.9-6.2 billion over the same period.³²¹

The lessening threat of nuclear war and Soviet attack makes the purpose of the alliance less defined in the 1990's. U.S. governmental stakeholders seem unsure of what they want from NATO in the Post Cold War environment. The Clinton Administration's attitude toward the Alliance has been criticized for its ambivalence.³²² Indeed, there are some U.S. elected representatives and a public segment who would like the United States to withdraw from NATO citing cost considerations and the decreased threat. A strong NATO, however, does give the President and Congress the option of choosing where, when and how they want to become involved in international conflicts. For the Defense Department, NATO forces represent troops at front line in the event of attack, well-armed and trained NATO forces mean fewer U.S. troops need to be stationed abroad and U.S. and European weapons have a high level of interoperability in the eventuality of a conflict when materiel and spare parts availability is crucial. The economic stakeholders, as well as the Department of Defense in FMS, have a lucrative market--in fact the United States' largest market--for conventional arms. A NATO official counters that, "The Americans want to have it both ways. They reproach us for hollowing out our forces and, on the other hand, they are afraid of a buildup of a European defense identity. The United States

³²⁰ *The Military Balance, 1997/98* (London: Oxford University Press, 1997), 35.

³²¹ "The Cost of NATO Enlargement to NATO and the US," Defence-data.com, 24 February 1998 (accessed 27 February 1998); available from <http://defence-data.com/current/page1744.htm>; Internet.

³²² Rick Atkinson and Bradley Graham, "As Europe Seeks Wider NATO Role, Its Armies Shrink," *The Washington Post*, 29 July 1996, sec. A, p. 1.

seems ready to "Europeanize" NATO but NATO realizes it cannot be too hasty to rid itself of U.S. presence."³²³

Intra-NATO member sales are limited by the Conventional Forces in Europe Treaty. In 1990, 30 European nations including the United States and Russia signed a Treaty in Oslo which was supposed to be the basis for building new security arrangements in Post-Cold War Europe. The treaty balanced the number of NATO and Warsaw Pact tanks, armored vehicles, artillery, combat aircraft and helicopters in Europe. By 1997, negotiations were in progress to reduce the national ceilings even further. The Treaty will certainly dampen demand for certain categories of equipment. The long-term looks good for high-tech electronics but poor for makers (many of which are 'national champions') of integrated weapons systems such as tanks, armored vehicles, ships and artillery.³²⁴

The European NATO nations are focused on saving jobs in their own defense sectors first and less with any international organization's (EU, NATO, WEAO) industrial priorities. Unless a common defense production plan materializes--and one is not expected to for several more years--the NATO allies will remain competitors in the international marketplace. Although the European NATO allies have a new Code of Conduct through the EU, this will not necessarily curtail arms transfers. Trade statistics indicate that certain nations are top suppliers to Developing Countries (Table X.4 below). "The lack of a unified Soviet threat and rising tensions over defense trade have made it more difficult for officials at NATO to impose common good over the perceived needs of individual member nations."³²⁵ Richard Grimmett from the Congressional Research Service states,

Since 1991, most arms transfers to developing nations have continued to be made by two to four major suppliers in any given year. The United States has been one of the top two suppliers each year, while France has been the most consistent competitor for the lead in arms transfer agreements, ranking first in

³²³ Ibid.

³²⁴ Giovanni de Briganti, "Economics Help Mold Evolution of European Firms," *Defense News* 6, (22 July 1991): 14.

³²⁵ Brooks Tigner, "Arms competition rips at NATO's military fabric," *Defense News* 12 (1997): 1.

1994. As competition over a shrinking international arms market intensifies, suppliers such as France, Russia and the United Kingdom may routinely shift in their rankings relative to one another and to the United States.³²⁶

³²⁶ Congressional Research Service, No. 97-778F, "Conventional Arms Transfers to Developing Nations, 1989-1996," by Richard F. Grimmett (13 August 1997), 4.

Table X.4

Arms Transfer Agreements With Developing Nations, by Supplier, 1989-1996.*
(in millions of constant U.S. dollars)

	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL 1989- 1996
United States	8,540	19,005	12,890	14,175	15,857	6,949	4,097	7,285	88,799
Russia**	14,137	12,559	6,727	1,539	1,388	3,755	5,625	3,900	49,631
France	1,329	2,934	3,251	6,708	4,057	8,449	2,454	1,300	30,483
United Kingdom	1,087	1,643	336	1,979	2,562	730	409	1,800	10,548
China	1,159	1,874	535	455	468	767	196	500	5,954
Germany	483	469	1,682	220	641	0	307	100	3,902
Italy	362	352	112	550	320	209	818	300	3,024
All Other European	3,504	1,408	1,233	990	320	1,147	920	900	10,424
All Others	2,054	2,230	1,121	1,430	1,068	730	2,454	3,300	14,387
Total	33,190	43,183	28,027	28,141	26,748	22,804	17,290	19,385	218,767

*Developing nations category excludes the U.S., former U.S.S.R., Europe, Canada, Japan, Australia, and New Zealand. All data are for the calendar year given except for U.S. MAP (Military Assistance Program) and IMET (International Military Education and Training) data which are included for the particular fiscal year. All amounts given include the values of weapons, spare parts, construction, all associated services, military assistance and training programs. Statistics for foreign countries are based upon estimated selling prices. U.S. commercial sales contract values are excluded. All foreign data are rounded to the nearest \$100 million.

**Prior to 1992 reflects data for the former Soviet Union.

***Based on Department of Defense Price Deflator.

Source: U.S. Government, Congressional Research Service, "Conventional Arms Transfers to Developing Nations, 1989-1996 [13 August 1997]: 46)

U.S. Sales to Prospective NATO Countries

At first, it appeared that the newest NATO countries would provide some export sales opportunities for the United States. The newest NATO members, Hungary, the Czech Republic and Poland, need to modernize their militaries at great costs to themselves but much stands in their way of being lucrative new arms sales outposts. Modern Western defense equipment is financially out of reach. The countries want western equipment but face budgetary realities that do not permit buys in the quantity and quality desired. Central European governments in many instances may have to turn to their own defense industries to find cost-effective ways of improving or replacing outdated Soviet-made equipment. *Aerospace Daily* reported that in a closed Senate Budget Committee briefing by the GAO in November 1997 that "the new members of NATO will have to spend a total of \$10 billion to \$13 billion over ten years on military restructuring and modernization."³²⁷ (The Czech Republic, Hungary and Poland have been receiving Foreign Military Financing (FMF) grants or loans, International Military Education and Training (IMET) and funding to support participation in NATO training exercises since 1995.) The Pentagon has already offered to lease F-16s and F-18s free of charge until the countries are ready to buy and then be able to tap into the DELG program.

The reality of the situation is that while Poland plans to replace 100 to 150 planes and the Czech Republic approximately 24 and Hungary 30, the \$6-\$8 billion in sales for aircraft alone must come out of very limited budgets. For example, Hungary's bill of up to \$900 million for new fighters "must come out of a government budget that in 1996 totaled only \$16 billion."³²⁸ In order to get the best deal possible for themselves, Budapest, Prague and Warsaw have opened offices for negotiating offset arrangements with Western firms vying to sell new defense equipment to their militaries with the hopes of garnering direct benefits to local defense firms from any weapons imports. Western firms, in turn, are more than willing to participate for future buys--including aircraft, information and command systems, air defense systems and missiles--potentially worth billions of dollars during the next 20 years. The three prospective NATO members differ in how they intend to apply those benefits to their industrial bases. Poland, who specialized in heavy weaponry, light aircraft and helicopters for the former Warsaw Pact, clearly wants joint ventures with guaranteed technology transfers for its many defense companies, such as state-owned aerospace firms PZL-Swidnik S.A., Lublin, and PZL-Mielec, Mielec. Hungary seeks offset arrangements mostly to benefit its commercial economy. Hungary's few defense firms primarily do niche work, such as electronics maker Videoton Mechlabor Manufacturing and Development Ltd., or gas mask producer Comasec Respirator, both based in Budapest.³²⁹ As for the Czech government, it seems willing to trade off parts of its defense industry for cash,

³²⁷ "Modernization Tab," *Aerospace Daily* 184, no. 25 (10 November 1997), 216.

³²⁸ Christine Spolar, "Aging Armies Grapple with Costly Overhaul," *The Washington Post*, 19 June 1997, sec. A, p. 28.

³²⁹ Brooks Tigner, "East Europe Industry Shifts Focus," *Defense News* 12 (12 June 1997): 20.

if the price is right. Officials in Prague have entered into consortium of Boeing and Ceske aerolinie for capital interests--40 percent--in its troubled aircraft maker, Aero Vodochody, Odlena Voda, for at least \$27 million. At the end of the day, the new NATO market remains "in development." Buys by new NATO members may materialize slowly as budget demands for high ticket defense systems take second place to social programs. The new members may decide that updating existing equipment, if possible, is preferable for the time being.

	United States	Europe
H.	Subject to policy jolts--reduced defense acquisition budgets	Subject to policy jolts but not all at once; some more or less severe than others depending on national circumstances

The European defense industries were hard hit by their own national budget cuts and experienced policy jolts similar to the United States--in their own unique ways. Some European countries tried to shore up their ailing defense industrial bases. Italy passed legislation worth 1.5 trillion Italian Lire (\$945 million) designed to help her defense industry cope with shrinking defense markets and resulting job losses. In France, a Reorganization Committee and Reorganization Directorate were established to manage state-owned defense industries faced with the possible loss of more than 100,000 military and civilian jobs. With respect to arms transfers, exports are important to the European allies because their own buys are so much smaller and their built-in markets--other European countries--were shrinking proportionately (see Table X.5 below).

Table X.5

Intra-Europe Arms Trade, 1987-1995
(constant 1995 US\$m)

	Intra-Europe
1987	6,065
1988	6,525
1989	5,252
1990	5,199
1991	5,631
1992	5,163
1993	4,011
1994	3,969
1995	3,535

(Source: The Military Balance 1997/98, p. 266.)

France was the last of the major European arms-producing countries to cut her defense budget substantially while other countries responded quickly to reduce their defense budgets. In 1992, France froze the amount it spent annually on fielding new weapons until 1994, marking a reversal in a 34-year trend of increasing procurement budgets, according to the government's

1992-1994 defense spending blueprint. It also reduced its overall defense budget as a percentage of gross domestic product from 3.25 percent to 3.1 percent over the next two years (1995-96). Then-French Defense Minister Pierre Joxe announced procurement spending would stay at 102 billion francs (\$19.7 billion) in 1993 and 103 billion francs (\$19.9 billion) in 1994. By reducing some programs, delaying others and canceling several secondary programs, the French avoided killing any major new development programs, despite having earlier claimed that at least one major program would have to go if defense spending were to grow at an annual rate of less than 1.5 percent after adjusting for inflation. France maintained her defense budget by reducing real estate holdings but eventually she was forced to make cuts and reduce her acquisition figures.³³⁰

By 1994, France's five largest state-owned defense contractors posted combined losses of more than 6.5 billion French francs (\$1.31 billion), and all asked for cash injections from the government to balance their financial statements. In total, these five companies required a cash injection of about 35 billion francs (\$7.1 billion). However, the prevailing sentiment expressed by Minister François Leotard was that maintaining defense spending "is a political priority for the government [because] we believe that the weight, the influence of a nation, is directly proportional to its military potentialities."³³¹ France increased her 1995 budget when everyone else was decreasing by disposing of real estate and unspent funds that were carried over from the previous year. But then she reduced her buy of Rafale fighters, scaled back on the NH-90 utility helicopter and postponed any decision on the Future Large Aircraft (FLA) program to meet the demands of social programs.³³² The fragile long-term defense budget for 1995-2000 which retained the high spending levels was revised when the government changed hands in mid-1995. The new President Jacques Chirac announced that cuts would be made at eight percent.³³³ The following tables are offered for comparison with other European countries. (Note the drastic drop in defense expenditures between 1985 and 1997.) In 1996, Chirac announced that France would move to a professional army.³³⁴ The transition would begin in 1997 and halve its current size by 2000.

³³⁰ Figures from Giovanni de Briganti, "France Reins in Weapons Budget," *Defense News* 7, no. 27 (6-12 July 1992): 1.

³³¹ Giovanni de Briganti, "France Boosts Budget, Looks To Modernize," *Defense News* 9 (10 October 1994): 4.

³³² Giovanni de Briganti, "Fiscal Baggage Clouds Aerospatiale Privatization Plan," *Defense News* 10 (5-11 June 1995): 46.

³³³ Giovanni de Briganti, "French Lobby Gulf States for Weapons Export Deals," *Defense News* 10, no. 44 (6-12 November 1995): 6.

³³⁴ Giovanni de Briganti, "Chirac Defies Plans to Cut Joint Efforts with Germans," *Defense News* 11, no. 20 (20-26 May 1996): 1.

Table X.6
European Defense Budgets
(constant 1996 US\$ m)

France, 1985 Defense Expenditures: 44,604

Defense budget					R&D				Procurement			
	1994	1995	1996	1997	1994	1995	1996	1997	1994	1995	1996	1997
France	36254	41351	37064	32434	6941	6888	5456	4586	8856	10670	11293	9108

U.K., 1985 Defense Expenditures: 43,536

Defense budget					R&D				Procurement			
	1994	1995	1996	1997	1994	1995	1996	1997	1994	1995	1996	1997
U.K.	35803	34973	33477	35904	3615	3616	3439	3542	10517	10910	10705	12006

FRG, 1985 Defense Expenditures: 48,149

Defense budget					R&D				Procurement			
	1994	1995	1996	1997	1994	1995	1996	1997	1994	1995	1996	1997
Germany	30765	33896	32055	26500	1613	1940	1811	1771	3548	3885	3627	3367

Italy, 1985 Defense Expenditures: 23,462

Defense budget					R&D				Procurement			
	1994	1995	1996	1997	1994	1995	1996	1997	1994	1995	1996	1997
Italy	16853	16269	20244	17962	589	567	740	740	1615	1608	1983	2069

(Source: *The Military Balance*, 1997/98, p. 34)

The French government was reluctant to go the way of her European allies and took a long time to initiate her own policy jolts. Some reasons have been offered in the media:

- French industry leaders have strong political clout and warned against labor unrest if there were budget cuts.³³⁵ French unions are powerful political bodies.³³⁶
- Industry does not want cuts because jobs will be lost.³³⁷

The following reasons are also offered based on observation:

- France already has sunk costs in two state-of-the-art jet fighters: the Mirage and the Rafale (along with a host of other weapons systems).
- France has a leading share of arms exports to the third world according to the Congressional Research Service (Table X.5).
- French government ownership of her defense industries makes cross border mergers difficult.

³³⁵ Giovanni de Briganti, "French Industry Chiefs Warn Against More Budget Cuts," *Defense News* 9, no. 11 (21-27 March 1994): 1.

³³⁶ Giovanni de Briganti, "French Unions Fight Shipyard Privatization," *Defense News* 10, no. 36 (11-19 September 1995): 41.

³³⁷ Giovanni de Briganti, "French Firms See Hope in Cuts," *Defense News* 10, no. 30 (24-30 July 1995): 4.

The following section on European rationalization illustrates that France may be trying to make of go of it by herself as long as it is possible.

	United States	Europe
I.	Rationalization began in 1990's and has created powerful companies	Rationalization began in the 1980's and stalled.

European corporations began to consolidate in the 1980's but stalled in the early 1990's as the United States began its rationalization process. European corporations began to consolidate in the late 1980's and for awhile it appeared that they would be the model for industrial rationalization. There was optimism that Europe would emerge with a strong defense industrial base buoyed by more liberal acquisition policies and less dependence on providing their own turn key operations than the United States. Joint initiatives were formed to lead to low cost production, economies of scale and payroll deductions. For while, the picture looked positive as many European countries had decided to upgrade aging military equipment that put orders in the pipeline. However, when the world recession hit in the early 1990's, defense budgets were greatly reduced. France held on longer to current military spending levels than her neighbors but was eventually forced to make program cuts.

The budget cuts or policy jolts appeared to slow down the rationalization process and stirred up nationalistic sentiments about protecting one's own national defense industrial base. Intra-national consolidation continued to some extent and there was a logic to rationalizing indigenous industries first before crossing boundaries³³⁸, but trans-national consolidation was extremely slow to materialize. It was essential the latter happen if Europe wanted to compete with the United States in economies of scale. The governments of countries such as the United Kingdom and Sweden advocated a hands-off approach to rationalization and wanted to leave market forces to decide corporate fates. The same approach, of course, was not possible in France and Italy where many defense industries were state-owned. The greatest areas of European overproduction, and thus the need to rationalize most, were in aerospace and defense electronics. There is little push to consolidate "national champions" in armored vehicles, ordnance and ship building industries.

European defense firms could not keep pace with U.S. defense rationalization. Just when European mergers lost their impetus, the United States picked up momentum. The European allies began complaining³³⁹ but have not rationalized enough to threaten United States

³³⁸ See Giovanni de Briganti, "Europe Eyes Consolidation to Compete with U.S.," *Defense News* 11, no. 49 (9-15 December 1996): 16.

³³⁹ See John Donnelly and Colin Clark, "Merger Mania Hits \$53 billion This Year So Far," *Defense Week* 12, no. 27 (7 July 1997): 14; and Philip Finnegan, "Top 100 Survey Shows Potency of U.S.," *Defense News* 12, NO. 29 (21-27 July 1997): 1. Also, Anne Swardson, "French Breakaway Leaves European Arms Industry Adrift," *The Washington Post*, 19 August 1997, sec. C, p. 1. And, Brooks Tigner, "Trans-Atlantic Harmony Faces Many Obstacles," *Defense News* 9 (May 29-June 4 1995): 16; William Drozdiak, "France Shakes up Arms

dominance in conventional arms trade. If the Lockheed-Martin merger with Northrop goes through, the United States will be left with two jet makers. Europe will have three. The United States has four missile companies; Europe has 11. The reasons for Europe's failure to consolidate include security fears, national pride, cultural differences and the defense companies' political clout (labor unions are stronger in Europe than in the United States). However, the French government may be the strongest factor in the lack of progress. The Socialist-led French government opposes the privatization of state-owned companies and continues to make on-again off-again statements about what it will do. In the 1980's, France pulled out of the Eurojet fighter program and decided to go on her own for the long-term with Aerospatiale and Dassault. Eventually other European nations could end up making deals around her.

The year 1997 was particularly frustrating to proponents of trans-national mergers because the French refused at the last moment to privatize Thomson-CSF blocking a merger of sorts with British Aerospace. This merger was to have lead the way for privatization and consolidation of European defense industry. It seemed that the French government was behind the idea of privatizing their defense industry and supporting cross boundary mergers when President Jacques Chirac (who was elected in 1995) announced in February 1996 that he was privatizing Thomson, SA.³⁴⁰ A merger (an equity and Board Member swap) between government-owned Aerospatiale and partially government-owned Dassault was also announced around the same time (and has yet to be finalized). However, the newly-elected French Socialist government decided at last moment on December 4 not to privatize Thomson-CSF (defense electronics unit of Thomson, SA) blocking a merger of sorts with British Aerospace (who had an equity interest in Lagardere Group).³⁴¹ After the French government cancelled the sale of Thomson-CSF, it made an announcement that the government would retain a "decisive share" in Thomson but sell it off to French and European firms by the end of the year.³⁴² The sale stalled and the merger process also stalled--French protestations to the contrary³⁴³--and it appears that France is now unwilling to give up or sell off her controlling shares in certain corporations.

Industry to Compete with U.S.," *The Washington Post*, 22 February 1996, sec. A, p. 18; see, Pierre Sparaco, "Europe ups Ante over Boeing Merger," *Aviation Week & Space Technology* 147, no 2 (14 July 1997): 66-67.

³⁴⁰ See Giovanni de Briganti, "Europe Eyes Consolidation to Compete with U.S.," *Defense News* 11, no. 49 (9-15 December 1996): 4; Giovanni de Briganti, "Despite Hurdles, France Pushes Sale of Thomson," *Defense News* 11, no. 48 (2-8 December 1996): 1 and Giovanni de Briganti, 1996. "France Sees Thomson Sale as Consolidation," *Defense News* 11, no. 42 (21-27 October 1996): 1.

³⁴¹ See Brooks Tigner, "France's Decision Reroutes Europe's Mergers," *Defense News* 12, no. 29 (21-27 July 1997): 3.

³⁴² See Michael A. Taverna, "French Socialists Backtrack on Privatization Policy," *Aviation Week and Space Technology* 147, no. 4 (28 July 1997): 24.

³⁴³ William Drozdiak, "France Shakes up Arms Industry to Compete with U.S.," *The Washington Post*, 22 February 1996, sec. A, p. 18.

The major private European firms, such as BAe, GEC-Marconi and DASA have expressed their reluctance to try and strike merger deals with French government controlled companies.³⁴⁴ The table below summaries European in-country and cross border mergers:

³⁴⁴ Vago Muradian, "European Defense Ministers to Discuss Consolidations, " *Defense Daily*, 9 June 1998, 1.

Table X.7

Equity Merger Activity in European Countries (consortia not included)

In country mergers	Cross Boundary Mergers						
	United Kingdom	France	United States	Germany	Sweden	Netherlands	Italy
<p>France Thomson-CSF, Paris Merger with Aerospatiale (electronics division)=Sextant Avionique GIAT Industries (consolidated armor)</p>	<p>Thomson-CSF--Link Miles and Rediffusion Thomson-CSF--Ferranti (Ferranti Thomson Sonar Systems) Thomson-CSF--Thorn-EMI plc Matra Defense-BAe Dynamics (missiles) Matra BAe Dynamics-DASA's LFK</p>			<p>Matra BAe Dynamics-DASA's LFK</p>		<p>Thomson-CSF--Philips</p>	<p>Thomson-CSF--Elettronica</p>
<p>United Kingdom British Aerospace and General Electric-Marconi Electric GKN Defence Westland Group GEC Vickers Shipbuilding and Engineering Ltd. (VSEL) Yarrow Shipbuilders GEC-Marconi Avionics GEC Aerospace Haseltine</p>	<p>Rolls Royce-Allison Marconi-Tracor</p>	<p>Thomson-CSF--Link Miles and Rediffusion Thomson-CSF--Ferranti jv (Ferranti Thomson Sonar Systems) Thomson-CSF--Thorn-EMI plc MATRA-BAe Dynamics (missiles) Matra BAe Dynamics-DASA's LFK</p>	<p>Rolls Royce-Allison Marconi-Tracor</p>	<p>BAe-Siemens</p>			<p>GEC-Italtel (military units)</p>

In country mergers	Cross Boundary Mergers						
	United Kingdom	France	United States	Germany	Sweden	Netherlands	Italy
<p>Germany DASA Aerospace industry Part of Siemens not sold to BAe</p> <p>Rheinmetall GmbH and Mauser-werke Oberndorf GmbH</p> <p>Thyssen (shipbuilding) Blohm&Voss and Thyssen Nordseewerke</p> <p>Sub consortium: Howaldtswerke Deutsche Werft; Ingerieurkontor Luebeck GmbH; and Thyssen Nordseewerke GmbH</p>			DASA (Damlier Benz Aerospace)- Chrysler	DASA (Damlier Benz Aerospace)- Chrysler BAe-Siemens			
<p>Sweden Celsius Group Bofors AB Kockums AB shipyards Karlskronavarvet AB CelsiusTech</p>							

In country mergers	Cross Boundary Mergers						
	United Kingdom	France	United States	Germany	Sweden	Netherlands	Italy
Italy Finmeccanica Alenia SpA Several others	GEC-Italtel (military units)	Thomson-CSF-- Elettronica					

(Source: Research by author, *Defense News*, *SIPRI Yearbook*³⁴⁵)

³⁴⁵ Jeff Erlich and Philip Finnegan, "Firms Emerge Lean, Strong," *Defense News* 10, no. 46 (20-26 November 1995): 17. And also, *SIPRI Yearbook 1998*, pp. 202-203.

The cross-boundary mergers have been so slow in coming that government officials are becoming more involved in the process. The situation in Europe has reached a standoff of sorts between government and private industry. European governments encouraged national rationalization which began in the 1980's with a hands-off policy similar to what happened in the United States. There has been quite a bit of in-country consolidation (Table X.8) but cross boundary mergers have been slow to materialize. Heads of state now realize that they need to be involved as 'catalysts' in the process if rationalization is to proceed to the next step. *Defense Daily* reported in an article concerning the 1998 initiative for restructuring the European defense industrial base that

The heads of government of France, Germany and Britain have committed themselves and their reputations to getting a consolidation of this vital industry...

Earlier this year, European ministers ordered their major defense and aerospace companies--such as British Aerospace, France's Aerospatiale, Germany's Daimler-Benz Aerospace, Sweden's Saab, Spain's CASA and Italy's Alenia--to forge a plan by April 1 that would unite them into one massive transnational company.

Months of negotiation, however, failed to yield a plan...³⁴⁶

Although the above initiative failed to produce a 'plan,' the government representatives were sent back to hammer out another one. These negotiations are on-going.

The wave analogy from Chapter V can be applied to European industry, too, although two waves cycles are necessary to illustrate the consolidation process. If the assumption is made for the sake of argument that the source of the wave, e.g., budget cuts in acquisition programs, occurred in each country at approximately the same time, the European allies then rationalized their own defense industrial bases as the first wave crested. However, it will take a second wave crest to produce the cross boundary mergers (r_2). The two-crest wave is illustrated in Figure X.1 below:

³⁴⁶ Vago Muradian, "European Defense Ministers to Discuss Consolidations, " 1980.

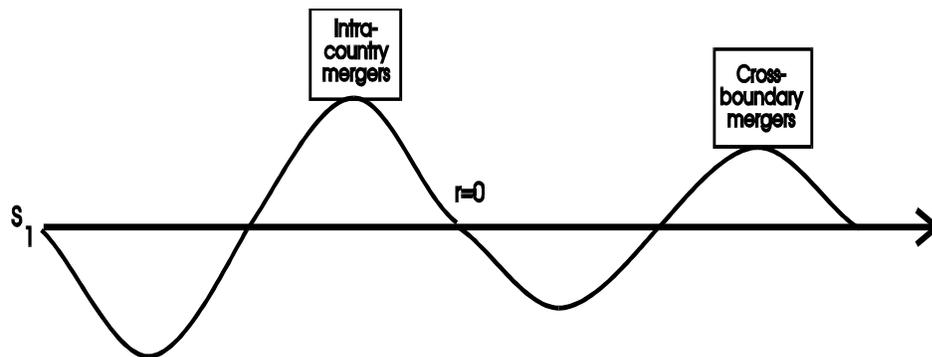


Figure X.1

European Countries Experience Two Waves

Alternatively, if the assumption is made that not all the European versions of the policy jolts happened at the same time, then there would be more waves and out of phase with each other. If this is the case, then a unified approach to cross border mergers would be difficult to achieve for a long time or until all of the individual countries had reached approximately the same level of equilibrium.

What has been successful so far in Europe has been "cooperation" or "joint venturing," or "consortia." Actual merging has proven too complicated because it involves exchanging equity between buyers and sellers. In this respect, European nations have very rarely engaged in cross-border horizontal or vertical mergers. With the rare exception, such as BAe & Matra Dynamics, equity shares are invested in "programs" or a third "holding company. With respect to "program development issues," there are two: (1) national needs come first--companies with the most invested want the larger share of the work done in that country and (2) ease of exit--is easier to pull out when budget constraints cause funding problems. Germany has threatened over time to pull out of Eurocopter and Eurofighter in which she owns a less than 50 percent share. On the other hand, joint ventures appear to add to rationalization but keep industrial capabilities in the participants' own countries. What the joint venture approach does, however, with respect to exports is increase pressure for European countries to export conventional arms they already hold in inventory. The new projects are still in development and many will not be in production for many years. In the meantime, European nations are going to have to keep up revenues somehow, even if they are more diversified than U.S. companies.

Two of the most prominent consortia are Eurocopter and the Eurofighter. Eurocopter is an example of the difficulties large-scale joint ventures can suffer. The parent Eurocopter is actually a merger of the former helicopter divisions of Aerospatiale of France holding 70 percent and Daimler-Benz Aerospace of Germany holding the remaining 30 percent. It has a wide range of military and civilian helicopters and sales offices worldwide. Specific to this discussion is a joint-venture to develop a new utility helicopter for NATO. Eurocopter has a contract from NATO's Helicopter Management Agency (NAHEMS), the executive agency acting on behalf of the four governments involved in the program--Germany, France, the Netherlands and Italy, to

produce the NH-90 utility helicopter. Eurocopter assumed a high share of the development costs for the NH-90 because the company wanted the right to retain a larger share of commercial revenues. Eurocopter plans to market the NH-90 as a replacement for its SA-330 Puma and AS-323 Super Puma civil helicopters. The NH-90 has suffered several delays and will not be in service until 2003. Germany changed her mind about procurement figures for both the NH-90 utility and the spin-off Tiger NH-90. At one point, Italy insisted that the General Electric T700 turboshaft to be recognized as an alternative engine. (The GE T700 is manufactured in Italy; Italy offered to pay for the adaptation process.³⁴⁷) The attack version of the NH-90 is called the 'Tiger.' France and Germany have signed an agreement to procure the Tiger which should be fielded about 2211. There have been delays with the 'Tiger' too as Germany was indecisive about how many to order. France claimed the greater proportion of the work should be done in that country as she had the largest investment. The problem was resolved with dual production lines for both the NH-90 utility and Tiger attack helicopters.³⁴⁸.

Eurofighter is an agile air combat aircraft with secondary ground attack capability. It is being developed by a consortium of the United Kingdom, Germany, Italy and Spain. Service entry is scheduled for 2002. It will replace Jaguars, Tornados, F-4 Phantoms, F-104 Starfighters and Mirage F-1s. A total of 620 are on order for the four Air Forces. The origins of the Eurofighter date as far back as 1979 with the Royal Air Force. The specifications for the then-European Fighter Aircraft (EFA) were very close to France's ACT-88 and Germany's TKF-90. However, Britain had little luck in forming a joint-venture with France and Germany because the French were interested in the development of their own Rafale to which the EFA bore a close resemblance. By 1985, France had dropped out of the Eurofighter program to develop its own multirole fighter, the Dassault Rafale whose initial deliveries are set for 2000. A fighter was developed, the EAP ZF 534, on which the definitive European Staff Requirement (ESR) under NATO auspices was issued for the UK, Germany, Italy and Spain.

The EFA had the misfortune of starting full scale development as the Cold War was coming to an end and the two Germanys were re-united. The German government, faced with serious economic problems in the former East Germany, insisted on examining cheaper alternatives to EFA. During 1991/92 it appeared as if the Germans would pull out of the production phase of the EFA program. Germany said that the original EFA was unnecessarily expensive because it was designed to meet the Cold War threat of a massive Eastern attack using very sophisticated aircraft. That threat has now disappeared. The Germans were strongly opposed to the aircraft (or at least its cost), and seven alternative configurations were offered to Germany in late 1992 and the EFA was relaunched as the "Eurofighter 2000". Germany has achieved a 30 percent cost reduction by delaying their aircraft buys until 2002 and eliminating some items of equipment.

³⁴⁷ See Giovanni de Briganti, "Partners Solve Tiger, NH-90 Snags," *Defense News* 9, no. 3 (24-30 January 1994): 34.

³⁴⁸ See Giovanni de Briganti, "Franco-German Rift Narrows," *Defense News* 11, no. 50 (16-22 December 1996): 3.

The project has suffered from poor management and political delays. The work share issue has been a bone of contention between Britain and Germany. Britain says Germany's share should drop proportionally to the number of aircraft it plans to buy. From 1992, Germany went from 250 aircraft to 140 while Britain remained committed to buying 250. Britain wanted to increase work share from 33 percent to 41 percent and Germany to drop to 23 percent.³⁴⁹ In July 1997 the German government announced that it would invest DM1.7bn (about £600m) to allow the project to continue. However, Eurofighter may not be out of the woods yet since the German opposition party has said it will cancel the project if it is returned to power in the 1998 elections (although Germany was still in the consortium in early 1999).

	United States	Europe
J.	Government stakeholders attempts to facilitate trade outcomes	Most government stakeholders attempt to (1) facilitate trade outcomes on their own and (2)through international organizations

In the Post-Cold War era, the Western allies have active economic and defense organizations to which the United States is not a member nation. The European Union (EU) has already shown itself to be a testimony to the merits of economic cooperation. The Western European Union (WEU), originally established in 1948 and reconfigured in 1954 with the recognition of the sovereign Federal Republic of Germany was envisioned in the Maastricht Treaty as the military core of the European Union's "new effort to align national foreign, security and defense policies to reflect the European Community's growing economic unity."³⁵⁰ Some confusion in consensus usually arises because nine countries belong to the WEU (Denmark, Norway and Turkey do not belong to the WEU), 12 to the European Community and 16 to NATO. The Maastricht Treaty on monetary and political union set 1996 as a date for action on whether to integrate foreign and defense policy decision-making into the EU's legal structure. That year passed with discussions but without integration. Reasons for delay were concerns among EU members over the European exchange rate system and that Britain had not yet ratified the treaty.

³⁴⁹ See Giovanni de Briganti and Charles Miller, "Eurofighter Work Share Dispute Nears End," *Defense News* 10, no. 49 (11-17 December 1995): 4.

³⁵⁰ Theresa Hitchens, "WEU to Create Military Planning Arm," *Defense News* 7, no. 22 (1-7 June 1992): 6.

Table X.8

NATO, EU and WEU Member Nations

North Atlantic Treaty Organization (NATO)	European Union (EU)	Western European Union (WEU)
Belgium	Austria (2)	Austria (2)
Canada	Belgium	Belgium
Czech Republic (3, 4)	Denmark (2)	Bulgaria (3)
Denmark (2)	Finland (2)	Czech Republic (3, 4)
France	France	Denmark (2)
Germany	Germany	Germany
Greece	Greece	Estonia (3)
Hungary (3, 4)	Italy	Finland (2)
Iceland (1)	Ireland (2)	France
Italy	Luxembourg	Greece
Luxembourg	The Netherlands	Hungary (3, 4)
The Netherlands	Portugal	Iceland (1)
Norway (1)	Spain	Ireland (2)
Poland (3, 4)	Sweden (2)	Italy
Portugal	United Kingdom	Latvia (3)
Spain		Lithuania (3)
Turkey (1)		Luxembourg
United Kingdom		The Netherlands
United States		Norway (1)
		Poland (3, 4)
		Portugal
		Romania (3)
		Slovakia (3)
		Slovenia (3)
		Spain
		Sweden (2)
		Turkey (1)
		United Kingdom

(1) Associate Members of WEU; (2) Observers of WEU; (3) Associate Partners of WEU; (4) Invited to begin membership negotiations with NATO

Article 223 of the Maastricht Treaty, which exempts defense trade from EU's body of commercial law, has blocked the integration of defense trade which does not seem to capture the attention of EU members as does the economics of non-defense trade. Another obstruction to integrating trade is that all EU member countries do not have common arms definitions (a problem that also plagues the United Nations Registry). While standardization has been urged, no efforts have been forthcoming.³⁵¹ The situation can be looked at two ways: Either the European Commission, the EU's governing body can do little or the EU member nations will not take a stand on common security policy, a proposed European armaments agency and Article 223 but instead prefer to concentrate on economic problems.³⁵² The stand-off reflects a

³⁵¹ See Brooks Tigner, "Report Urges Common Arms Export Rules for EU States," *Defense News* 11, no. 10 (11-17 March 1996): 7.

³⁵² Giovanni de Briganti, "Industry Plans Drift in EU's Regulatory Limbo," *Defense News* 10, no. 21 (May 29-June 4 1995): 8.

particularly European paradox that endured through the mid-1990's. On one hand, both Europeans and U.S. officials were aware of the potential for the economies of scale that could be realized in the defense trade with a unified European defense market but on the other hand European companies are less dependent on government sales for total revenues than their U.S. counterparts. More European corporations are divisions of conglomerates that make the bulk of their profits from sales of commercial products. (Table VII.3 provides a list of the Top 100 defense companies worldwide.)

The French and Germans have had some success together and have formed OCCAR and WEAO. These two nations decided in mid-1993 to merge some of their procurement and management functions into a bilateral armaments agency which became a reality in 1996 as OCCAR (a French acronym for Organisme Conjoint de Cooperation en Matiere d'Armement). When announced it was announced in late 1993, the Franco-German armaments agency was criticized by some of their European neighbors who wanted all Western EU members to advance together. Other NATO and EU nations wanted to join but could not agree on rules. In the meantime, a EU Commission acting separate and apart from OCCAR endorsed the concept of a Western European Armaments Agency. However, the member nations failed to vote it into existence when first proposed in 1995 but did so the following year. The differences between OCCAR and WEAO are summarized below in Table X.9.

Table X.9

Characteristics of OCCAR and WEAO

	OCCAR	WEAO
Principles and goals	<ul style="list-style-type: none"> • Consolidate program management. • Coordinate long-term requirements and develop a common investment policy. • Improve European industrial base competitiveness. • Replace the program specific "juste retour" concept (work share in proportion to funds contributed) with an equitable balance over multiple programs and years. • Open membership to European countries that accept these principles and plan to participate in a major cooperative program. • Give preference to equipment to whose development a country has contributed within OCCAR. 	Promote European armament cooperation, strengthen the European defense technology base and create a European defense market. Offer an appropriate legal framework for a future European armament agency.
Programs to be administered	Milan and Hot antitank missile systems, Roland surface-to-air missile system, Tiger combat helicopter, and Brevet surveillance and reconnaissance drone program.	Existing defense research and technology projects.
Membership	France, Germany, Italy and the United Kingdom.	Belgium, Denmark, France, Germany, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Turkey, and the United Kingdom
Organizational status	A management organization located in Bonn, Germany, with no legal charter to administer contracts.	A WEU subsidiary located in Brussels, Belgium, with legal authority to administer contracts.

(Source: U.S. General Accounting Office, GAO/NSIAD-98-6, "Defense Trade, European Initiatives to Integrate the Defense Market," by Katherine Schinasi [October 1997], 7.)

One of the issues that OCCAR may undertake is to redress the one-sided trading patterns between the United States and Europe with a Buy Europe policy. It is too early to tell if these two organizations will be effective or not. Although the OCCAR charter does not call for European preferences with respect to procurement, it could foster political pressure to Buy Europe. It has not been determined by OCCAR yet whether or not non OCCAR and non-WEAO members, including the United States, will be allowed to compete in procurement competitions. "One of the main reasons for creating the agency is to strengthen European defense industries in the face of competition from much larger U.S. companies."³⁵³ France has fostered a buy European policy. She wanted the European nations committed to "preferring, when meeting the

³⁵³ Michael Lindemann, "Arms-Buying Pact Moves France, Germany Toward European Army," *The Washington Times*, 22 January 1996, sec. A, p. 15.

requirements of their armed forces, products in whose development they have participated."³⁵⁴ The French-sponsored buy-European concept ran counter to the United Kingdom's trade philosophy, and British officials insisted their government would not support an explicit buy-European policy. "Sources in London stressed that a competitive procurement policy would go against the free-market philosophy of the Conservative government headed by [then-Prime Minister] John Major."³⁵⁵ Former British Defense Procurement Minister James Arbuthnot stated, "We do think it important, in order to avoid pressure to put down trade barriers, that there should be some significant movement the other way as well....I know that in the U.S. there are also pressures to buy American, but this would be bad for world trade, for Europe and for the U.S....These pressures are being resisted by this country but they need to be resisted by the U.S. as well."³⁵⁶ [The United Kingdom had just purchased Apache helicopters, C-130 Jam Lifters and Tomahawk Cruise Missiles] Of course, the impact of OCCAR on trade will be the number of contracts it manages in the future.

Summary

The United States and European nations have long been allies but are also competitors in the dwindling market for arms sales. The rivalry is exacerbated by the slow pace of cross border mergers in Europe which leaves European nations less competitive in the world market and forced to deal with the downside of overcapacity. If the rationalization process is 'out of phase,' it may take a long time before the mergers are complete, although the many countries have been able to rationalize their indigenous defense industries to a degree. Many cross border joint ventures and partnerships have been formed. Some have been quite successful while others have fizzled. European democratic governments at first did not "interfere" with the rationalization process but as time went on and cross border mergers did not materialize, governments "ordered" their industrial leaders to work out a master plan. With Britain as the exception, other governments have attempted to direct outcomes at the top of the second wave crest.

³⁵⁴ Giovanni de Briganti and Charles Miller, "Arms Agency Evades Buy-European Issue," *Defense News* 11, no. 46 (18-24 November 1996): 4.

³⁵⁵ See Giovanni de Briganti, "Debate over European Preference Snarls New Arms Agency," *Defense News* 11, no. 39 (September 30-October 6 1996): 4.

³⁵⁶ Charles Miller, "U.K. Ups Procurement; Chides U.S.," *Defense News* 11, no. 18 (6-12 May 1996): 3.

CHAPTER XI

LOOKING AHEAD: THE NEW SCIENCES OF TRANSFORMATION AND THE PUBLIC POLICY PROCESS

Introduction

This chapter explores the issue transformation process with respect to possible future developments in arms transfers. The foundation for this speculative discussion about the future processes of arms transfers is found in Philip S. Kronenberg's work on chaos and complexity theory.³⁵⁷ That process is illustrated in Figure V.10, bottom half, moving from right to left. This is the point where organizational behaviors to direct favorable outcomes have transformed the issues of conventional arms trade. Previous chapters have already described how governmental stakeholders attempted to direct favorable outcomes for private defense corporations. However, policies once they are implemented, can have unexpected outcomes. Whether outcomes are those desired by policymakers or the outcomes are unexpected, some of them may, in turn, "inform" new policy initiatives or transform existing policy.

The 'Cloud Metaphor'

Earlier chapters looked at corporate decisions to stay, discussed the absence of domestic buys and how government stakeholders supported the Defense-Industrial Base with respect to commercial arms transfers. The jolts had the potential to drive the U.S. defense industrial base in directions that could alter the performance that economic and government stakeholders had come to expect. The response of the corporations was not to leave the field or diversify but to remain and focus on defense production. Whether this has been a desirable outcome or not only time will tell. In the meantime, conventional arms transfers, in the absence of domestic buys, became increasingly important for continued profitability. In addition to trying to stabilize the mergers and acquisitions process that the jolts produced, government stakeholders spent political capital enhancing the attractiveness of U.S. arms exports to foreign buyers (recoupment repeal, loan guarantees) or allowing them to happen (reversals of arms embargoes) by changing domestic policies.

The wave analogy, the discontinuity of change and the uncertainty of market and political forces all suggest a non-linear process. Therefore, this suggests that the outcomes of the policy

³⁵⁷ See Philip S. Kronenberg, "Chaos and Re-thinking the Public Policy Process," in *Chaos and Society*, A. Albert, ed. (Amsterdam: IOS Press, 1995): 254-265.

changes--as they play out in Harkavy's international arms transfer system--can be examined within the framework of Philip Kronenberg's "Chaos and Re-thinking the Public Policy Process."³⁵⁸ In his work, Kronenberg distills existing ideas from three current theories of nonlinearity or evolutionary change and recasts these ideas into the perspective of a 'cloud' metaphor. The 'cloud' proposes the notion of 'issue transformation' as a sixth step in Dunn's "Phases of policy process": Agenda-setting, policy formulation, policy adoption, policy implementation and policy assessment.³⁵⁹ Kronenberg defines issue transformation as,

my concept of the emergent policy advocacy and dynamic social behavior "at the edge of chaos" for a given policy process. A central consequence of its operation is that it is an interface process linking what we tend to think of (simplistically) as both the beginning and end of the policy process. It closes the loop of the policy process. It has its own signature of characteristic behaviors and functions for the larger network in which the policy process is embedded. It is the ill-bounded, formative set of behaviors and interactions that may lead to changes in the political support for current policy and to the consideration and emergence of support for other policy arguments and approaches, and even to redefinitions of the "problem" to be solved.³⁶⁰

It is grounded in three research streams, the second one of which is "the dynamics of fractal bifurcation"--

...movement of a process along a fairly stable trajectory until it reaches a point of forced choice--a bifurcation--where it may jump to a qualitatively different development, followed by continuation in a relatively stable, quantitatively moving path.³⁶¹

The author adds,

And it is when they [policy systems] reach a point--called a bifurcation point--that one possible course of movement is into chaos or randomness--that this boundary between order and chaos is thought of as an arena of 'complexity.' Hence reference is made to 'complexity occurring at the edge of chaos.'³⁶²

³⁵⁸ Kronenberg, "Chaos and Re-thinking the Public Policy Process."

³⁵⁹ William N. Dunn, *Public Policy Analysis: An Introduction*, 2ed., (Englewood Cliffs, NJ: Prentice Hall, 1994).

³⁶⁰ Kronenberg, "Chaos and Re-thinking the Public Policy Process," 260.

³⁶¹ *Ibid.*, 260.

³⁶² *Ibid.*, 263.

The governmental stakeholders had conducted their arms sales and transfers for a 50-year period as a diplomatic function and as a means to increase America's military presence overseas. Faced with chaos or randomness by economic shareholder responses to the policy jolts and fallout in the international political and economic system, the policymaking organizations reached a bifurcation point in their ability to apply old policies to the new domestic and international orders--the old criteria were insufficient to meet the demands of the Post Cold War World. Former Cold War policies were relaxed so that favorable outcomes for arms deals would be enhanced. These policies did not appear all at once but at decision junctions, where new policies were made, and the outcomes gravitated toward randomness as trade patterns became less and less distinct. The following policy decisions have been made since the end of the Cold War:

1. Increase in efficiency of government marketing efforts.
2. High level support for arms exports.
3. U.S. pays for presence at trade shows.
4. Repeal of recoupment fees.
5. Loan guarantee program.
6. Arms export policy favorable to defense-industrial base.
7. Changes in Latin America policy.

The conceptual model indicates that the purpose of the above initiatives was to affect positive outcomes at point O on Figure V.10. The policy initiatives were not a coherently planned whole but more or less can be described as policy "fragments." Conventional arms transfer policy as presented herein is not a structured set of policies, although it is treated as such very often. As a result, a policy outcome may be triggered by a "fragment" followed by uncertainty over what fragment(s) produced what outcome(s). It is possible to imagine Kronenberg's metaphorical cloud with its wispy tendrils spanning the edges of the conventional arms transfer process and folding some of the outcomes into the issue transformation process as it roils along. In a way that is still boundary-free and non-definable, the implications have become attached to the 'cloud' and will most likely influence the next agenda setting process.

All of the policy fragments underpin an economic aspect of defense trade as opposed to a diplomatic aspect of foreign relations. Overtime, their cumulative effect, combined with other unforeseen events, has translated into arms transfers for their economic benefits. The policy fragments were directed toward favorable outcomes at point O (Figure V.10) can also be thought of as the "bifurcation point." Kronenberg writes, "bifurcation strikes me as being the most powerful challenge--and opportunity--for policy theory-building in the entire body of NST ideas."³⁶³ If we assume for the sake of argument the validity of Kronenberg's statement, then the opportunity to pursue alternatives to arms transfers other than for economic benefits appears to have been discarded by the governmental stakeholders at the edge of chaos or point O.

It is difficult to say what other issues could have captured the stakeholders to the same degree. However, in the area of complexity, which is the bottom dotted line on Figure V.10, there are many stakeholders with many competing outcomes. Perhaps the national and economic stakeholders have found a strong "mutual attraction" in many facets and together transformed the

³⁶³ Ibid.

issue of arms trade, even though their self-interests may vary. In the meantime, other stakeholders groups--such as the arms control community--have found little mutual attraction in other stakeholders. Yet, they could generate a strong enough voice to force another bifurcation point. (Of course, another jolt could initiate change in another direction overnight.)

Exploring Current Policy Outcomes as Transformation Issues

The Post-Cold War world is still too new to assess how the outcomes of arms transfer policies have transformed issues. Trade policies during the Cold War and the Post-Cold War can be compared but it is too soon to have 'second generation' policies. The shift to policies which emphasize the economics of arms trading, however, has caused much speculation--much of it negative, although the policies were made to direct efforts toward favorable outcomes. While no one can tell what current policy outcome will lead to issue transformation, there are two somewhat partial outcomes--both negative--that capture the attention of some observers and are the basis for some interesting speculation. "Negative" is used here in the sense that an increase over current export levels would be perceived as something less desirable than a decrease in current export levels or a "positive." It is possible too that the outcomes could in the long-run could be positive ones. These partial outcomes are not as yet quantifiable but can be bounded qualitatively enough for discussion. The two negative policy outcome concerns are presented below. They are also provide some good examples of the complexities of arms transfer issues.

Policy outcome concern one:	The United States will lose her strategic edge when every nation has the same weapons.
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The first policy outcome makes an assumption that military strength will lessen if the United States continues to export at her current rate or higher. While this is as valid an assumption as any about the future direction of arms transfers, it also calls for a closer examination of what the United States is exporting. Information provided by the media (and occasionally government sources) does not tell the entire story. One must look beyond the statistics and generic name categories.

Arms trade statistics alone do not provide enough information that may be useful in making informed judgments about what the United States exports. As in many other aspects of arms trading, similar to "sales" and "deliveries" and "conventional" versus "dual-use," when thinking about arms transfers, it is important to discern what type of arms are being transferred and what their strategic implications might be. For example, if the United States were to sell a mothballed naval vessel to a developing nation, there are questions to be asked and answered. If there is a degree of confidence that the vessel will not be used to upset the area's balance of power but as a means of shore patrol and if it appears unlikely that it could be used to repress democratic initiatives, then the sale has some merit (although many policymakers would dispute this decision choice by a developing country). A naval vessel used for defensive purposes cannot wreck as much havoc as small lethal weapons in the wrong hands--but then again, the small and the large put together can be most potent.

Furthermore, generic names do not convey very precise information. Transferring powerful conventional weapons is a concern but often statistics and the media fail to clarify or put sales in perspective. For example, an F-16 fighter jet is not just any F-16 fighter jet yet this is how they are referred to in most all cases. F-16's have many versions and many engine upgrades that are known as "blocks." An F-16 C/D, Block 50 is by far a more sophisticated plane than the F-16 A/B, Block 10. In addition, not all U.S. military equipment is state-of-the-art. The U.S. Air Force may fly some state-of-the-art F-16's but not all her F-16's are equal. (The reason for this is that current production takes advantage of available technological developments and would have to be purchased separately to upgrade older assets.)

On the other hand, it is not safe to make the assumption that the United States exports her less sophisticated weapons systems. In fact, she has already supplied many of her allies with weapons she does not have. In a 1995 paper, Michael Beard expressed his concerns in writing about AMRAAM's (Advanced Medium Range Air-to-Air Missiles) that,

Of the more than 4500 AMRAAM's currently in the USAF inventory, only 32 percent are AIM-120A missiles; whereas all missiles purchased by Foreign Military Sales customers are the AIM-120B. Additionally, Norway has adapted the AMRAAM for use as a surface-to-air missile as well as an air-to-air missile. This dual use capability offers the Norwegian military tactical flexibility unlike any missile in the U.S. military.³⁶⁴

The United States has also agreed to sell AMRAAMs to the UAE for their new F-16's.³⁶⁵ (This decision upset the Israelis prompting them to develop their own version of the same missile.³⁶⁶) LT Colonel Beard also mentions the internally mounted Airborne Self Protection Jammer (ASPJ) for the F-16 C's purchased by Korea and the F/A-18 A/B's purchased by Finland. Kuwait and Saudi Arabia may have as many M1A2 tanks between them as the United States Army according to *The Military Balance 1997/98*.

There is merit to Beard's concern, but it is more applicable in a regional balance-of-power sense than an actual national threat sense. Countries to which we have exported state-of-the-art arms have a low probability of attacking us but a higher probability of attacking their neighbor(s) and dissidents in their own countries. Regional conflicts are often easily provoked and have serious consequences. They could escalate to the extent that the United States would be drawn in to protect a valuable ally, such as Kuwait in the 1991 Gulf War. If this happened, there is a

³⁶⁴ Michael N. Beard, "United States Foreign Military Sales Strategy: Coalition Building or Protecting the Defense Industrial Base,". March 1995, (photocopy), p. 4, The Air War College, Air University, Maxwell Air Force Base, AL.

³⁶⁵ Philip Finnegan, "Deals Opens Gulf Region To AMRAAM/U.S. Agrees To Ready Bahrain's F-16s for Beyond-visual-range Missiles," *Defense News* 13 (13 April 1998): 4.

³⁶⁶ See Barbara Opall-Rome, "Israel Tests New AMRAAM-like Missile For F-16s," *Defense News* 13 (27 July 1998): 1.

chance that U.S.-made F-16's from opposing sides could be meeting up with each other but unlikely. Andrew J. Pierre in *The Global Politics of Arms Sales* (1982) offered the following questions to determine the rationale for policy decisions on how arms transfers affect the security and stability (military) of a country:

- Can supplying arms help fulfill the security requirements of allies and friends?
- Can arms for allies be perceived as creating or maintaining a regional balance of power?
- How important are traditional military concerns, such as the right to establish a military base in the recipient country and establishing eavesdropping and surveillance posts?
- Is it true that arms transfers may be more "likely to be tested in combat earlier by the receiver than by the supplier?"³⁶⁷

Although, Pierre was writing during the Cold War period, this particular advice merits reflection today. In the Post Cold War World arms still help fulfill the security requirements of allies and friends, e.g., South Korea and Taiwan. The Middle East combines a mix of Pierre's first and second points because the U.S. helps Israel and many Middle East nations fulfill their security requirements and maintain a regional balance of power. The United States supplies the twin-engine F-15 to both Saudi Arabia and Israel. In particular concerning the last point about the 'receiver' testing weapons in combat, the AIM-120 has never been tested in battle.

Analysts, such as Mussington,³⁶⁸ argue from the another prospective that international corporations could create many centers of production which in turn could lead to proliferation. Mussington theorizes that suppliers depart from a purely competitive ideal in the marketplace because of government interference in determining the makeup of their product lines. State involvement leads to duplication and overcapacity in the global market. This forces exporters to behave as oligopolists. Oligopolistic markets, coupled together with a trend by increasing supplier autonomy in technology trade as a result of mergers and acquisitions, is verging toward "integrating national defense industries into a single universal production system."³⁶⁹ This trend in supplier autonomy is also buoyed by joint venture activities involving leading defense manufacturers, innovative leadership and strategic alliances between first- and second-tier defense firms. Technical standardization, as a result of duplication and overcapacity, and oligopolistic market structures enable more centers of defense production to locate in periphery and semi-periphery states. This expansion has the potential to diffuse technology to indigenous industries.

Mussington's argument is interesting because there could be a diffusion of dual-use high technology that could be quite harmful in the wrong hands. Smaller, portable high tech weapons

³⁶⁷ Pierre, *The Global Politics of Arms Sales*, 21.

³⁶⁸ David Mussington, *Arms Unbound, the Globalization of Defense Production*, CSIA Studies in International Security No. 4 (Boston, MA: Center for Science and International Affairs, John F. Kennedy School of Government, Harvard University, 1994) and *Understanding Contemporary Arms Transfers*, Adelphi Paper 291 (London: Brassey's [UK], 1994).

³⁶⁹ *Ibid.*, 4.

can be copied and sold to willing buyers. Mussington's theories combined with those of other scholars, such as Robert G. Neumann,³⁷⁰ present frightening potential scenarios of intra-boundary strife and fratricide. However, with respect to the more expensive, upper end systems, Chapter X explored the difficulties that European nations are having adjusting to defense budget cuts which makes barriers to entry for larger high tech conventional arms higher than ever for developing countries. Trade statistics indicate that the market is smaller in the 1990's than in the 1980's; arms trading is not a growth industry and a buyer's market. At the national level, any interested buyer can capture the attention of many sellers.

In the late 1990's the use of conventional arms as offensive weapons appears to be concentrated in rogue states or intra-border ethnic warfare and foregoes the traditional issues of regional stability concerns (with the exception of the Middle East). The steep costs of high tech have not disbursed the manufacturing process into peripheral areas (per Mussington). In fact, the most recent WMEAT figures indicate that in 1986, developing nations had a 6 percent share of world exports compared to a 3.4 percent in 1996. This is a real growth rate of -14.7 for the decade 1986-1996.

**Policy outcome
concern two:**

**What are the implications of creating favorable
outcomes for the United States in the
international trading system?**

Our second question is more challenging and poses a bit of a dilemma--were governmental stakeholder responses necessary to direct favorable outcomes to the jolts the corporations experienced? The exploration of this question also brings the discussion back to the starting point on Figure V.10--the international trading systems. Keith Krause in *Arms and the State: Patterns of Military Production and Trade* postulates that the economic forces that shape the production and distribution of goods within and between states, are as follows:

- provide foreign exchange and positively affect the balance of payments
- reduce the cost of domestic weapons procurement through economies of scale in production
- maintain employment and infrastructure in defense-related industries
- recoup research and development expenditures
- use military production as an engine of growth for economic development.³⁷¹

The Krause position is that arms trading depends on a country's technological ability to innovate and export state-of-the-art weapons and other countries' decisions whether to compete directly or import. The amount of technological superiority that a country is willing to underwrite in innovation, capture and maintain is essential to superpower status. Krause posits that Technology I is material transfer (the simple diffusion of machines and material).

³⁷⁰ Robert G. Neumann, "Conventional Arms Exports and Stability in the Middle East," *Journal of International Affairs* 49, no. 1 (Summer 1995).

³⁷¹ Krause, *Arms and the State*, " 97.

Technology II is design transfer (the transmission of blueprints, formulae, books, etc.) and Technology III is capacity transfer (the transfer of basic scientific knowledge and technical expertise), and Technology IV is the capacity to support state-of-the-art research and development efforts. Krause separates arms producers into "tiers." The first tier countries--consisting of the United States and the Soviet Union--are the only ones capable of Technology IV--the skills needed to create weapons. Second tier producers--France, Britain, Germany, Spain, Italy, Czechoslovakia, Poland, Japan, Canada and Sweden--struggle to keep a pace between Technology IV and III. Third tier countries are characterized by their unsophisticated levels of technical production, restricted output and remain dependent on imports of sophisticated subsystems. Some third tier countries are China, Israel, South Africa, Brazil, South Korea, Argentina, Egypt, Pakistan, North Korea and Singapore.

Krause's theories, combined with Ethan Kapstein's advice in Foreign Affairs that United States dominance is the United States' to lose as she has the largest defense budget,³⁷² give rise to the speculation whether the United States could completely dominate international arms trading. Kapstein would like to see the United States stop transferring technology and export only finished weapons because it would halt technology transfer. Krause suggests that the United States could in fact do this because she is on the verge of a revolution in military affairs and no other nation will be able to.

This raises the issue of monopoly supply in arms transfers. Being a monopolist has its attractive advantages to be sure. The dependence of importers can be exploited to the advantage of the supplier's political and economic interests. Not only will friends and allies obtain conventional weaponry but adversaries will be denied arms of equal quality. While some students of international relations may argue that a monopoly is good for international security, others may argue that monopolies are bad for consumer interests and fail to place a check on the behavior of any single supplier. Kapstein would counter this argument with the rationale that a strong monopoly will force lesser players out of the market and free economic resources for investment elsewhere in Third World countries' economies. How realistic is Kaplan's argument for monopoly? Is this the ultimate favorable outcome? Or will unforeseen outcomes and issue transformation carry the U.S. trading system in another direction.

First, some brief studies follow that will help answer the questions explore the status of defense commercial sectors. At the end of this section on page 324, I will give some tentative conclusions about what these studies suggest for "U.S. monopoly" theory. In the light of these "brief studies" and my "monopoly" assessment, I will reexamine the 'cloud metaphor's' implications for arms transfer policy developments.

Tanks

General Dynamics Corporation is the only manufacturer of tanks in the United States. Tank transfers have dropped steadily since 1985. Foreign competition is stiff and domestic support is low, although ACDA data indicate that the U.S. is the leading exporter, followed by

³⁷² Kapstein, "America's Arms-Trade Monopoly."

Germany and France in Europe. (ACDA Table V, Appendix B.) The ACDA figures average out to approximately 442 tanks exported per year in the 1985-1996 timeframe. The U.S. in the 1994-96 timeframe delivered almost 50 percent of all tanks.

Table XI.1

Worldwide Tank Transfers, 1985-1996

	1985-87	'88-90	'91-93	'94-96
Tanks	5,778	5,038	3,407	2,748

(Source: ACDA, Table V)

Table XI.2

U.S. Tank Deliveries, 1985-1996

	Total	North America	South America	Central America and Caribbean	Western Europe	Eastern Europe	East Asia
1985-87	1208	0	23	0	465	0	29
1988-90	818	0	0	0	560	0	59
1991-93	587	0	0	0	117	0	54
1994-96	1368	0	0	0	22	45	129

	Central Asia and Caucasus	South Asia	Middle East	North Africa	Central Africa	Southern Africa	Oceania
1985-87	0	65	527	99	0	0	0
1988-90	0	0	94	105	0	0	0
1991-93	0	0	356	60	0	0	0
1994-96	0	0	1172	0	0	0	0

(Source: ACDA, Table V)

Production of Abrams M1A1 tank for the U.S. Army is complete as is the low-rate production of 62 new M1A2 tanks for Army. The M1A2 will continue to be produced for Foreign Military Sales while the Army has decided to convert 1,000 older M1 tanks with upgrades to the M1A2 configuration. The decision to stop production of the M1A2 was made in the early 1990's and followed by the upgrade plan authorization in 1992. General Dynamics has a co-production arrangement with Egypt to produce the M1A1 tank.

Competition does exist in tanks but even more international competition exists in ordnance from United Kingdom's Challenger 2, Germany's Leopard 2, France's Leclerc, Russia's T-64, T-72, and T-80, Israel's Merkava Mk 3 and Italy's C1 Ariete. At this point, with worldwide demand low and with the U.S. holding about 50 percent of the export market for the 1994-1996 period, any technology changes to the M1A2 will most likely be incremental as opposed to state-of-the-art technology breakthroughs. Ordnance is a more competitive market. The United States has a large stockpile and decided in May 1998 not to pursue a follow on (no public reason announced) to the Hughes TOW 2A and 2B. This leaves the United States in competition with Sweden's Bofors Infantry Light Lethal Antitank Missile System; Russian AT-4, 5, and 6 and Franco-German Hot 2 and Milan 2. In general, tanks appear to be a stable trading area where the biggest challenge in volume might come from revitalized new NATO nations, especially Poland

and the Czech Republic which have indigenous industries. Thus, we can conclude that the Abrams tank (and its ordnance) is one among many comparable choices for buyers and far from being in a position to assume a monopoly in the marketplace.

Shipbuilding

U.S. military shipbuilding industry faces two problems with regard to exports: undesirable export products and strict export legislation. The shipbuilding industry is one that has not rationalized in the Post Cold War environment and has had a difficult time diversifying, with the exception of Bath Iron Works. There are six major shipyards in the United States; only one is on the West Coast:

- Newport News Shipbuilding & Dry Dock Co., Newport News, VA. Newport News spun off from Tenneco in December 1996; has built carriers and is currently building two nuclear-powered Nimitz class carriers.
- Ingalls Shipbuilding, Pascagula, MS. Ingalls is a subsidiary of Litton Industries since 1961; in the past has made guided missile cruisers and destroyers. Ingalls has 12 Aegis guided missile destroyers under contract and two frigates for Venezuela.
- Avondale Shipyards, New Orleans, LA. Avondale is a subsidiary of Avondale Industries, Inc.; has made amphibious assault ships, fleet support ships, surface combatants and Coast Guard cutters.
- National Steel and Shipbuilding Co., San Diego, CA. National is an employee-owned buyout from Morrison-Knudsen in 1989; currently building the seventh strategic sealift ship.
- Electric Boat, Groton, CT and Bath Iron Works, Bath, ME, are both owned by General Dynamics Corporation; Electric Boat has a contract to build the Navy's third Seawolf submarine. Bath Iron Works built frigates which the U.S. Navy has not bought for a number of years and the first DDG-51 (Aegis guided missile destroyer) in 1985.

As of the FY 98 budget year, multi-year procurement has been made for the 12 guided missile destroyers at Ingalls, construction costs for the third Seawolf at Electric Boat and funding for development of the Navy's NSSN, which is a new class of attack nuclear submarines, that has been awarded to an Electric Boat (lead) and Newport News. The New Attack Submarines will replace older ones as they are decommissioned. Excluding other Naval exports, the current programs do not have much export potential as the U.S. does not export her nuclear or diesel propelled submarines. In general, U.S. naval ships are not competitive because they are too large, more robust and require larger crews to be of use to most foreign navies. "We have done a lot to promote the sale of American military equipment to our friends and allies in airplanes and tanks and small arms weapons, but we haven't done as much as we could or should do in shipbuilding," John Douglass, the Navy's acquisition chief is quoted as saying.³⁷³

³⁷³ Robert Holzer, "U.S. Navy Sees Shipbuilding Dip as Security Issue," *Defense News* 13 (17 March 1997): 22.

Naval shipbuilding, as well as commercial shipbuilding, is a troubled industry in the United States, but no one seems to know what to do about it.³⁷⁴ One suggestion that has been put forward is that whatever procurement exists be spread around and that the shipyards form teams to bid on contracts in the future. Another suggestion is that the Navy join with the Coast Guard in frigate and corvette production which would provide the Navy with some marketable exports as frigates and corvettes do well on the world market. What the United States exports under its FMS program are older frigates in inventory that the Navy has been decommissioning in favor of larger, high-tech warships. The two classes that it exports are the Knox Class (FF-1052) and the Perry Class (FFG-7); both were built at Bath Iron Works. Knox class ships have been sold to Egypt (2), Turkey (11), Taiwan (6, plus three on order) and leased to Thailand (2); Perry class ships have been sold to Egypt (2) and Spain (6).³⁷⁵

Shipbuilding would appear to be the one area where commercial sales could keep production lines open for military procurement. Excluding weapons systems and electronics and nuclear powered submarines, some shipyards are equipped to do both commercial and military hulls, depending on the type of military hulls produced in the past. Two factors have hindered the diversification of U.S. shipyards, however. The first is that President Reagan ended construction subsidies for commercial ships in the early 1980s and the second is that the shipyards themselves have been wont to diversify. Newport News Shipbuilding announced in March 1998 that it plans to exit from commercial shipbuilding by mid-1999 and cancel construction of three tankers it was contracted to build. Newport's withdrawal will give it an operating loss of \$19 million for the year. Company officials cited rising materials and manpower costs as the reason for quitting work after completing only five of the eight ships it was hired to build by various international shipping companies.³⁷⁶

By 1996 Bath Iron Works (BIW) had completed a \$10 million study on shifting their work focus but found that they could not depend on commercial contracts to significantly supplement their defense work. BIW decided to continue solely in the defense field, even on one or two ships a year. In an interview in the *Portland Press Herald*, Duane Fitzgerald, BIW President and CEO, stated that BIW was no longer counting on earning any significant income from commercial work. Fitzgerald said that he believed "commercial shipbuilding has two strikes against it: The market is unprofitable worldwide, and it would be too hard and costly for BIW to position itself to compete commercially after building nothing but complex warships since 1981." He also stated, "We were hoping to deal with the valleys (in defense spending) with commercial work. We can't."³⁷⁷

³⁷⁴ See James George, "U.S. Navy Should Join Coast Guard in Ship Replacement," *Defense News* 12 10 November 1997): 37.

³⁷⁵ "Weapons Profile," in *Arms Trade News* (March 1998); available from <http://www.clw.org/cat/atn0398.html>; Internet; accessed 25 March 1999.

³⁷⁶ Robert Holzer, "Newport News Quits Civil Ship Business," *Defense News* 12 (23 March 1997): 24.

³⁷⁷ L. Mercedes Wesel, "Bath Iron Works to Focus on Defense Contracts" *Portland Press Herald*, 28 January 1996, 1.

The United States is the world's dominant naval power, in spite of budget cutbacks. At one time she went head to head with the former Soviet Union who's naval power has crumbled over the past decade. Russia's military procurement programs in naval vessels have suffered from lack of any discernible financial support and she has not embarked on any new programs in a number of years. The *Severodvinsk*, a nuclear submarine follow-on to the Akula Class, was considered a stealth threat to the Seawolf. However, since 1993 when work began on the prototype, progress has been extremely slow and only a partial hull exists. It appears that as far as U.S. fighting ships and submarines are concerned, the issue is not in the exporting of valuable weapons or transferring technology but in the actual welfare of domestic production capabilities. (In the shipbuilding "components sector" such as electronics and ordnance, the United States is also a leading producer.) In the meantime, European naval industry remains strong as the three European nations of The Big Five have the ability to switch between off-shore patrol boats to frigates and corvettes as their market demands change. The following ACDA data reflect the world-wide upswing trend in naval craft.

Table XI.3

Worldwide Naval Craft Transfers, 1985-1996

	1985-87	'88-90	'91-93	'94-96
Major surface combatants	39	28	26	55
Submarines	22	18	8	2

(Source: ACDA, Table V, Appendix B)

Table XI.4

World Major Surface Combatants Deliveries, 1985-1996

	1985-87	1988-90	1991-93	1994-96
United States	0	0	1	6
United Kingdom	3	2	4	17
France	4	2	1	2
Germany	6	5	11	25

Table XI.5

World Submarine Deliveries, 1985-1996

	1985-87	1988-90	1991-93	1994-96
United States	0	0	0	0
United Kingdom	0	1	0	0
France	0	0	0	0
Germany	4	5	4	0
Russia	12	8	3	2

(Source: ACDA, Table V, Appendix B)

Helicopters

To date, the only mergers that have attracted the public notice have been France's Aerospatiale and Germany's Daimler-Benz into Eurocopter and in the U.S. between Boeing and McDonnell Douglas Corp. The helicopter industry is similar to naval ship building insofar as rationalization of the industry has been rather slow. One reason for this is that the military market was filled with "cash cows" and commercial demand is steady. In the future, demand is seen coming from replacement orders and affordability of attack helicopters over jet fighters. In fact, companies may still enter the market as the barriers to entry are lower than shipbuilding and other forms of aviation--in 1992, Hindustan Aeronautics Ltd. of Bangalore, India entered the helicopter market. In addition, most major helicopter makers are divisions or subsidiaries of large multi-national companies. The major U.S. companies are--

- Boeing--Boeing did not have any discernable market share in military helicopters until it bought McDonnell Douglas. McDonnell brought with it the Army's Apache AH-64 which has had a long production run for both domestic and overseas sales. The Apache is currently being upgraded to the Apache Longbow; the United Kingdom and the Netherlands have purchased the Longbow upgrade version. Boeing also produces the CH-47 Chinook. Boeing's civil helicopter division is weak and may be sold off to Sikorsky which is the weakest with respect to future defense procurement income.
- Sikorsky--Sikorsky is a subsidiary of United Technologies Corporation. Congress has approved enough money for the U.S. Army to buy two dozen Sikorsky Blackhawks annually, to supplement export sales, until production of the high-tech Comanche begins in 2004 or 2005.
- Bell--Bell is a subsidiary of Textron. It has a strong civil division as well as military. Bell produced the AH-1 Cobra and the UH-1 and is currently funded for development of the V-22 Osprey tilt rotor. The Navy is already exploring for Foreign Military Sales for the Osprey even though it is not in full production yet. Bell also has a civil version of the Osprey called the "609" for which it has several orders on the books.

Worldwide sales break down among the following companies:

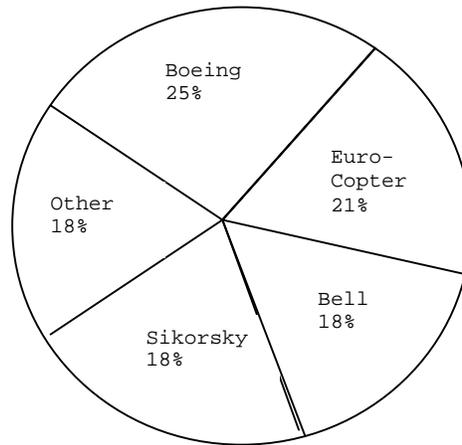


Figure XI.1

Helicopter Revenue Share, 1997-2006

Eurocopter has just recovered from an extended financial slump. It has an extensive product line (the stars of which are its Pumas and Super Pumas) but has had trouble launching the Tiger attack model of the NH-90; sales have been made for the NH-90 tactical transport version. The NH-90 is important to Eurocopter because that model will be competitive as its next generation against the U.S. competitors. What could upset the current 4-way market share status is a recently announced merger between Italy's Agusta and Britain's GKN Westland. This move would be a major step toward consolidating two strong European players and create a company second only to Boeing in world helicopter sales. Russia still has a sizeable helicopter export market as do some developing countries.

Similar to tanks and ships, helicopters are only as lethal and sophisticated as their electronics and weapons systems. Helicopters present one of the starkest examples of the dilemmas facing the arms transfer debate. The United States has four (counting Kamen) defense helicopter producers and needs export sales to check overcapacity. But, it is difficult to know where to draw the line with helicopter sales to developing nations because they lend themselves well to being used for nefarious purposes. Helicopters are less expensive to procure than planes, can be flown with less pilot training, are agile and can fly in low to the ground. Helicopters can be used to give strategic advantages to suppressive regimes without attracting much attention. If Congress wants to align arms transfers with Human Rights violations, this is one area that might bear some close scrutiny.

The following represent ACDA data for helicopters:

Table XI.6

Worldwide Helicopter Transfers, 1985-1996

	1985-87	'88-90	'91-93	'94-96
Helicopters	1483	1000	568	805

(Source: ACDA, Table V, Appendix B)

Table XI.7

World Helicopter Deliveries, 1985-1996

	1985-87	1988-90	1991-93	1994-96
United States	153	160	148	305
France	220	130	90	60
Germany	30	70	10	50
Russia	630	420	130	200

(Source: ACDA, Table V, Appendix B)

Aerospace

Although conventional warfare is an integration of forces on land, sea and in the air, the 1991 Gulf War underlined that air dominance or superiority is essential for victory. The United States has been a leader in aerospace since the beginning of the Cold War because she was willing to invest so heavily in it and had the resources necessary to become an aviation superpower. Of course, jet fighters are not the only military planes purchased by the Department of Defense. There are transport planes, cargo planes, patrol craft and light planes. Post Cold War skies, however, are dominated by three fighter jets. These jets are the F-16 'Fighting Falcon,' the F-15 'Eagle,' the F/A-18 'Hornet,' soon to be joined by the new F-22 'Raptor' and the Joint Strike Fighter (JSF).

The F-16 has been one of the world's most popular aircraft with over 3,000 exported since production began. The F-16 as a single engine plane has been the least costly and is considered the best value. No one could have foreseen the continued success of the F-16 when the Defense Department first announced its plans to terminate domestic sales in 1994. It defied the current wisdom is that if the exporting nation is not procuring a line for their own service, then it is less attractive to buyers. This has not been the case at all with the F-16 even though Lockheed appeared to be dependent on its export sales when it bought the Division from General Dynamics. Mid-life updating (MLU) programs for F-16's exports have been lucrative but dependent on domestic buys to keep price low. The U.S. Air Force undertook the MLU program because when the F-16 entered service in 1979, it was expected that the aircraft would be replaced by a successor in 1999. As time passed, there was no replacement designated for the F-16 and now it will not be phased-out until 2010. Thus, the MLU program came into existence in order to maintain the same level of operational capabilities and operational effectiveness for another 10-20 years, depending on the age of the aircraft.

In July 1997, the United Arab Emirates selected the F-16 C/D, Block 60, in a competition with Eurofighter and the Rafale for a potential 80-aircraft order worth over \$5 billion. What made this sale different from any other is that the United States does not fly the F-16 C/D, Block 60--only the UAE will have it. In fact, some of the development for the Block 60 is being underwritten by the UAE. The "new" Block 60 F-16 would be more advanced than current Block 50 aircraft in (1) range, (2) enhanced stealthiness (the F-16 is not stealthy per se) and (3) enhanced electronics, avionics and computers. The Block 60 F-16 will be developed with the future in mind; its weapon interfaces will be compatible with projected future weapons including new air-to-air missiles such as the Advanced Short Range Air-to-Air Missile (ASRAAM).

Michael Beard also reported that Korea has 120 Block 52 F-16's that are technologically superior to "the majority of the USAF's F-16 fleet in numerous ways."³⁷⁸ Beard wrote,

First, it [F-16 Block 52] is totally night capable via a Low Altitude Navigation and Targeting Infra-Red Night (LANTIRN) subsystem--only available on the USAF's Block 40 fleet with no plans to incorporate it on our own Block 50s. Second, KFP [Korean Fighter Program] jets contain the internally mounted Airborne Self Protection Jammer freeing all external weapons stations for actual weapons carriage. U.S. Air Force F-16s must carry external jamming pods that limit the aircraft's range, maneuverability, and weapons carriage capability. Third, KFP jets have the F100-PW-229 engine yielding more thrust than any other engine in the F-16 inventory. Only the USAF's Block 50 fleet carry this engine or the equivalent General Electric-129 motor. Fourth, the KFP jets are capable of carrying all the ordnance carried by USAF F-16s plus the HARPOON and SLAM anti-ship missiles--not carried on USAF F-16s. Fifth, the KFP jets possess the global positioning system (GPS) and an advanced airborne identification friend or foe system (AIFF). Currently, USAF F-16s are being modified for the GPS but only a few will ever have an AIFF system.³⁷⁹

When the security issues in the above transfers are examined, some issues are serious and others less so. A jet fighter could be sold to a nation that would turn against the United States but it is unlikely that one could fall into the wrong hands, so to speak, because they are costly sophisticated aircraft. It is even unlikely that a nation would want to reverse engineer one due to the expense involved. At one time, reverse engineering of a U.S. plane should it fall into "Soviet" hands would have been a technology transfer issue, but it is doubtful at this point in time if the Russians would expend the effort when the United States is coming out with the F-22 (a stealthy plane) and the new Joint Strike Fighter is predicted to sell as well as the F-16. Korean defense companies could try reverse engineering it but that would not be an expedient move as they receive much of their military aid from the United States. The security risk is not so much

³⁷⁸ Beard, "United States Foreign Military Sales Strategy: Coalition Building or Protecting the Defense Industrial Base," 4.

³⁷⁹ Kronenberg, 259.

of the "entire system" falling into the wrong hands, but some of the component parts that Beard mentions. If the technology in LANTRIN or identification systems is transferred, similar products would become available that might give a military advantage to one regime over another. A perceived advantage could lead to an arms build up or a regional conflict.

At the present, several multi-role fighters compete with each other in the world market but soon the U.S. F-22 in its test stages and France's Rafale C (in development) will have stealth capabilities and thus dominance. During the Arms Race years, the United States and the then Soviet Union competed head-to-head in fighter sophistication. In the Post Cold War absence of allied political blocs, the expensive escalation of high-tech aerospace R&D acquisitions may be more than many nations wish to participate in, let alone need. At the moment, the U.S. (F-16 and F/A-18), Sweden (JAS-39 Gripen), Russia (MiG-29 and Su-27/30), the Eurofighter consortium (Eurofighter 2000), and France (Mirage 2000-5 and Rafale) all offer jet fighters comparable to each other. The following ACDA data illustrate supersonic combat aircraft deliveries:

Table XI.8

Worldwide Supersonic Combat Aircraft Transfers
1985-1996

	1985-87	'88-90	'91-93	'94-96
Combat aircraft, supersonic	1,375	1,486	875	564

(Source: ACDA, Table V, Appendix B)

Table XI.9

World Supersonic Combat Aircraft Deliveries
1985-1996

	1985-87	1988-90	1991-93	1994-96
United States	385	436	375	224
France	100	90	10	10
Germany	70	50	40	40
United Kingdom	30	30	20	10

(Source: ACDA, Table V, Appendix B)

Buyers in the Post Cold War world are more likely to make decisions based on the whole package, including the attractiveness of the offset deals, than on the technical merits alone of one aircraft type over another. What will happen to the next generation of jet fighters now in development remains to be seen. Only two fighters, the U.S. F-22 and France's Rafale C, will have stealth capabilities. No other jet fighters will have this feature which promises air "dominance" over air "superiority."

The above brief studies that address the "negative" policy outcomes provide some bases for reflection on what might appear to be a policy outcome cannot possibly encompass all aspects of that outcome and that here and there the system will change--sometimes randomly,

sometimes predictably. Policy outcome statements may appear linear as they are written on a page or stated as fact but in actuality, the international arms transfer system is in a constant state of flux. Governments, corporations, currencies and public opinion, just to name a few variables, always have the potential to change, sometimes overnight, and alter the way a nation conducts its international relations. What appears to be today's negative policy outcome may be tomorrow success.

Such non-linearity (or linearity as the case may be) lends itself well to the 'cloud metaphor' which is revisited below. However, I would add one more aspect to Kronenberg's list that frames policy outcomes with clouds, although that aspect is implied. It is that clouds, similar to policy outcomes, are always in motion. Given the nature of clouds--and policy, their continuous motion produces change in their shapes just as motion, i.e., the "playing out" of public policy, will change its outcomes.

The 'Cloud Metaphor' Revisited

The features of the cloud as a metaphor for issue transformation can clarify an understanding of direction in arms transfers by observing the status of the industrial sectors. Can the United States monopolize defense trade as Kaplan suggests she should and spend the most money on technology, which Krause theorizes, in order to do so? These questions can be addressed through the lens of the Kronenberg's metaphor when he describes the appropriateness of his theory:

The cloud acquires its greatest utility when we recognize how hard it is to define the boundary of a social network. Like a cloud, we can see it off in the distance, but as we approach it, it becomes less and less distinct.³⁸⁰

Boundaries of analyses are blurred. Kaplan and Krause are realists. Their world has definite edges. The arms transfer policy process appears to have some defining edges, but a close look reveals that they are blurred. Stakeholders wear many hats and it is difficult to foresee what political or economic interests will capture them at any one point in time. Do U.S. representatives decline to export arms on the basis of Human Rights violations or to maintain the balance of regional power or do they decide to export arms to save jobs in the home district? The above case studies indicate that policy fragments to assure favorable outcomes do not necessarily have a clear cross-industry impact. Favorable outcomes for international sales are really needed in some market segments but are almost useless in others because the United States is not competitive. It would take major procurement reform by the Navy to have an active naval vessel export program. On the other hand, if the department of Defense did not export its tanks, it would have to import them.

The shape of clouds is changeable. Policy is a very unstable process. In fact, the more stable it appears, the more surprising the change. For 50 years, it appeared as if arms were a tool of foreign policy and now it appears that arms transfers are a foreign trade commodity. The

³⁸⁰ Kronenberg, 259.

position of the United States with respect to some industrial sectors appears stable and in need of less intervention than others. She may dominate the skies within the next few years with the F-22, but if the Joint Strike Fighter is not built for some reason, then the market opens up for advanced fighter sales for the Eurofighter, France, Russia and Sweden. There could then be new policy fragments to assure favorable outcomes for the F-16 and F/A-18 in world markets.

Our ability to describe clouds is subjective. Our ability to describe policy is also subjective. The old saying "what you see depends on where you sit" reflects both interpreting the shape of the cloud and the policy. Realists like Krause and Harkavy might find the policy adequate, others as arms giveaways and others as not enough. The fact that the United States exports technology that it does not have in service is a concern to many persons (although it does not appear to be the case for the Department of Defense that has the final word on export availability). This is one aspect of U.S. arms trading that has a good potential for transforming issues if any incident occurs for which unfavorable evidence would increase objectivity surrounding a transfer.

As capricious as clouds may seem, they do have identifiable patterns. As noted above, arms transfer policies originate from organizational systems and play out in other systems that overlap, partially overlap and are tangential to many other systems such as manufacturing, economics, labor, national defense, international trade not only in the United States but all the systems cross international boundaries and form another layer or other layers of overlapping. The helicopter industry is a good example of one that has identifiable patterns; this is most likely due to the fact that the market is slow but steady and commercial sales there to pick up the slack. The United States would have to work very hard to dominate the helicopter market as European competition is stiff.

There are identifiable correlates between systems. Economic, political and military systems--besides some others--are all identifiable and correlated in arms transfers. There are also identifiable correlates between other systems levels such as international economic and international political systems. In addition, there are subsystems to each; for example, economics encompasses the national economy, national level of R&D capacity, labor force, GNP, GDP and trade balances. Each of the industrial sectors discussed above also touch on all these systems and subsystems and the sectors overlap with each other. It is almost unthinkable that each one would march on in linear fashion and respond to policy initiatives in the same way. At least one will bifurcate into chaos and depending on the direction that response takes, issue transformation may occur that informs yet another new policy fragment.

Clouds and policy systems have outputs and outcomes that can vary. As clouds can produce hail, lightening, thunder and rain depending on their type and environment, policy systems can have various outcomes too. And just as lightening can cause nothing more than a patch of burnt grass if it strikes in the middle of a vacant field but can cause considerable damage if it strikes a large tree close to a home, policy outcomes may also vary in their intensity. The Post-Cold War era is only ten years old and the policy fragments even younger. What they cannot do--nor was it their intentions--is turn the United States into an arms monopolist as Kaplan would advise. Kronenberg helps us understand that U.S. arms policy is not one monolith but sectors and subsystems that each behave differently and make a monopolistic approach in arms trading unrealistic.

Summary

The 'cloud metaphor' offers a new lens for arms trading policy because it reveals how many systems and subsystems appear to fit together at the same time but may not fit at all. Policy fragments may have entirely different effects on different subsystems of a whole policy system and produce a variety of outcomes, some of which may be entirely unexpected. The issue transformation process in conventional arms transfers can provide policy makers with a valuable framework for tracking policy fragments and their impact on industrial sectors that support arms production and exports.

CHAPTER XII CONCLUSION

Introduction

Chapter V, Conceptual Framework, proposed an examination of U.S. behavior in the international trading system based on Robert Harkavy's 1975 work. The purpose of such an examination was to look inside the "black box" of governmental and economic stakeholder interactions between the end of the Cold War and the late 1990's with the hope of finding a new perspective on why conventional arms sales and transfers have become more a means of economic gain and less a tool of foreign policy. Since the end of the Cold War, the United States and her Western Allies (and the Russian Federation for that matter) appear to be trading in arms simply "to make the sale" to prop up their own defense industrial bases. Arms sales as "a tool of foreign policy" is employed only in the denial of a sale, e.g., no transfers to rogue states, Lesser Developed Countries suspect of developing nuclear capabilities and anti-democracy dictators.

Scholars of Cold War arms trading (Kinsella, Pierre, Sislin) were able to measure empirically such attributes such as "leverage," "influence," and "favorable outcomes." But why have no such patterns apparently emerged in arms trading in the 1990's? The United States hoped arms would forge alliances with Developing and Lesser Developed Countries nations during the Cold War and, therefore, made sales contingent on cooperation with U.S. foreign policy. In the Post-Cold War environment, most of these countries lack cash, as do some of the developed nations. Sales are made to those increasingly few countries that are willing to cover the acquisition costs in their national budgets. Simply put, arms sales have become functions of supply and demand. Not only are today's deals cash-based versus alliance-based but they are highly competitive contests often involving complex offset demands made by the buyer. Arms transfers "as a tool of foreign policy" produced complex patterns of supplier behavior that are absent in the Post-Cold War world. Each sale has become unique and ad hoc unto itself, not part of a larger, complex process. Because no overarching patterns emerge, it is difficult to make linkages between cause and effect with any degree of certainty.

Difficult questions are asked by the arms control community, members of the armed services and many governmental stakeholders about the value of arms transfers absent a common threat. However, international sentiments that call for strict export regulations while governments make exceptions on case-by-case bases contributes to a sense of general cynicism about the exportation and importation of arms. Reporting and sharing information about transfers, whether through the Western European Union, NATO, Wassenaar or the United Nations Register have yet to achieve any definitive results. Most nations are behaving as if they were realists--it is their sovereign right to arm themselves and by extension it is their sovereign right not to reveal the degree to which they have done so. Defensive intentions can produce offensive reactions.

Discussion of Research Results

Europe

Post-Cold War defense production in Western Europe has its similarities to the United States. All European nations have been forced to cut their defense budgets and reduce the size of their military services. The United States and European nations have long been allies but are also competitors in the dwindling market for arms sales. The rivalry is exacerbated by the United States' emphasis on the economic importance of transfers which has traditionally been the European philosophy because they do not have the same economies of scale in production as the United States. The European allies understand that they cannot compete against the powerful U.S. defense corporations that have emerged from the post Cold War mergers and acquisitions period but have themselves been unable to match the U.S. efforts through cross-boarder deals. Cross-boarder relationships are imperative if European countries are to keep up with technological developments as many nations lack the resources to do it alone. The United Kingdom has consolidated her in-country defense industrial base and is willing to enter into cross-border mergers. France, who could easily have taken a leadership role because she is an important Western European arms producer, has been reluctant to privatize her state-owned defense corporations. It appears that she has struck out on her own, making joint force and procurement deals with Germany, and taken her time with in-country consolidation.

There is the possibility that the United States could do serious damage to the European economy if it pushes too hard against the defense industries by swallowing up their arms export revenues. If Europe lost too much of her defense industry, the possibility exists for labor problems, instability in governments and poor national economic performances. The United States has a lot to lose if overcapacity weakens the European allies too much and she has to bear the burden alone of developing and distributing new weapons and more responsible than less for leading coalitions in the future against any unforeseen enemies. As Kapstein suggested, this might allow the United States to control the world's arms transfers, but it also means being the world's peacekeeper. As the world's peacekeeper, the United States might find itself continuously involved in international disputes. She would have to question whether she is ready to fight all the world's battles because she has the force that would allow one side or the other to win with fewer casualties. The United States would be in a position to deny or transfer arms as she saw fit and then enter in to a moral debate over which side to support and if the country should commit troops. Alternatively, if pushed too far, the allies could push back. A Europe full of cross-border mergers could create very powerful companies with vast resources.

The United States and Europe also differ in their political agendas for arms trading with Europe having more restrictive policies than the United States. France's insistence on not having stringent reporting requirements in the new EU Code of Conduct in Conventional Arms Transfers points to other trade issues in Europe. France is an aggressive seller of arms to Third World countries. She is also fairly reticent about publishing her export criteria. This raises the question of how exports that result from products of cross-boarder mergers would be handled since most European countries have stringent export laws. It also raises the question of what happens to joint-production, non-equity exchange weapons systems similar to the Tiger

Eurocopter project. How would Germany react if France exported a version of the Tiger attack helicopter? How long could Germany, with its very restrictive export laws, afford to take the moral high road when there are sales to be made? The restrictive trade policies for conventional arms exports in place in many of the Western European countries also illustrate how much more of a political agenda item they have become than in the United States. However, stringent laws in the United Kingdom and Germany were put into place but have been circumvented when government officials come under pressure to keep production lines open and jobs in the economy.

Why does the subject of arms control capture European interests but lack wide public support in the United States? This is a complex question for which there is no one answer but many of them originate in stakeholder behavior. But in a general sense, several factors contribute :

- Conventional arms transfer issues fail to capture the public's interest. They cannot find a place on the "national agenda" in the same fashion that nuclear weapons and land mines did.
- Arms control advocates capture the public's interest at both ends of a very large spectrum but fail to do so in the middle range.
- The pros and cons present both buyers and sellers with dilemmas that are not easily resolved. The world of arms transfers is complex, arcane and obtuse.
- The Nixon Doctrine--send arms, not U.S. soldiers--has appeal to many Americans. The United States has been reluctant to participate in other nations' wars since Vietnam.

Stakeholders

Economic Stakeholders: The Defense-Industrial Base

The U.S. defense industrial base had a tool in arms transfers at its disposal that allowed it to remain profitable in the short-term before the next generation of weapons systems entered the exportable stage of the product life cycle. In Chapter VI we read how the defense corporations responded to the policy jolts by seeking new equilibria in order to maintain profitability that were very similar to what they had before the jolts. The new equilibrium would encompass fewer program dollars but perhaps more "opportunities" for export sales. Thus, the policy jolts themselves were not the cause of the apparent shift toward increased emphasis on the economic benefits of arms transfers. Closer examination indicated that it was the deep relationships and deep structures--large, bureaucratic defense contractors--and an ideology coupled with the strategy of staying the course rather than diversifying tied the corporations even closer to dependency on government contracts. The perceptions the companies held about how they could deploy their slack resources (Meyer 1982) and the perceptions those outside the corporations--such as stockholders, government officials and the general public--had about the state of said resources produced even stronger ties between the government and the corporations.

Beliefs about what slack resources defense corporations had at their disposals helped frame governmental stakeholder responses in making policy decisions favorable to increasing arms transfers. Slack resources have a dual nature. First, they are important to a firm because they allow for quick responses to changes in the environment. In the world of high technology, change is frequent and corporations that are saddled with too much debt or shortages of skilled workers cannot respond as quickly as those with surplus funds and labor. Second, slack resources also have a very public faces because of "public" ownership through financial instruments and U.S. government economic and labor indices. Slack resources represent some of the variables that stock market investors check on at micro level to see how well a particular company is doing and on a macro level to measure the health of an entire industry. Thus by extension, slack resources are loaded with "political" implications. Inflated stock prices and high unemployment within an industry are red flags for elected representatives. Declines in slack resources point to the advantages of exports to raise profits, ease corporate debt and keep jobs in the economy.

In the process of responding to the environmental and policy jolts, the corporations of the defense industrial base experienced a "limited metamorphosis," e.g., they had radical structural and leadership changes but not "recreate" or "reorient" themselves as predicted by Romanelli and Tushman (1994) and Meyer (1982) and Meyer et. al.(1990) A period of second order change had no effect on causing radical change in the defense industry. Hypothesis one (H_1) stated that in the aftermath of the policy jolts corporations would respond one of four ways: consolidate (merge), stay as they were, stay and diversify or leave altogether. They chose to stay. In the meantime, there has been a corresponding rise in Direct Commercial Sales. These two events have happened in the same timeframe but no assumption should be made that they necessarily correlate. Offset deals have also been on the rise and may be a function of (a) the increase in Direct Commercial Sales; (b) the U.S. share of world sales and (c) Foreign Military Sales. Again, no correlation should be assumed without further evidence and testing.

Governmental Stakeholder: U.S. Congress

As a governmental stakeholder in the arms transfer process, the U.S. Congress has an oversight role. Within the oversight role there are many possibilities for individual behavior. Some legislators are morally opposed to arms transfers, others are have pressing home district concerns if major defense contractors are located there. The many international humanitarian and economic development issues layered onto national domestic concerns have made it difficult for legislators to redraft the Export Administration Act. Tampering with arms export legislation too much may also cost constituents their jobs. Legislature is better left alone rather than a rewrite becoming too restrictive for one side or too lax for the other. Thus, as a collective stakeholder in U.S. arms transfers, the U.S. Congress has indicated in recent times a trend to respond with media hype within its oversight capacity in what could be referred to as "negative political actions." A negative political action could be considered denying transfers on humanitarian grounds or to non-democracies. Positive political transfers encompass all other approved transfers but these are usually done with considerably less fanfare than the negative ones, although arms shipments to the Middle East generate more comment in the media as a few of those countries have long-standing ties with the United States.

Table XII.1

Congressional Trends in the Post-Cold War Environment

Domestic	International
Positive "economic" actions keep designated acquisition programs (that also have export versions) active through appropriations. Such positive economic actions result in plants remaining open and keeping jobs in the economy.	Negative "political" actions result from denying arms transfers to countries that do not meet humanitarian criteria.

Governmental Stakeholders: The Presidents of the United States

Presidents Bush and Clinton have supported conventional arms sales. President Bush, however, found himself in a position of having to do more of it in an election year in a reaction to defense plant closures. President Clinton was luckier insofar as his Administration was never "put to the test." The one sale that could have tested his policies, the resale of Pakistan's F-16's to Indonesia, never came before Congress. President Clinton also had the luxury of "picking his issues." He picked Latin America in a proactive sense rather than a reactive one. The items below highlight some of the differences and similarities between Presidents Bush and Clinton:

- Both Presidents Bush and Clinton sought to be active in multi-lateral conventional arms talks. Having invested in multi-lateral negotiations among the Big Five to restrict imports to the Middle East after the Gulf War, President Bush helped to unravel even further the stalled negotiations by championing controversial arms sales to Taiwan. President Clinton's 1995 policy statement PDD-34 reiterated U.S. promises of multi-lateral efforts while leaving the door open for plenty of decisions made on a case-by-case basis. President Clinton has participated in multilateral arms talks but has never assumed an international leadership position in conventional arms transfers.
- President Clinton did not assume an active leadership role in other means of restraint with respect to conventional arms transfers. The United States delegates tried to make the Wassenaar Arrangement stronger in its reporting requirements. However, those efforts appeared to be with respect to the Russian Federation's sale of arms to rogue states and not from any actual commitment to reduce arms transfers after the end of the Cold War. President Clinton let slide the early NATO effort over a Code of Conduct in arms sales and has made his opinion known about the more recent Congressional Code of Conduct.
- Both Presidents did not maintain the status quo they inherited of not marketing arms to certain areas of the world--policies that actually had positive international implications in reducing regional conflicts. They overturned long-standing policy decisions in order to open new arms markets under pressure from the defense industrial base.

Hypothesis two (H₂) states that governmental-level stakeholders will direct favorable outcomes for defense corporations with respect to conventional exports rather than have market forces prevail to an unknown extent. Both the Bush and Clinton Administration's took steps that would favor U.S. exports through repeal of recoupment fees (actually a reaffirmation of Executive privilege), defense loan guarantees, lending personal support to sales and reversing long-standing arms embargoes. These were extraordinary actions because normally Chief Executives do not become involved in directing favorable outcomes in other sectors when government contract money dries up. The major governmental stakeholders and the defense corporations entered into a hostage-like mode with each other. With a choice between waiting passively for market forces to run their courses or taking actions that would result in favorable political and economic outcomes, the Presidents opted to direct outcomes themselves within their means.

Governmental Stakeholder: U.S. Department of Defense

The Chief Executives directed favorable outcomes while the Department of Defense acted to protect its strategic resources. The Chief Executive and the U.S. Department of Defense had two different approaches in directing favorable outcomes for the defense industrial base. The former, captured by the belief--true or false--that the defense industrial base needed export markets to prevent economic hardships, facilitated policy changes that provided both sellers and buyers to remain in the U.S. market. The U.S. Department of Defense responded to the uncertainty of the mergers and acquisitions process with respect to arms exports by protecting its ability to produce weapons competitively. It also attempted to maintain Foreign Military Sales levels which enabled that organization to carry out its mission and at the same time benefit the defense industrial base.

The third hypothesis (H₃) that the U.S. Department of Defense will attempt to assist corporations in increasing foreign arms export sales by providing support for designated programs reveals a balancing act between wanting to make the sale and neutrality as to whether it is DCS or FMS. The U.S. Department of Defense is in an awkward position. While some linkages between government and industry are stronger, such as the integrated project teams, the Foreign Military Sales program is one area in which government and industry compete, although a FMS sale is also a sale for industry. Foreign Military Sales are at a low point. They are important to the mission of the Department in general and in particular the program finances the Defense Security Cooperation Agency. So what is good for the Defense-Industrial Base may not necessarily be good for DSCA with respect to whom makes the sale. The issue is further complicated by sales and grants made under the Excess Defense Articles Program because they are good for Foreign Military Sales but preempt new sales or up-grades--both of which could bring in more revenue. The Department of Defense is mandated to remain neutral between Foreign Military Sales and Direct Commercial Sales when negotiating with foreign buyers. The Pentagon would like to avoid any negative fall-out from being perceived as an anxious exporter by the media if it can avoid doing so and because there is considerable support within the Military Branches for not exporting high technology weapons systems other than to NATO and other trusted allies.

Hypothesis four (H_4) is that one possible outcome to the governmental stakeholders attempts to direct favorable outcomes for the economic stakeholders is issue transformation. The application of the 'cloud metaphor' to industrial sector studies helped to illustrate the possibilities of issue transformation in the future. A current example is before us: Governmental stakeholders have produced a set of policy fragments that favor the ascendancy of economics over the traditional 'arms as tools of foreign policy.' Issue transformation has shown itself to be an important step in the policy process. There is a circular aspect to public policy that the metaphor captures and is illustrated on Figure V.10. It is a logical next step in assessing outcomes and evaluations and can provide a valuable tool for formulating new and effective policies. No one can predict outcomes with any degree of accuracy, but an awareness of issue transform could help to track possible policy 'fragmentation.'

In conclusion, research findings are that the null hypothesis (H_0) that the policy jolts underscored the importance of conventional arms transfers as a vehicle for corporate stability for the economic-level stakeholders and as a means for maintaining a strong Defense-Industrial Base for the President, Congress and the Departments of State and Commerce in the Post-Cold War Environment is true. It is only partially true for the U.S. Department of Defense. A strong industrial base is important but it is primarily important for domestic competitiveness issues and less so for other benefits it may provide in arms transfers.

The Place This Research Takes in the Literature

Government organizations and corporations react to each other in many different ways, through many different agencies. Examples vary from the commodity price support programs in the U.S. Department of Agriculture to the Antitrust Department at the Securities and Exchange Commission. Government agencies have also issued policy jolts before to the private sector with which it has linkages but never have they been as dramatic as those that cut the U.S. Department of Defense budget after the end of the Cold War. This research provides a study of how an industry as a whole responded to policy jolts that shook up its assumptions about how the world operated. But it is the job of corporations to remain profitable and their first reaction is to find ways to do so. This research describes the process by which industry and government interacted to fill the "black box" missing in the current literature that describes how the United States got from Harkavy's Cold War world to the present. It describes how in adjusting to the policy jolts, the economic stakeholders decided to stay in the industry and what measures the government stakeholders took to help direct favorable outcomes for them in the international arms trading systems.

This research also takes its place in organization theory literature by building on the work of Romanelli and Tushman (1994) and Meyer (1982) and Meyer, Brooks and Goes (1990). It adds the change activity of "mergers and acquisitions" to Romanelli and Tushman list. It supports Meyer's theory that organizational 'antecedents' can affect outcomes from jolts. It

provides an initial investigation into how change from mergers and acquisitions do not have the same elements of discontinuous change that may be brought on by other external or internal organizational changes. It also provides an initial investigation of how private corporations with strong government ties may be immune to second-order change no matter how much their environment changes or how strong the policy jolts are. Finally, the industrial sectors study in Chapter XI, used Kronenberg's work in the *New Sciences of Transformation* to explore the possibility of issue transformation informing future policy with respect to arms sales.

Future Work

It is not apparent that any new delineated patterns such as those found in Cold War arms research have presented themselves yet, but it is not too premature to say that the historical use of arms transfers as a tool of foreign policy has shifted to matters of economic policy. Absent an enemy greater than the rogue nations, will foreign policy ever reassert itself to a greater degree than in prohibitions on transfers to "rogue" nations and potential nuclear, biological, chemical or missile proliferators? The Harkavy model is hardly a model for our times because so few patterns have emerged but his "diplomatic constellation" no longer shines so brightly. No new patterns have emerged in arms transfer deals in the Post-Cold War era except for agreement that the best deal gets the sale. However, there has been a shift in suppliers from Superpowers to industrial suppliers. This opens up the possibility for further study in the "new suppliers" and how their behavior may affect other arms trade variables such as control regimes and dependence-independence.

Conclusion

In September 1994, *The Annals of the American Academy of Political and Social Sciences* published a special edition on arms trading. Many of the articles published in that edition expressed some degree of uncertainty as to the future direction of conventional arms transfers. There were also sentiments that economic motives for trading had begun to outweigh the political ones. This research supports those sentiments. However, the ascendancy of economics in the Post-Cold War era over political and military benefits of arms trading cannot simply be ascribed to corporate greed or a President's desire to strengthen his political support. It was an attempt to direct favorable outcomes for an industry in transition. Faced with options about the future, defense corporations stayed the same or merged horizontally. However, they all emerged from the "consolidation period" as deeply entrenched and dependent on the U.S. Department of Defense as they had been during the Cold War. Defense contractors could not escape uncertainty about their futures. The government-level stakeholders, under the leadership of the two Post-Cold War Presidents, attempted to direct market outcomes for arms trade deals to keep assembly lines open and jobs in the economy until the next weapons acquisition cycle(s) was funded. Within a few years the new systems will be ready for delivery. Will foreign policy reassert itself into arms transfers when there is a whole new array of weapons with which to trade? Will the two concerns we discussed under "issue transformation" become pressing? The entire system could change direction again. Or it could change direction on its own accord more quickly once Cold War restraints fade further?

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APPENDIX A

APPENDIX A

The Top 100 Companies and Their Subsidiaries Listed According to
 Net Value of Prime Contract Awards
 Fiscal Year 1997

Rank	Companies		Thousands of Dollars	Percent of Total	Cumulative Percent Of Total
	T O T A L		\$116,680,480	100.00	100.00
	TOTAL, 100 COMPANIES/SUBSIDIARIES		\$67,892,439	58.18	58.18
1	LOCKHEED MARTIN CORPORATION	83-495-1691	6,442,361		
	KAPL INC	87-805-7330	150,308		
	LC ACQUIRING CORP	61-335-5171	23,227		
	LOCKHEED AERONAUTICAL SYSTEMS	94-858-6433	2,194		
	LOCKHEED AIRCRAFT SERVICE-INTE	80-019-4573	102		
	LOCKHEED COMMERCIAL SPACE CO,	80-019-8145	169,741		
	LOCKHEED ENGINEERING & SCIENCE	03-722-5935	9,435		
	LOCKHEED MARTIN AERONAUTICAL S	14-976-9754	1,518,684		
	LOCKHEED MARTIN AEROPARTS INC	18-181-4575	3,055		
	LOCKHEED MARTIN AIRCRAFT CENTE	11-917-3318	187,519		
	LOCKHEED MARTIN ELECTRO OPTICA	10-386-9350	26,507		
	LOCKHEED MARTIN FEDERAL SYSTEM	93-111-4334	726,871		
	LOCKHEED MARTIN HYCOR, INC	62-422-6957	2,547		
	LOCKHEED MARTIN IMS CORPORATIO	04-153-0627	6,753		
	LOCKHEED MARTIN LIBRASCOPE COR	19-984-5736	27,144		
	LOCKHEED MARTIN LOGISTICS MANA	94-860-4350	15,849		
	LOCKHEED MARTIN MICROVAVE INC	01-954-3677	5,745		
	LOCKHEED MARTIN SERVICES GROUP	80-525-8373	145,440		
	LOCKHEED MARTIN TACTICAL SYSTE	00-164-2719	170,038		
	LOCKHEED MARTIN TECHNICAL OPER	19-532-8133	48,090		
	LOCKHEED MARTIN	79-457-1448	558,657		

	VOUGHT SYSTEMS				
	LOCKHEED MISSILES & SPACE COMP	00-912-5535	1,445,050		
	LOCKHEED SPACE OPERATIONS COMP	13-930-7151	2,871		
	LORAL SONAR SYSTEMS CORP	78-734-6014	62,583-		
	LORAL/ROLM MIL-SPEC CORPORATIO	14-802-2304	3,109		
	MARTIN MARIETTA TECHNICAL SERV	61-737-9607	359-		
	MOUNTAINGATE DATA SYSTEMS, INC	06-311-3039	85		
	RAMAC SERVICES CORPORATION	18-294-9776	2,488		
	RANDTRON SYSTEMS, INC	06-129-3817	6,224		
	SANDERS ASSOCIATES INTERNATION	78-627-6394	375		
		TOTAL	\$11,637,526	9.97	9.97
2	BOEING COMPANY, THE INC	00-925-6819	1,796,952		
	ARGOSYSTEMS, INC	05-052-0022	183		
	BOEING AEROSPACE OPERATIONS IN	08-518-8316	90,305		
	BOEING DEFENSE & SPACE-IRVING	88-451-0124	5,131		
	BOEING INFORMATION SERVICES, I	80-745-3311	2,984		
	BOEING NORTH AMERICAN, INC	00-825-5523	1,299,210		
	BOEING PRECISION GEAR INC	83-505-2390	1,452		
	MCDONNELL DOUGLAS CORPORATION	00-626-5946	6,443,135		
	MCDONNELL DOUGLAS TRNING SYS	02-192-7850	5,504		
		TOTAL	\$9,644,855	8.26	18.23
3	NORTHROP GRUMMAN CORPORATION	00-825-5408	3,210,949		
	GRUMMAN FIELD SUPPORT SERVICES	95-862-9925	118,108		
	GRUMMAN SYSTEMS SUPPORT CORP	07-779-8122	35		
	NORTHROP GRUMMAN NORDEN SYSTEM	96-676-4417	26,461		
	NORTHROP GRUMMAN TECHNICAL SER	05-906-9211	82,068		
	REMOTEK INC	03-791-5055	3,448		
	XETRON CORPORATION	06-894-3042	34,683		
		TOTAL	\$3,475,752	2.97	21.21
4	GENERAL DYNAMICS	00-138-1284	164,157		

	CORPORATION				
	AMERICAN OVERSEAS MARINE CORPO	12-162-0850	142,098		
	BATH IRON WORKS CORPORATION	04-595-3718	721,013		
	ELECTRIC BOAT CORPORATION	96-373-7366	1,157,024		
	GENERAL DYNAMICS LAND SYSTEMS	13-126-6926	685,600		
	GENERAL DYNAMICS ORDNANCE SYST	80-785-0516	142,126		
		TOTAL	\$3,012,018	2.58	23.80
5	RAYTHEON COMPANY INC	00-133-9159	1,531,754		
	AMBER ENGINEERING, INC	13-934-4642	2,034		
	RAYTHEON AIRCRAFT CORPORATION	00-748-2011	228,240		
	RAYTHEON E- SYSTEMS, INC	04-559-1104	502,991		
	RAYTHEON ELECTRONIC SYSTEMS, I	03-932-1963	38,799		
	RAYTHEON ENGINEERS & CONSTRUCT	80-267-5199	498,523		
	RAYTHEON INFRASTRUCTURE SERVIC	80-273-5571	104		
	RAYTHEON MIDDLE EAST SYSTEMS C	08-653-8394	5,995		
	RAYTHEON SYSTEMS DEVELOPMENT C	80-762-4630	2,590		
	RAYTHEON SYSTEMS INTERNATIONAL	92-958-0397	38,066		
	RAYTHEON TI SYSTEMS INC	15-970-0228	134		
	RAYTHEON UNITED KINGDOM LTD.	21-615-6133	14,007		
		TOTAL	\$2,863,236	2.45	26.25
6	GENERAL MOTORS CORPORATION	00-535-6613	55,343		
	ADAM OPEL AG	31-500-0737	50		
	GENERAL MOTORS OF CANADA LIMIT	20-135-6847	719		
	HUGHES ELECTRONICS CORPORATION	14-735-4161	2,771,600		
	PACKARD-HUGHES INTERCONNECT CO	80-534-5337	2,182		
	SATURN CORPORATION	14-978-3771	50		
		TOTAL	\$2,829,943	2.42	28.67
7	UNITED TECHNOLOGIES	00-134-4142	1,267,493		

	CORPORATIO				
	ARDCO, INC	00-552-8914	31		
	CARRIER CORPORATION	00-131-7072	1,644		
	INTERNATIONAL FUEL CELLS CORPO	13-174-0839	1,240		
	PRATT & WHITNEY CANADA INC	20-201-5897	180		
	SIKORSKY AIRCRAFT CORPORATION	83-555-1474	501,978		
	SIKORSKY SUPPORT SERVICES INC	10-725-4062	29,603		
	UNITED TECHNOLOGIES OPTICAL SY	17-334-1272	944		
	UNITED TECHNOLOGY HOLDINGS BV	41-358-7791	2,487		
	USBI CO, INCORPORATED	13-965-7969	965		
	WATERJET SYSTEMS, INC	80-131-5359	3,732		
	TOTAL	\$1,810,297	1.55	30.23	
8	GENERAL ELECTRIC COMPANY INC	00-136-7960	1,323,493		
	ELANO CORPORATION	00-424-1139	146		
	G E AMERICAN COMMUNICATIONS IN	08-198-0286	13,253		
	GENERAL ELECTRIC CAPITAL SERVICE	11-618-2890	32,043		
	GENERAL ELECTRIC CGR EUROPE	50-259-9202	81		
	GENERAL ELECTRIC INTERNATIONAL	06-492-3659	191		
	GENERAL ELECTRIC- DEUTSCHLAND G	31-566-3955	394		
	GREENWICH AIR SERVICES INC	07-224-6853	307,164		
	NATIONAL BROADCASTING COMPANY	60-713-0036	182		
	REUTER-STOKES INC DEL	05-039-2240	27		
	ROPER CORPORATION	19-729-1941	32		
	YOKOGAWA MEDICAL SYSTEMS LTD.	69-063-7079	60		
	TOTAL	\$1,677,067	1.43	31.66	
9	LITTON INDUSTRIES, INC	00-192-2749	118,796		
	INGALLS SHIPBUILDING, INC	17-478-6913	912,465		
	LITTON CANADA INC	24-461-9003	1,669		
	LITTON SYSTEMS INC	00-829-7848	283,372		
	PRC INC.	00-959-2056	286,357		
	TOTAL	\$1,602,659	1.37	33.04	

10	TEXTRON INC	00-133-8979	242,795		
	BELL HELICOPTER SERVICES INC	13-101-5877	391		
	BELL HELICOPTER TEXTRON INC	06-292-3321	1,171,465		
	CESSNA AIRCRAFT COMPANY, THE I	00-723-3596	21,236		
	H R TEXTRON INC	00-851-3152	8,901		
	TURBINE ENGINE COMPONENTS TEXT	15-737-3457	277		
	TOTAL	\$1,445,066	1.23	34.28	
11	SCIENCE APPLICATIONS INTERNATI	05-478-1240	1,056,070		
	AMSEC CORPORATION	05-666-2398	34,291		
	NETWORK SOLUTIONS INC (A DELAW	09-636-1225	333		
	PATHOLOGY ASSOCIATES INTERNATIONAL	04-835-4575	34		
	SAIC COMMERCIAL ENTERPRISES INC	80-671-8193	2,278		
	SYNTONIC TECHNOLOGY, INC	15-074-2583	39		
	WRIGHT, R E ENVIRONMENTAL, INC	07-119-1985	1,514		
	TOTAL	\$1,094,560	0.93	35.21	
12	GTE CORPORATION	00-129-3950	17,406		
	CONTEL CELLULAR INC	12-094-6660	221		
	CONTEL FEDERAL SYSTEMS INC	11-468-5548	807,345		
	CONTEL OF CALIFORNIA, INC	00-691-4584	3,421		
	GTE CALIFORNIA INC	00-691-4030	518		
	GTE CUSTOMER NETWORKS, INC	15-165-0066	114		
	GTE HAWAIIAN TELEPHONE COMPANY	00-692-6943	12,694		
	GTE INTERNATIONAL TELECOMMUNIC	78-606-1978	485		
	GTE INTERNETWORKING INC	00-176-3499	36,374		
	GTE MOBILE COMMUNICATIONS INC	61-446-4964	1,218		
	GTE MOBILNET INCORPORATED	01-216-7078	955		
	GTE NORTH INC	00-984-2014	213		
	GTE NORTHWEST INCORPORATED	00-794-2287	57		
	GTE PRODUCTS OF	08-664-5017	6,726		

	CONNECTICUT CO				
	GTE SOUTH INCORPORATED	00-699-6433	693		
	GTE SOUTHWEST INCORPORATED	00-793-5885	1,459		
	TOTAL	\$889,899	0.76	35.98	
13	ITT INDUSTRIES, INC	00-121-6845	533,803		
	ITT DEFENSE & ELECTRONICS, INC	80-103-9371	254,283		
	ITT FLUID TECHNOLOGY CORP	80-019-8905	1,532		
	TOTAL	\$789,618	0.67	36.65	
	14	TRW INC	00-417-9453	780,746	
	SCI TEC INC	09-684-5169	1,253		
	TOTAL	\$781,999	0.67	37.32	
15	CBS CORPORATION	00-134-3953	667,078		
	WESTINGHOUSE AUDIO INTELLIGENC	05-044-1302	49		
	WESTINGHOUSE ELECTRIC COMPANY,	80-319-9769	109,416		
	WESTINGHOUSE ELECTRIC CORP	15-392-6647	583		
	WESTINGHOUSE INTERNATIONAL SER	15-397-7632	67		
	WESTINGHOUSE OVERSEAS SERVICE	78-250-5960	132		
	TOTAL	\$777,325	0.66	37.99	
16	NEWPORT NEWS SHIPBUILDING INC	14-989-9957	719,991		
	TOTAL	\$719,991	0.61	38.61	
17	COMPUTER SCIENCES CORPORATION	00-958-1091	692,332		
	CSC PROFESSIONAL SERVICES GROU	87-898-8229	11,996		
	TOTAL	\$704,328	0.60	39.21	
18	FOUNDATION HEALTH SYSTEMS INC	79-833-0908	0		
	HEALTH NET INC	09-861-2971	655,884		
	TOTAL	\$655,884	0.56	39.77	
19	AVONDALE INDUSTRIES INC	14-462-0747	622,329		
	TOTAL	\$622,329	0.53	40.31	
20	HUMANA INC	04-994-4143	0		
	HUMANA MILITARY HEALTHCARE SER	80-534-9198	621,449		
	TOTAL	\$621,449	0.53	40.84	
21	UNITED DEFENSE, LP	82-482-5459	610,986		
	TOTAL	\$610,986	0.52	41.36	
22	TRACOR, INC	78-642-9894	32,546		
	GDE HOLDINGS COMPANY, INC	79-691-4786	68,039		
	TRACOR AEROSPACE ELECTRONIC SY	00-234-6690	993		

	TRACOR AEROSPACE, INC	78-667-3517	76,572		
	TRACOR APPLIED SCIENCES, INC	78-643-0454	37,919		
	TRACOR FLIGHT SYSTEMS, INC	78-660-7382	3,085		
	TRACOR INFORMATIONS SYSTEMS CO	62-749-1400	78,348		
	TRACOR SERVICES CORPORATION	15-080-5703	66,368		
	VITRO CORPORATION	10-393-3453	190,792		
	TOTAL	\$554,663	0.47	41.84	
23	ALLIED SIGNAL INC	13-969-1877	344,476		
	ALLIED SIGNAL AEROSPACE GMBH	31-499-0730	6,396		
	ALLIED SIGNAL AVIONICS, INC	04-114-2902	6,815		
	ALLIED SIGNAL CANADA INC	20-209-6699	3,530		
	ALLIED SIGNAL DEUTSCHLAND GMBH	31-706-5522	373		
	ALLIED SIGNAL TECHNICAL SERVICE	04-101-4242	168,761		
	ALLIED SIGNAL TECHNOLOGIES, INC	93-750-2920	72		
	GRIMES AEROSPACE COMPANY (INC)	00-418-9262	9,819		
	LORI INC	08-057-8982	6,789		
	TOTAL	\$547,030	0.46	42.31	
24	EXXON CORPORATION	00-121-3214	483,453		
	ESSO AKTIENGESELLSCHAFT	31-500-8045	271		
	EXXON INTERNATIONAL SERVICES,	04-007-8594	54,896		
	TOTAL	\$538,621	0.46	42.77	
25	DYNCORP	00-324-2013	449,678		
	AEROTHERM CORPORATION	62-697-7490	17,183		
	DYN MARINE SERVICES, INC	80-755-4282	36,955		
	DYNCORP ENVIRONMENTAL ENERGY &	09-410-2803	3,532		
	DYNCORP/DYNAIR CORPORATION	04-706-2435	27,306		
	ITS INTERNATIONAL SERVICE GMBH	34-119-9115	99		
	TOTAL	\$534,754	0.45	43.23	
26	TEXAS INSTRUMENTS INCORPORATED	00-732-1904	521,137		
	SAVI TECHNOLOGY, INC	60-565-2288	7,767		

	TOTAL	\$528,904	0.45	43.68	
27	STANDARD MISSILE COMPANY, LLC	92-667-4318	471,932		
	TOTAL	\$471,932	0.40	44.08	
28	ROCKWELL INTERNATIONAL CORPORA	96-194-1531	339,016		
	ALLEN-BRADLEY COMPANY, INC	00-609-7109	529		
	RELIANCE ELECTRIC COMPANY (INC	00-419-7646	763		
	ROCKWELL COLLINS FRANCE	27-593-3620	87		
	ROCKWELL COLLINS, INC	96-296-0589	113,369		
	TOTAL	\$453,764	0.38	44.47	
29	BDM INTERNATIONAL INC	61-971-3282	3,193		
	BDM FEDERAL, INC	07-481-1357	315,081		
	BDM INTERNATIONAL INC	62-201-3621	26,871		
	VINNELL CORPORATION	00-690-3900	35,379		
	TOTAL	\$380,523	0.32	44.80	
30	ALLIANT TECHSYSTEMS INC	61-870-5925	373,702		
	ALLIANT DEFENSE ELECTRONICS SY	88-385-1040	4,256		
	GLOBAL ENVIRONMENTAL SOLUTIONS	80-159-3229	76		
	TOTAL	\$378,035	0.32	45.12	
31	UNITED STATES DEPT ENERGY	08-768-9394	375,543		
	TOTAL	\$375,543	0.32	45.44	
32	MASSACHUSETTS INSTITUTE OF TEC	00-142-5594	368,290		
	TOTAL	\$368,290	0.31	45.76	
33	ELECTRONIC DATA SYSTEMS CORPOR	04-666-7523	358,777		
	TOTAL	\$358,777	0.30	46.07	
34	LONGBOW LLC	83-775-0223	338,015		
	TOTAL	\$338,015	0.28	46.36	
35	LOGICON INC	05-227-2044	336,602		
	TOTAL	\$336,602	0.28	46.65	
36	SVERDRUP CORPORATION, THE	08-309-9630	37,652		
	SVERDRUP CIVIL INC	80-274-4441	4,732		
	SVERDRUP FACILITIES INC	80-581-7798	12,024		
	SVERDRUP TECHNOLOGY, INC	00-792-3014	273,814		
	TOTAL	\$328,222	0.28	46.93	
37	FMC CORPORATION	00-914-6945	180,906		

	CROSBY VALVE, INC	00-101-2673	18		
	F M C ARABIA LTD	64-358-3966	144,252		
	TOTAL	\$325,176	0.27	47.21	
38	RENCO GROUP, THE INC	14-785-4152	0		
	AM GENERAL CORPORATION	05-468-1739	313,805		
	TOTAL	\$313,805	0.26	47.47	
39	MOTOROLA, INC	00-132-5463	239,087		
	MOTOROLA COMMUNICATIONS & ELEC	00-552-7247	69,317		
	MOTOROLA GESELLSCHAFT MIT BESC	31-569-4786	2,436		
	TOTAL	\$310,840	0.26	47.74	
40	MITRE CORPORATION, THE	00-787-2690	304,358		
	TOTAL	\$304,358	0.26	48.00	
41	AEROSPACE CORPORATION, THE	00-955-3637	297,682		
	TOTAL	\$297,682	0.25	48.26	
42	OHM CORPORATION	15-126-3464	34,399		
	BENECO ENTERPRISES INC	09-881-3306	58,120		
	OHM REMEDIATION SERVICES CORP	06-810-6400	201,277		
	TOTAL	\$293,795	0.25	48.51	
43	SHELL OIL COMPANY	80-041-1480	293,291		
	TOTAL	\$293,291	0.25	48.76	
44	HALLIBURTON COMPANY (INC)	96-440-9007	0		
	HALLIBURTON DELAWARE, INC	96-464-5022	290,497		
	TOTAL	\$290,497	0.24	49.01	
45	FEDERAL EXPRESS CORPORATION	05-807-0459	289,324		
	TOTAL	\$289,324	0.24	49.26	
46	NASSCO HOLDINGS INC	60-206-5989	401		
	NATIONAL STEEL & SHIPBUILDING	00-915-8932	287,382		
	TOTAL	\$287,783	0.24	49.50	
47	JOHNSON CONTROLS, INC	00-609-2860	10,259		
	JOHNSON CONTROLS WORLD SERVICE	01-081-6486	273,752		
	TOTAL	\$284,011	0.24	49.75	
48	CHEVRON CORPORATION	00-138-2555	0		
	CHEVRON U.S.A. INC	00-914-0559	278,096		
	TOTAL	\$278,096	0.23	49.99	
49	STEWART & STEVENSON	00-793-2783	267,554		

	SERVICES,				
	STEWART & STEVENSON OPERATIONS	55-606-1810	28		
	STEWART & STEVENSON POWER, INC	09-248-5390	68		
	TOTAL	\$267,650	0.22	50.21	
50	BECHTEL GROUP, INC	09-487-8980	0		
	BECHTEL CORPORATION	09-487-8998	266,508		
	TOTAL	\$266,508	0.22	50.44	
51	ATLANTIC RICHFIELD COMPANY INC	04-542-6723	247,424		
	ARCO ALASKA INC	04-842-2034	9,802		
	TOTAL	\$257,226	0.22	50.66	
52	NICHOLS RESEARCH CORPORATION	08-139-0726	223,951		
	ADVANCED MARINE ENTERPRISES IN	04-054-6988	28,021		
	TOTAL	\$251,971	0.21	50.88	
53	THE GENERAL ELECTRIC CO. PLC	21-011-6406	0		
	CANADIAN MARCONI COMPANY	20-213-5604	1,176		
	ELECTRICAL MANUFACTURING OF SI	59-530-2670	1,285		
	G E C - MARCONI AEROSPACE LTD.	21-745-6490	2,090		
	G E C MARCONI AVIONICS (HOLDIN	50-438-1468	19,567		
	GEC INCORPORATED (DEL)	61-476-4918	205,493		
	GEC MARCONI MATERIALS CORPORAT	61-502-8560	925		
	GEC-MARCONI SENSORS LTD	42-499-0844	10,989		
	THE ENGLISH ELECTRIC CO. LTD.	21-190-4081	5,846		
	TOTAL	\$247,372	0.21	51.09	
54	BOOZ ALLEN & HAMILTON INC	00-692-8857	244,455		
	TOTAL	\$244,455	0.20	51.30	
55	WORLDCORP, INC	18-111-6716	0		
	WORLD AIRWAYS, INC	00-691-0202	238,079		
	TOTAL	\$238,079	0.20	51.51	
56	PROCTER & GAMBLE COMPANY, THE	00-131-6827	190,685		
	PROCTER & GAMBLE DISTRIBUTING	00-190-2212	40,505		

	RICHARDSON-VICKS INC	01-741-1737	258		
	TAMBRANDS INC.	00-202-8751	161		
	TOTAL	\$231,609	0.19	51.70	
57	ROLLS-ROYCE PLC	21-090-8687	36,069		
	ALLISON ENGINE COMPANY, INC.	80-475-4141	178,528		
	ROLLS-ROYCE MILITARY AERO ENGI	57-021-9634	3,033		
	ROLLS-ROYCE OVERSEAS HOLDINGS	77-008-6700	12,569		
	ROLLS-ROYCE POWER ENGINEERING	21-315-2762	189		
	TOTAL	\$230,387	0.19	51.90	
58	PHILIPP HOLZMANN AKTIENGESELLS	31-573-0929	0		
	DEUTSCHE ASPHALT GESELLSCHAFT	31-500-0950	93		
	HOLZMANN LOGISTICS SERVICES GM	32-688-8781	37,194		
	HOLZMANN, PHILIPP USA, INC	12-766-5677	178,837		
	PHILIPP HOLZMANN BAUAKTIENGESE	31-500-8177	12,712		
	TOTAL	\$228,836	0.19	52.10	
59	HIGHMARK, INC	06-709-6644	0		
	UNITED CONCORDIA COMPANIES, IN	86-894-1832	227,662		
	TOTAL	\$227,662	0.19	52.29	
60	MCI COMMUNICATIONS CORPORATION	04-476-0643	31		
	MCI INTERNATIONAL INC	10-137-9501	34		
	MCI TELECOMMUNICATION S CORPORA	02-028-9070	226,400		
	TOTAL	\$226,464	0.19	52.49	
61	MAERSK, INC	00-166-5322	0		
	MAERSK LINE LTD INC	04-099-0913	222,860		
	MAERSK PACIFIC LTD (INC)	62-493-7918	2,041		
	TOTAL	\$224,901	0.19	52.68	
62	TEXAS INSTRUMENTS/MARTI N MARIE	96-007-1769	219,616		
	TOTAL	\$219,616	0.18	52.87	
63	HARRIS CORPORATION	00-420-3337	212,251		
	EXECUTIVE CONFERENCE-CENTER IN	02-799-1249	32		

	HARRIS TECHNICAL SERVICES CORP	18-600-6136	322		
	LANIER HELLAS S A	36-676-6996	99		
	LANIER WORLDWIDE INC	15-063-4004	1,444		
	TOTAL	\$214,149	0.18	53.05	
64	TRIWEST HEALTHCARE ALLIANCE CO	94-558-0587	212,920		
	TOTAL	\$212,920	0.18	53.23	
65	UNISYS CORPORATION	00-535-8932	211,758		
	TOTAL	\$211,758	0.18	53.41	
66	OSHKOSH TRUCK CORPORATION	00-607-0445	203,565		
	PIERCE MANUFACTURING INC	00-612-6999	1,568		
	TOTAL	\$205,133	0.17	53.59	
67	AT&T CORP	00-698-0080	189,582		
	ALASCOM, INC	04-459-3515	10,227		
	AMERICAN TELEPHONE & TELG CO	17-530-0656	1,101		
	AT & T UNIT SYSTEMS LAB	62-773-1441	1,049		
	AT&T WIRELESS SERVICES INC	13-059-8238	1,829		
	TOTAL	\$203,787	0.17	53.77	
68	GOVERNMENT OF CANADA	24-101-5486	0		
	CANADIAN COMMERCIAL CORPORATIO	20-788-4594	202,312		
	ST LAWRENCE SEAWAY AUTHORITY,	20-787-6723	28		
	TOTAL	\$202,340	0.17	53.94	
69	HENSEL PHELPS CONSTRUCTION CO	06-332-2085	193,245		
	TOTAL	\$193,245	0.16	54.10	
70	MANTECH INTERNATIONAL CORPORAT	05-351-8312	52,034		
	APPLIED MEASUREMENT SYSTEMS IN	08-960-5737	8,253		
	MANTECH ADVANCED SYSTEMS INTER	13-962-7525	106,536		
	MANTECH COMPUTER SERVICES	64-519-0406	517		
	MANTECH COMPUTERS & TELECOMMUN	64-518-7410	42		
	MANTECH SYSTEMS ENGINEERING CO	17-424-5993	20,357		
	TOTAL	\$187,739	0.16	54.27	
71	FEDERAL PRISON	62-662-7459	186,814		

	INDUSTRIES, INC				
	TOTAL	\$186,814	0.16	54.43	
72	HONEYWELL INC	00-132-5240	177,616		
	HONEYWELL CONSUMER PRODUCTS IN	36-163-6699	551		
	HONEYWELL ELECTRONICS CORPORAT	78-553-1682	3,336		
	TOTAL	\$181,503	0.15	54.58	
73	CLARK ENTERPRISES, INC	06-486-2345	18,729		
	CLARK CONSTRUCTION GROUP, THE,	06-676-7021	160,354		
	TOTAL	\$179,083	0.15	54.73	
74	DRAPER, CHARLES STARK LABORATO	06-658-7478	178,817		
	TOTAL	\$178,817	0.15	54.89	
75	CHRYSLER CORPORATION	00-134-4928	173,136		
	TOTAL	\$173,136	0.14	55.04	
76	JOHNS HOPKINS UNIVERSITY INC	00-191-0777	171,461		
	TOTAL	\$171,461	0.14	55.18	
77	GOVERNMENT TECHNOLOGY SERVICES	10-793-9357	170,029		
	TOTAL	\$170,029	0.14	55.33	
78	BOEING SIKORSKY COMANCHE TEAM	96-395-7972	167,849		
	TOTAL	\$167,849	0.14	55.47	
79	INTERNATIONAL BUSINESS MACHINE	00-136-8083	164,850		
	CATAPULT INC	60-917-0949	104		
	IBM GLOBAL SERVICES, INC.	78-273-0014	934		
	IBM WORLD TRADE CORPORATION	00-169-7945	110		
	LOTUS DEVELOPMENT CORPORATION	01-185-0484	124		
	TIVOLI SYSTEMS INC	62-165-3245	1,334		
	TRANSARC CORPORATION	60-326-4334	150		
	TOTAL	\$167,606	0.14	55.62	
80	VANSTAR CORPORATION	08-184-3625	0		
	SYSOREX INFORMATION SYSTEMS, A	15-161-8089	164,335		
	TOTAL	\$164,335	0.14	55.76	
81	AMERICAN AUTOMAR, INC	10-192-0908	0		
	CORMORANT	78-760-9478	61,028		

	SHIPHOLDING CORPORAT				
	MERLIN SHIPHOLDING CORPORATION	79-496-1698	1,682		
	TARAGO SHIPHOLDING CORP	93-901-3447	100,259		
	TOTAL	\$162,968	0.13	55.90	
82	OLIN CORPORATION	00-133-8086	160,489		
	TOTAL	\$160,489	0.13	56.03	
83	THIOKOL CORPORATION	00-224-1164	154,982		
	HUCK INTERNATIONAL, INC.	00-535-4436	378		
	TOTAL	\$155,361	0.13	56.17	
84	SSANGYONG (U.S.A.), INC.	07-327-1900	153,985		
	TOTAL	\$153,985	0.13	56.30	
85	SOUTHWEST MARINE INC	08-091-1274	152,131		
	TOTAL	\$152,131	0.13	56.43	
86	KUWAIT PETROLEUM CORPORATION	64-356-4438	0		
	KUWAIT FOREIGN PETROLEUM EXPLO	64-348-4819	150,941		
	TOTAL	\$150,941	0.12	56.56	
87	SOLTEK OF SAN DIEGO	02-051-8445	149,947		
	TOTAL	\$149,947	0.12	56.69	
88	PHILIP MORRIS COMPANIES INC	14-462-8310	0		
	KRAFT FOODS, INC	03-901-0590	128,567		
	PHILIP MORRIS INCORPORATED	00-130-6497	15,266		
	TOTAL	\$143,834	0.12	56.81	
89	GENCORP INC.	00-131-6330	68		
	AEROJET-GENERAL CORPORATION	00-825-5853	141,192		
	TOTAL	\$141,260	0.12	56.93	
90	KAMAN CORPORATION	00-115-5225	4,457-		
	KAMAN AEROSPACE CORPORATION	05-254-3188	40,475		
	KAMAN DIVERSIFIED TECHNOLOGIES	78-279-7583	105,119		
	TOTAL	\$141,137	0.12	57.05	
91	ALLEGHENY TELEDYNE INCORPORATE	94-926-2737	0		
	TELEDYNE, INC	00-839-1203	140,417		
	TOTAL	\$140,417	0.12	57.17	
92	BTG, INC.	04-836-7528	84,687		
	BTG TECHNOLOGY SYSTEMS, INC	10-826-6164	53,716		
	CONCEPT	08-055-0288	400		

	AUTOMATION INC OF AMER				
	TOTAL	\$138,803	0.11	57.29	
93	VSE CORPORATION	04-999-7380	131,304		
	CMSTAT CORPORATION	36-289-3588	126		
	HUMAN RESOURCE SYSTEMS INC	61-272-9145	1,628		
	TOTAL	\$133,059	0.11	57.41	
94	GULFSTREAM AEROSPACE CORPORATI	61-179-2912	0		
	GULFSTREAM DELAWARE CORPORATIO	02-399-1755	131,980		
	TOTAL	\$131,980	0.11	57.52	
95	FEDERAL REPUBLIC OF GERMANY	34-225-7649	131,160		
	TOTAL	\$131,160	0.11	57.63	
96	PRIMEX TECHNOLOGIES, INC	19-486-0813	89,870		
	PRIMEX AEROSPACE COMPANY (INC)	00-948-0823	23,783		
	PRIMEX PHYSICS INTERNATIONAL C	04-183-4011	16,510		
	TOTAL	\$130,163	0.11	57.74	
97	INTERNATIONAL SHIPHOLDING CORP	09-491-5493	0		
	CENTRAL GULF LINES INC	05-911-8455	13,739		
	WATERMAN STEAMSHIP CORPORATION	00-819-8699	115,373		
	TOTAL	\$129,112	0.11	57.85	
98	BERGEN BRUNSWIG CORPORATION	04-834-1226	115,569		
	BERGEN BRUNSWIG DRUG COMPANY I	00-690-6614	13,477		
	TOTAL	\$129,046	0.11	57.96	
99	BELL ATLANTIC CORPORATION	10-721-2169	6,122		
	BELL ATLANTIC INTERNATIONAL, I	18-600-3026	483		
	BELL ATLANTIC INVESTMENTS INC	12-173-2804	1,235		
	BELL ATLANTIC NETWORK SERVICES	10-673-4213	100,814		
	BELL ATLANTIC NYNEX MOBILE INC	88-463-8305	1,318		
	BELL ATLANTIC-MARYLAND, INC	00-694-9895	1,661-		
	BELL ATLANTIC-NEW JERSEY, INC	00-697-3762	2,072		
	BELL ATLANTIC-PENNSYLVANIA, IN	00-791-3171	207		

	BELL ATLANTIC- VIRGINIA, INC	00-794-1081	1,022		
	BELL ATLANTIC- WASHINGTON, D.C.	00-691-9484	7,397		
	NYNEX CORPORATION	10-115-2403	9,192		
	TOTAL	\$128,199	0.10	58.07	
100	MCKESSON CORPORATION (DELAWARE	17-766-7227	121,604		
	GENERAL MEDICAL INC	93-254-7987	178		
	MCKESSON BIOSERVICES	16-115-7953	3,066		
	MCKESSON GENERAL MEDICAL CORPO	02-801-9354	37		
	TOTAL	\$124,885	0.10	58.18	

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APPENDIX B

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period

WEAPON TYPE	SUPPLIER ^a	TOTAL	SOVIET UNION ----- RUSSIA ^a	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
WORLD												
LAND ARMAMENTS												
Tanks	1985-87	5778	2530	1040	1208	70	20	250	70	540	0	50
	1988-90	5038	3150	320	818	0	30	140	0	130	40	410
	1991-93	3407	920	300	587	70	60	540	170	380	10	370
	1994-96	2748	290	280	1368	20	80	330	20	140	10	210
Artillery, Field and Anti-Air ^b	1985-87	20779	3100	390	1299	40	12800	0	430	1290	650	780
	1988-90	16930	2830	120	430	20	10040	10	160	1800	920	600
	1991-93	13212	720	500	232	10	8820	750	580	1320	110	170
	1994-96	2544	500	210	404	180	60	370	40	160	420	200
Armored Personnel Carriers and Armored Cars	1985-87	12613	5030	4670	673	30	540	50	390	760	70	400
	1988-90	7504	4650	1360	494	20	280	0	0	370	10	320
	1991-93	5079	1660	210	709	70	60	600	1260	20	80	410
	1994-96	9417	1370	760	3337	340	90	1340	1850	40	150	140
NAVAL CRAFT												
Major Surface Combatants ^c	1985-87	39	13	8	0	3	4	6	2	1	2	0
	1988-90	28	7	1	0	2	2	5	4	1	6	0
	1991-93	26	4	0	1	4	1	11	1	4	0	0
	1994-96	55	0	0	6	17	2	25	2	3	0	0
Other Surface Combatants ^d	1985-87	307	67	3	16	27	19	8	41	9	68	49
	1988-90	311	49	10	11	7	29	15	24	25	42	99
	1991-93	196	10	0	41	12	27	48	9	13	22	14
	1994-96	299	153	15	56	7	6	7	17	10	23	5
Submarines	1985-87	22	12	0	0	0	0	4	6	0	0	0
	1988-90	18	8	0	0	1	0	5	3	0	0	1
	1991-93	8	3	0	0	0	0	4	1	0	0	0
	1994-96	2	2	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	1	0	0	0	0	0	1	0	0	0	0
	1988-90	9	0	0	0	0	0	3	0	4	2	0
	1991-93	5	0	0	0	0	0	3	0	2	0	0
	1994-96	22	0	0	0	0	0	0	0	19	2	1
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	1375	610	0	385	30	100	70	70	40	50	20
	1988-90	1486	520	0	436	30	90	50	40	120	80	120
	1991-93	875	110	0	375	20	10	40	30	130	10	150
	1994-96	564	100	10	224	10	10	40	30	50	10	80
Combat Aircraft, Subsonic	1985-87	232	120	0	52	40	10	0	0	10	0	0
	1988-90	212	90	0	52	60	0	0	10	0	0	0
	1991-93	212	0	0	82	30	0	50	20	0	10	20
	1994-96	252	10	0	152	80	0	0	0	0	0	10
Other Aircraft ^e	1985-87	2340	270	1270	140	30	60	100	140	30	100	200
	1988-90	1874	160	730	84	20	20	10	120	40	570	120
	1991-93	1128	40	70	78	40	20	30	130	60	570	90
	1994-96	601	30	100	51	0	30	10	110	60	90	120
Helicopters	1985-87	1483	630	330	153	10	220	30	50	0	10	50
	1988-90	1000	420	110	160	20	130	70	60	0	10	20
	1991-93	568	130	40	148	20	90	10	70	10	10	40
	1994-96	805	200	20	305	10	60	50	50	10	0	100
MISSILES												
Surface-to-Air	1985-87	24851	15600	200	1171	1950	3600	0	140	500	1650	40
	1988-90	17632	7290	410	2052	290	3760	250	250	410	1420	1500
	1991-93	7663	960	340	1923	0	3460	290	170	190	60	270
	1994-96	11801	1600	590	2221	330	5170	0	40	220	90	1540
Surface-to-Surface	1985-87	1070	970	0	0	0	0	0	0	10	0	90
	1988-90	2140	1730	0	0	0	0	0	0	180	0	230
	1991-93	350	150	0	0	0	0	0	0	110	0	90
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	1515	410	0	255	180	430	0	0	180	60	0
	1988-90	1455	440	0	405	0	200	0	0	150	250	10
	1991-93	503	70	0	213	0	30	0	0	60	100	30
	1994-96	746	0	0	456	0	110	0	0	180	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION ----- RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
DEVELOPED												
LAND ARMAMENTS												
Tanks	1985-87	1189	120	270	549	0	0	250	0	0	0	0
	1988-90	690	0	50	560	0	0	80	0	0	0	0
	1991-93	678	0	0	118	0	0	380	170	0	10	0
	1994-96	551	10	0	151	0	0	330	0	0	0	60
Artillery, Field and Anti-Air ³	1985-87	10747	230	270	107	0	10080	0	0	0	50	10
	1988-90	10273	10	60	113	0	10000	0	20	0	70	0
	1991-93	1072	0	0	102	0	30	750	170	0	20	0
	1994-96	586	10	0	166	140	20	240	0	0	0	10
Armored Personnel Carriers and Armored Cars	1985-87	4446	340	3710	366	20	0	0	0	0	10	0
	1988-90	592	50	480	42	0	20	0	0	0	0	0
	1991-93	741	180	0	1	0	20	70	310	0	0	160
	1994-96	2201	90	0	281	0	20	1330	340	0	50	90
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	7	2	5	0	0	0	0	0	0	0	0
	1988-90	2	0	1	0	0	0	1	0	0	0	0
	1991-93	6	0	0	1	1	0	3	1	0	0	0
	1994-96	5	0	0	0	0	2	1	2	0	0	0
Other Surface Combatants ⁵	1985-87	14	4	3	0	0	0	0	7	0	0	0
	1988-90	16	3	8	0	2	0	3	0	0	0	0
	1991-93	19	0	0	0	1	0	17	0	0	1	0
	1994-96	8	0	0	2	4	0	0	2	0	0	0
Submarines	1985-87	5	2	0	0	0	0	0	3	0	0	0
	1988-90	7	1	0	0	1	0	3	2	0	0	0
	1991-93	5	0	0	0	0	0	4	1	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	502	180	0	272	0	0	10	10	0	30	0
	1988-90	494	120	0	264	0	30	30	0	0	20	30
	1991-93	259	30	0	189	0	10	30	0	0	0	0
	1994-96	167	20	10	87	10	10	10	0	0	0	20
Combat Aircraft, Subsonic	1985-87	71	20	0	41	10	0	0	0	0	0	0
	1988-90	17	0	0	7	10	0	0	0	0	0	0
	1991-93	60	0	0	0	10	0	50	0	0	0	0
	1994-96	39	0	0	39	0	0	0	0	0	0	0
Other Aircraft ⁶	1985-87	1263	30	1120	33	0	0	10	20	0	30	20
	1988-90	1268	0	680	28	0	0	0	30	0	510	20
	1991-93	699	0	10	39	30	20	20	70	0	510	0
	1994-96	141	0	10	11	0	10	0	20	0	60	30
Helicopters	1985-87	456	70	320	6	10	40	10	0	0	0	0
	1988-90	182	0	80	62	0	30	10	0	0	0	0
	1991-93	129	0	0	29	20	30	0	50	0	0	0
	1994-96	177	0	0	137	0	0	40	0	0	0	0
MISSILES												
Surface-to-Air	1985-87	8344	2960	200	764	770	2450	0	90	0	1110	0
	1988-90	7678	960	300	1388	200	3240	100	110	0	1380	0
	1991-93	3989	0	40	1419	0	2240	290	0	0	0	0
	1994-96	6221	220	0	1631	0	4290	0	30	0	50	0
Surface-to-Surface	1985-87	220	220	0	0	0	0	0	0	0	0	0
	1988-90	100	100	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	439	0	0	209	140	30	0	0	0	60	0
	1988-90	570	0	0	370	0	0	0	0	0	200	0
	1991-93	288	0	0	158	0	0	0	0	0	100	30
	1994-96	371	0	0	331	0	40	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
DEVELOPING												
LAND ARMAMENTS												
Tanks	1985-87	4589	2410	770	659	70	20	0	70	540	0	50
	1988-90	4358	3150	270	258	0	30	70	0	130	40	410
	1991-93	2739	920	300	469	70	60	170	0	380	0	370
	1994-96	2197	280	280	1217	20	80	0	20	140	10	150
Artillery, Field and Anti-Air ³	1985-87	10042	2880	120	1192	40	2720	0	430	1290	600	770
	1988-90	6667	2820	60	317	20	40	10	140	1800	860	600
	1991-93	12140	720	500	130	10	8790	0	410	1320	90	170
	1994-96	1968	500	210	238	40	40	130	40	160	420	190
Armored Personnel Carriers and Armored Cars	1985-87	8167	4690	960	307	10	540	50	390	760	60	400
	1988-90	6922	4600	890	452	20	260	0	0	370	10	320
	1991-93	4328	1480	210	708	70	40	530	950	20	70	250
	1994-96	7226	1280	760	3056	340	70	10	1510	40	100	60
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	32	11	3	0	3	4	6	2	1	2	0
	1988-90	26	7	0	0	2	2	4	4	1	6	0
	1991-93	20	4	0	0	3	1	8	0	4	0	0
	1994-96	50	0	0	6	17	0	24	0	3	0	0
Other Surface Combatants ⁵	1985-87	293	63	0	16	27	19	8	34	9	68	49
	1988-90	295	46	2	11	5	29	12	24	25	42	99
	1991-93	177	10	0	41	11	27	31	9	13	21	14
	1994-96	291	153	15	54	3	6	7	15	10	23	5
Submarines	1985-87	17	10	0	0	0	0	4	3	0	0	0
	1988-90	11	7	0	0	0	0	2	1	0	0	1
	1991-93	3	3	0	0	0	0	0	0	0	0	0
	1994-96	2	2	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	1	0	0	0	0	0	1	0	0	0	0
	1988-90	9	0	0	0	0	0	3	0	4	2	0
	1991-93	5	0	0	0	0	0	3	0	2	0	0
	1994-96	22	0	0	0	0	0	0	0	19	2	1
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	873	430	0	113	30	100	60	60	40	20	20
	1988-90	992	400	0	172	30	60	20	40	120	60	90
	1991-93	606	70	0	186	20	0	10	30	130	10	150
	1994-96	407	90	0	137	0	0	30	30	50	10	60
Combat Aircraft, Subsonic	1985-87	171	100	0	11	40	10	0	0	10	0	0
	1988-90	185	80	0	45	50	0	0	10	0	0	0
	1991-93	152	0	0	82	20	0	0	20	0	10	20
	1994-96	213	10	0	113	80	0	0	0	0	0	10
Other Aircraft ⁶	1985-87	1087	240	150	107	30	60	100	120	30	70	180
	1988-90	616	160	60	56	20	20	10	90	40	60	100
	1991-93	419	40	60	39	10	0	10	60	60	60	80
	1994-96	440	30	90	40	0	20	0	80	60	30	90
Helicopters	1985-87	1037	560	10	147	10	180	20	50	0	10	50
	1988-90	808	410	30	98	20	100	60	60	0	10	20
	1991-93	439	130	40	119	0	60	10	20	10	10	40
	1994-96	618	200	20	168	10	60	10	40	10	0	100
MISSILES												
Surface-to-Air	1985-87	16527	12640	0	407	1190	1150	0	50	500	550	40
	1988-90	9954	6330	110	664	90	520	150	140	410	40	1500
	1991-93	3664	960	300	504	0	1210	0	170	190	60	270
	1994-96	5590	1390	590	590	330	870	0	20	220	40	1540
Surface-to-Surface	1985-87	860	760	0	0	0	0	0	0	10	0	90
	1988-90	2040	1630	0	0	0	0	0	0	180	0	230
	1991-93	350	150	0	0	0	0	0	0	110	0	90
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	1076	410	0	46	40	400	0	0	180	0	0
	1988-90	885	440	0	35	0	200	0	0	150	50	10
	1991-93	215	70	0	55	0	30	0	0	60	0	0
	1994-96	375	0	0	125	0	70	0	0	180	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION ----- RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
NORTH AMERICA												
LAND ARMAMENTS												
Tanks	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	10	0	0	0	0	0	10	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Artillery, Field and Anti-Air ³	1985-87	8	0	0	8	0	0	0	0	0	0	0
	1988-90	81	0	0	21	0	20	0	30	0	10	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	30	0	0	20	0	10	0	0	0	0	0
Armored Personnel Carriers and Armored Cars	1985-87	80	0	0	0	0	80	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	370	0	0	0	0	0	0	360	0	10	0
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Surface Combatants ⁵	1985-87	1	0	0	1	0	0	0	0	0	0	0
	1988-90	2	0	0	0	0	0	2	0	0	0	0
	1991-93	4	0	0	0	0	0	4	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Submarines	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	1	0	0	0	1	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Combat Aircraft, Subsonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Aircraft ⁶	1985-87	60	0	0	30	0	0	10	0	20	0	0
	1988-90	19	0	0	19	0	0	0	0	0	0	0
	1991-93	30	0	0	0	0	0	0	0	30	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Helicopters	1985-87	10	0	0	0	0	10	0	0	0	0	0
	1988-90	20	0	0	0	0	0	20	0	0	0	0
	1991-93	33	0	0	33	0	0	0	0	0	0	0
	1994-96	13	10	0	3	0	0	0	0	0	0	0
MISSILES												
Surface-to-Air	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	32	0	0	32	0	0	0	0	0	0	0
	1994-96	127	0	0	127	0	0	0	0	0	0	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anti-Ship	1985-87	2	0	0	2	0	0	0	0	0	0	0
	1988-90	70	0	0	70	0	0	0	0	0	0	0
	1991-93	9	0	0	9	0	0	0	0	0	0	0
	1994-96	12	0	0	12	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION ----- RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOP- ED	OTHER DEVELOP- ING
	PERIOD											
SOUTH AMERICA												
LAND ARMAMENTS												
Tanks	1985-87	23	0	0	23	0	0	0	0	0	0	0
	1988-90	40	0	0	0	0	0	0	0	0	40	0
	1991-93	40	0	0	0	0	40	0	0	0	0	0
	1994-96	10	0	0	0	0	0	0	0	0	10	0
Artillery, Field and Anti-Air ³	1985-87	140	0	0	0	0	0	0	50	0	90	0
	1988-90	44	0	0	4	0	0	10	0	0	30	0
	1991-93	142	0	0	2	10	20	0	0	50	0	60
	1994-96	167	0	0	87	30	0	0	20	0	10	20
Armored Personnel Carriers and Armored Cars	1985-87	40	0	0	0	0	0	10	10	0	20	0
	1988-90	21	0	0	1	20	0	0	0	0	0	0
	1991-93	100	0	0	0	70	0	0	0	0	20	10
	1994-96	184	0	170	14	0	0	0	0	0	0	0
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	7	0	0	0	2	0	3	0	0	2	0
	1988-90	3	0	0	0	0	2	1	0	0	0	0
	1991-93	3	0	0	0	2	1	0	0	0	0	0
	1994-96	6	0	0	0	6	0	0	0	0	0	0
Other Surface Combatants ⁵	1985-87	5	0	0	0	0	0	0	2	0	0	3
	1988-90	13	0	0	7	0	0	0	0	0	6	0
	1991-93	15	0	0	11	0	0	4	0	0	0	0
	1994-96	27	0	0	11	0	0	2	10	0	4	0
Submarines	1985-87	1	0	0	0	0	0	1	0	0	0	0
	1988-90	1	0	0	0	0	0	1	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	2	0	0	0	0	0	0	0	0	2	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	2	0	0	0	0	0	0	0	0	2	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	28	0	0	18	0	10	0	0	0	0	0
	1988-90	46	0	0	26	0	0	0	10	0	10	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	40	0	0	0	0	0	0	30	0	0	10
Combat Aircraft, Subsonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	46	0	0	26	10	0	0	10	0	0	0
	1991-93	85	0	0	55	0	0	0	20	0	10	0
	1994-96	101	0	0	101	0	0	0	0	0	0	0
Other Aircraft ⁶	1985-87	165	20	0	25	0	20	0	20	0	0	80
	1988-90	79	0	0	19	0	10	0	20	0	0	20
	1991-93	104	0	0	24	0	0	0	20	10	10	40
	1994-96	23	10	0	3	0	0	0	10	0	0	0
Helicopters	1985-87	90	10	0	0	0	60	0	10	0	0	10
	1988-90	142	20	0	42	0	40	30	10	0	0	0
	1991-93	89	0	0	19	0	30	10	10	0	0	20
	1994-96	109	20	10	29	0	30	0	10	0	0	10
MISSILES												
Surface-to-Air	1985-87	60	0	0	0	60	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	270	0	0	0	0	0	0	0	0	60	210
	1994-96	1910	750	590	0	30	0	0	0	70	30	440
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	10	0	0	0	0	10	0	0	0	0	0
	1988-90	60	0	0	0	0	60	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	20	0	0	0	0	20	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER*	TOTAL	SOVIET UNION ----- RUSSIA*	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
CENTRAL AMERICA and CARIBBEAN												
LAND ARMAMENTS												
Tanks	1985-87	210	210	0	0	0	0	0	0	0	0	0
	1988-90	200	200	0	0	0	0	0	0	0	0	0
	1991-93	120	120	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Artillery, Field and Anti-Air ^f	1985-87	370	200	0	110	0	0	0	0	0	0	60
	1988-90	219	190	0	29	0	0	0	0	0	0	0
	1991-93	141	130	0	11	0	0	0	0	0	0	0
	1994-96	4	0	0	4	0	0	0	0	0	0	0
Armored Personnel Carriers and Armored Cars	1985-87	334	330	0	4	0	0	0	0	0	0	0
	1988-90	130	130	0	0	0	0	0	0	0	0	0
	1991-93	130	130	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
NAVAL CRAFT												
Major Surface Combatants ^d	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	1	1	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Surface Combatants ^e	1985-87	25	16	0	9	0	0	0	0	0	0	0
	1988-90	21	11	0	2	0	0	0	0	0	0	8
	1991-93	2	2	0	0	0	0	0	0	0	0	0
	1994-96	31	0	0	28	0	0	0	0	0	3	0
Submarines	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	10	10	0	0	0	0	0	0	0	0	0
	1988-90	22	10	0	12	0	0	0	0	0	0	0
	1991-93	10	10	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Combat Aircraft, Subsonic	1985-87	9	0	0	9	0	0	0	0	0	0	0
	1988-90	1	0	0	1	0	0	0	0	0	0	0
	1991-93	3	0	0	3	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Aircraft ^f	1985-87	76	30	10	16	0	0	0	10	0	0	10
	1988-90	36	20	0	6	0	0	0	0	0	0	10
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Helicopters	1985-87	107	60	0	47	0	0	0	0	0	0	0
	1988-90	50	30	0	10	0	0	0	0	0	10	0
	1991-93	6	0	0	6	0	0	0	0	0	0	0
	1994-96	14	0	0	14	0	0	0	0	0	0	0
MISSILES												
Surface-to-Air	1985-87	980	980	0	0	0	0	0	0	0	0	0
	1988-90	520	520	0	0	0	0	0	0	0	0	0
	1991-93	60	60	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	40	40	0	0	0	0	0	0	0	0	0
	1988-90	30	30	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER*	TOTAL	SOVIET UNION ----- RUSSIA*	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
WESTERN EUROPE												
LAND ARMAMENTS												
Tanks	1985-87	805	90	0	465	0	0	250	0	0	0	0
	1988-90	700	0	0	560	0	0	140	0	0	0	0
	1991-93	797	0	0	117	0	0	510	170	0	0	0
	1994-96	352	0	0	22	0	0	330	0	0	0	0
Artillery, Field and Anti-Air ^f	1985-87	10570	0	0	480	0	10080	0	0	0	0	10
	1988-90	10166	0	0	56	0	10000	0	20	0	90	0
	1991-93	973	0	0	33	0	0	750	170	0	20	0
	1994-96	613	10	0	73	140	10	370	0	0	0	10
Armored Personnel Carriers and Armored Cars	1985-87	63	0	0	23	20	0	20	0	0	0	0
	1988-90	57	10	0	27	0	20	0	0	0	0	0
	1991-93	1581	110	0	1	0	0	600	710	0	0	160
	1994-96	2079	140	0	249	0	0	1330	310	0	50	0
NAVAL CRAFT												
Major Surface Combatants ^d	1985-87	1	0	0	0	0	0	1	0	0	0	0
	1988-90	4	0	0	0	0	0	4	0	0	0	0
	1991-93	5	0	0	0	0	0	4	1	0	0	0
	1994-96	4	0	0	0	0	0	2	2	0	0	0
Other Surface Combatants ^e	1985-87	7	0	0	0	0	0	0	7	0	0	0
	1988-90	4	0	0	0	2	0	2	0	0	0	0
	1991-93	18	0	0	0	1	0	17	0	0	0	0
	1994-96	6	0	0	0	4	0	0	2	0	0	0
Submarines	1985-87	3	0	0	0	0	0	1	2	0	0	0
	1988-90	5	0	0	0	0	0	4	1	0	0	0
	1991-93	4	0	0	0	0	0	3	1	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	285	10	0	95	0	0	70	70	0	40	0
	1988-90	320	0	0	170	0	30	50	30	0	20	20
	1991-93	236	0	0	156	0	10	40	30	0	0	0
	1994-96	159	0	0	89	10	10	40	0	0	0	10
Combat Aircraft, Subsonic	1985-87	42	0	0	32	10	0	0	0	0	0	0
	1988-90	35	0	0	25	10	0	0	0	0	0	0
	1991-93	60	0	0	0	10	0	50	0	0	0	0
	1994-96	15	0	0	15	0	0	0	0	0	0	0
Other Aircraft ^f	1985-87	103	10	0	13	10	0	20	10	0	20	20
	1988-90	578	0	0	8	0	0	0	30	0	510	30
	1991-93	631	0	0	31	10	20	0	60	0	510	0
	1994-96	71	0	0	1	0	0	0	40	0	0	30
Helicopters	1985-87	65	0	0	25	10	10	10	10	0	0	0
	1988-90	101	0	0	51	0	30	10	10	0	0	0
	1991-93	101	10	0	41	0	0	0	50	0	0	0
	1994-96	180	10	0	120	0	20	10	20	0	0	0
MISSILES												
Surface-to-Air	1985-87	5572	550	0	322	1250	2450	0	90	0	910	0
	1988-90	6097	550	0	567	0	3240	250	110	0	1380	0
	1991-93	2168	0	0	578	0	1260	290	40	0	0	0
	1994-96	4620	20	0	580	0	3990	0	30	0	0	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	306	0	0	106	140	0	0	0	0	60	0
	1988-90	381	0	0	181	0	0	0	0	0	200	0
	1991-93	186	0	0	56	0	0	0	0	0	100	30
	1994-96	170	0	0	130	0	40	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION ----- RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
EASTERN EUROPE												
LAND ARMAMENTS												
Tanks	1985-87	640	220	420	0	0	0	0	0	0	0	0
	1988-90	50	0	50	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	205	100	0	45	0	0	0	0	0	0	60
Artillery, Field and Anti-Air ³	1985-87	750	460	290	0	0	0	0	0	0	0	0
	1988-90	70	10	60	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	540	0	150	0	0	0	0	0	0	310	80
Armored Personnel Carriers and Armored Cars	1985-87	4100	390	3710	0	0	0	0	0	0	0	0
	1988-90	530	50	480	0	0	0	0	0	0	0	0
	1991-93	150	100	50	0	0	0	0	0	0	0	0
	1994-96	450	180	100	80	0	0	0	0	0	0	90
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	8	3	5	0	0	0	0	0	0	0	0
	1988-90	2	1	1	0	0	0	0	0	0	0	0
	1991-93	2	2	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Surface Combatants ⁵	1985-87	10	7	3	0	0	0	0	0	0	0	0
	1988-90	14	6	8	0	0	0	0	0	0	0	0
	1991-93	6	4	0	0	0	0	2	0	0	0	0
	1994-96	7	0	0	0	0	0	2	4	0	1	0
Submarines	1985-87	6	6	0	0	0	0	0	0	0	0	0
	1988-90	1	1	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	3	0	0	0	0	0	3	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	200	200	0	0	0	0	0	0	0	0	0
	1988-90	200	180	0	0	0	0	0	0	0	0	20
	1991-93	30	30	0	0	0	0	0	0	0	0	0
	1994-96	30	20	10	0	0	0	0	0	0	0	0
Combat Aircraft, Subsonic	1985-87	60	60	0	0	0	0	0	0	0	0	0
	1988-90	10	10	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Aircraft ⁶	1985-87	1200	30	1170	0	0	0	0	0	0	0	0
	1988-90	690	0	690	0	0	0	0	0	0	0	0
	1991-93	60	0	30	0	0	0	30	0	0	0	0
	1994-96	34	0	20	4	0	0	0	0	0	10	0
Helicopters	1985-87	400	80	320	0	0	0	0	0	0	0	0
	1988-90	100	20	80	0	0	0	0	0	0	0	0
	1991-93	10	0	0	0	0	0	0	0	0	0	10
	1994-96	60	0	10	0	0	0	40	10	0	0	0
MISSILES												
Surface-to-Air	1985-87	3020	2820	200	0	0	0	0	0	0	0	0
	1988-90	810	510	300	0	0	0	0	0	0	0	0
	1991-93	40	0	40	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Surface-to-Surface	1985-87	380	380	0	0	0	0	0	0	0	0	0
	1988-90	100	100	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anti-Ship	1985-87	60	60	0	0	0	0	0	0	0	0	0
	1988-90	50	0	0	0	0	0	0	0	0	50	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ^a	TOTAL	SOVIET UNION ----- RUSSIA ^a	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
EAST ASIA												
LAND ARMAMENTS												
Tanks	1985-87	169	110	0	29	0	0	0	0	30	0	0
	1988-90	99	20	0	59	0	0	0	0	20	0	0
	1991-93	124	0	0	54	0	0	0	0	60	10	0
	1994-96	239	10	90	129	0	0	0	0	10	0	0
Artillery, Field and Anti-Air ^b	1985-87	622	310	0	192	0	0	0	0	50	70	0
	1988-90	475	90	0	175	20	0	0	0	120	50	20
	1991-93	227	10	0	27	0	30	0	0	110	50	0
	1994-96	228	0	0	98	0	50	0	0	40	20	20
Armored Personnel Carriers and Armored Cars	1985-87	1044	470	0	394	0	0	0	80	100	0	0
	1988-90	435	60	0	35	0	30	0	0	310	0	0
	1991-93	118	10	0	18	10	20	0	0	20	40	0
	1994-96	353	10	30	113	100	20	10	0	0	70	0
NAVAL CRAFT												
Major Surface Combatants ^c	1985-87	4	0	0	0	0	0	2	2	0	0	0
	1988-90	4	0	0	0	0	0	0	4	0	0	0
	1991-93	12	0	0	0	1	0	7	0	4	0	0
	1994-96	28	0	0	1	0	2	23	0	2	0	0
Other Surface Combatants ^d	1985-87	31	18	0	0	2	0	1	4	0	6	0
	1988-90	44	9	0	0	0	0	2	2	6	22	3
	1991-93	34	0	0	8	0	0	9	0	4	13	0
	1994-96	24	9	0	9	0	0	0	0	0	6	0
Submarines	1985-87	1	0	0	0	0	0	0	1	0	0	0
	1988-90	1	0	0	0	0	0	0	1	0	0	0
	1991-93	1	0	0	0	0	0	1	0	0	0	0
	1994-96	2	2	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	4	0	0	0	0	0	0	0	4	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	182	70	0	102	0	0	0	0	0	0	10
	1988-90	204	60	0	124	0	0	0	0	10	0	10
	1991-93	74	30	0	34	0	0	0	0	10	0	0
	1994-96	152	50	0	42	0	0	0	0	50	0	10
Combat Aircraft, Subsonic	1985-87	11	0	0	11	0	0	0	0	0	0	0
	1988-90	30	30	0	0	0	0	0	0	0	0	0
	1991-93	24	0	0	24	0	0	0	0	0	0	0
	1994-96	86	0	0	36	50	0	0	0	0	0	0
Other Aircraft ^e	1985-87	100	30	0	20	0	20	10	10	0	10	0
	1988-90	57	10	10	27	0	0	0	10	0	0	0
	1991-93	112	10	0	22	20	0	0	20	10	20	10
	1994-96	144	0	40	14	0	0	0	50	30	0	10
Helicopters	1985-87	112	30	0	52	0	30	0	0	0	0	0
	1988-90	104	30	0	54	10	10	0	0	0	0	0
	1991-93	153	40	40	13	10	40	0	0	0	10	0
	1994-96	55	20	0	25	10	0	0	0	0	0	0
MISSILES												
Surface-to-Air	1985-87	1740	870	0	240	580	0	0	50	0	0	0
	1988-90	1781	240	0	821	290	90	0	140	200	0	0
	1991-93	1938	260	0	578	0	990	0	0	90	0	20
	1994-96	1661	460	0	681	0	350	0	20	100	50	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	145	0	0	115	0	30	0	0	0	0	0
	1988-90	104	0	0	104	0	0	0	0	0	0	0
	1991-93	134	0	0	94	0	0	0	0	40	0	0
	1994-96	295	0	0	255	0	10	0	0	30	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION ----- RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
CENTRAL ASIA and CAUCASUS												
LAND ARMAMENTS												
Tanks	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	50	0	0	0	0	0	0	0	0	0	50
	1994-96	210	110	0	0	0	0	0	0	0	0	100
Artillery, Field and Anti-Air ³	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	90	90	0	0	0	0	0	0	0	0	0
Armored Personnel Carriers and Armored Cars	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	50	50	0	0	0	0	0	0	0	0	0
	1994-96	50	50	0	0	0	0	0	0	0	0	0
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Surface Combatants ⁵	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	4	0	0	1	0	0	3	0	0	0	0
Submarines	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	30	20	0	0	0	0	0	0	0	0	10
Combat Aircraft, Subsonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	10	10	0	0	0	0	0	0	0	0	0
Other Aircraft ⁶	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	20	10	0	0	0	0	0	0	0	0	10
Helicopters	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	10	10	0	0	0	0	0	0	0	0	0
	1994-96	10	0	0	0	0	0	0	0	0	0	10
MISSILES												
Surface-to-Air	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	50	50	0	0	0	0	0	0	0	0	0
	1994-96	300	300	0	0	0	0	0	0	0	0	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anti-Ship	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION ----- RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
SOUTH ASIA												
LAND ARMAMENTS												
Tanks	1985-87	1235	1030	0	65	0	0	0	0	140	0	0
	1988-90	1890	1780	0	0	0	0	0	0	110	0	0
	1991-93	830	330	40	0	0	0	0	0	320	0	140
	1994-96	180	0	20	0	0	0	0	0	130	0	30
Artillery, Field and Anti-Air ³	1985-87	824	660	0	94	0	0	0	20	0	40	10
	1988-90	2478	1680	0	118	0	0	0	20	130	530	0
	1991-93	760	440	100	0	0	0	0	0	180	0	40
	1994-96	484	340	0	24	0	0	0	0	100	0	20
Armored Personnel Carriers and Armored Cars	1985-87	1770	1730	0	0	0	0	0	0	0	40	0
	1988-90	3720	3590	0	110	0	0	0	0	20	0	0
	1991-93	960	890	0	0	0	0	0	0	0	0	70
	1994-96	140	10	0	0	20	0	0	20	40	0	50
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	7	3	3	0	1	0	0	0	0	0	0
	1988-90	14	5	0	0	2	0	0	0	1	6	0
	1991-93	1	0	0	0	1	0	0	0	0	0	0
	1994-96	11	0	0	0	10	0	0	0	1	0	0
Other Surface Combatants ⁵	1985-87	30	1	0	0	10	0	0	0	5	14	0
	1988-90	33	6	0	1	0	0	0	6	11	9	0
	1991-93	15	2	0	5	0	1	0	0	4	0	3
	1994-96	13	0	0	3	1	1	0	0	5	3	0
Submarines	1985-87	7	2	0	0	0	0	2	3	0	0	0
	1988-90	7	6	0	0	0	0	0	1	0	0	0
	1991-93	1	1	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	4	0	0	0	0	0	0	0	4	0	0
	1991-93	2	0	0	0	0	0	0	0	2	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	211	130	0	11	0	50	0	0	20	0	0
	1988-90	310	130	0	0	0	0	0	0	100	40	40
	1991-93	90	10	0	0	0	0	0	0	50	0	30
	1994-96	40	10	0	0	0	0	0	0	0	10	20
Combat Aircraft, Subsonic	1985-87	10	10	0	0	0	0	0	0	0	0	0
	1988-90	20	10	0	0	10	0	0	0	0	0	0
	1991-93	10	0	0	0	10	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Aircraft ⁶	1985-87	170	110	10	0	0	10	10	10	20	0	0
	1988-90	130	100	0	0	0	0	0	10	10	10	0
	1991-93	60	20	0	0	0	0	0	10	30	0	0
	1994-96	55	0	10	15	0	0	0	0	20	0	10
Helicopters	1985-87	146	130	0	6	0	10	0	0	0	0	0
	1988-90	180	160	0	0	10	10	0	0	0	0	0
	1991-93	70	50	0	0	0	20	0	0	0	0	0
	1994-96	70	30	0	0	0	0	0	0	10	0	30
MISSILES												
Surface-to-Air	1985-87	1800	900	0	0	0	150	0	0	200	550	0
	1988-90	4141	3990	0	101	0	0	0	0	10	40	0
	1991-93	740	440	300	0	0	0	0	0	0	0	0
	1994-96	930	80	0	0	0	780	0	0	50	20	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	1510	1510	0	0	0	0	0	0	0	0	0
	1991-93	180	150	0	0	0	0	0	0	30	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	146	110	0	16	20	0	0	0	0	0	0
	1988-90	256	220	0	16	0	20	0	0	0	0	0
	1991-93	40	40	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ^a	TOTAL	SOVIET UNION ----- RUSSIA ^a	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
MIDDLE EAST												
LAND ARMAMENTS												
Tanks	1985-87	1977	450	560	527	0	20	0	20	360	0	40
	1988-90	1044	630	80	94	0	20	0	0	0	0	220
	1991-93	1196	430	250	356	0	20	20	0	0	0	120
	1994-96	1492	40	170	1172	20	70	0	20	0	0	0
Artillery, Field and Anti-Air ^b	1985-87	5376	310	40	236	40	2520	0	100	1210	350	570
	1988-90	2025	500	50	25	0	0	0	100	980	210	160
	1991-93	10059	120	320	159	0	8770	0	400	200	40	50
	1994-96	256	30	20	96	0	0	0	20	20	70	0
Armored Personnel Carriers and Armored Cars	1985-87	3549	1200	830	199	0	190	0	160	660	0	310
	1988-90	1725	460	770	275	0	20	0	0	0	0	200
	1991-93	1597	290	0	687	0	20	0	550	0	0	50
	1994-96	4426	390	0	2816	190	0	0	1030	0	0	0
NAVAL CRAFT												
Major Surface Combatants ^d	1985-87	8	3	0	0	0	4	0	0	1	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	1	1	0	0	0	0	0	0	0	0	0
	1994-96	4	0	0	3	1	0	0	0	0	0	0
Other Surface Combatants ^e	1985-87	113	13	0	0	9	0	6	10	0	46	29
	1988-90	110	5	2	0	3	26	10	1	0	2	61
	1991-93	66	1	0	17	11	26	7	0	0	4	0
	1994-96	164	144	15	0	2	3	0	0	0	0	0
Submarines	1985-87	3	3	0	0	0	0	0	0	0	0	0
	1988-90	1	0	0	0	0	0	0	0	0	0	1
	1991-93	2	2	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	1	0	0	0	0	0	1	0	0	0	0
	1988-90	3	0	0	0	0	0	3	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	15	0	0	0	0	0	0	0	15	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	288	110	0	118	20	30	0	0	10	0	0
	1988-90	248	80	0	58	30	60	0	0	10	0	10
	1991-93	404	30	0	174	20	0	0	0	60	0	120
	1994-96	98	0	0	68	0	0	0	0	10	0	20
Combat Aircraft, Subsonic	1985-87	70	40	0	0	30	0	0	0	0	0	0
	1988-90	40	20	0	0	20	0	0	0	0	0	0
	1991-93	10	0	0	0	0	0	0	0	0	0	10
	1994-96	30	0	0	0	30	0	0	0	0	0	0
Other Aircraft ^f	1985-87	192	40	0	32	20	0	0	10	0	20	70
	1988-90	193	10	20	3	20	0	0	20	20	50	50
	1991-93	51	0	20	1	0	0	0	0	0	0	30
	1994-96	103	0	30	3	0	20	0	0	0	0	50
Helicopters	1985-87	283	130	0	23	10	60	10	10	0	0	40
	1988-90	193	120	0	3	0	20	20	20	0	0	10
	1991-93	56	20	0	36	0	0	0	0	0	0	0
	1994-96	144	20	10	94	0	0	0	0	0	0	20
MISSILES												
Surface-to-Air	1985-87	6607	5300	0	157	0	850	0	0	300	0	0
	1988-90	3706	1260	110	466	0	430	0	0	200	0	1240
	1991-93	2195	20	0	735	0	1200	0	130	70	0	40
	1994-96	932	0	0	602	300	0	0	0	0	0	30
Surface-to-Surface	1985-87	690	590	0	0	0	0	0	0	10	0	90
	1988-90	530	120	0	0	0	0	0	0	180	0	230
	1991-93	170	0	0	0	0	0	0	0	80	0	90
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	608	50	0	8	20	350	0	0	180	0	0
	1988-90	452	170	0	2	0	120	0	0	150	0	10
	1991-93	114	20	0	44	0	30	0	0	20	0	0
	1994-96	238	0	0	48	0	40	0	0	150	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION ----- RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOP-ED	OTHER DEVELOP-ING
	PERIOD											
NORTH AFRICA												
LAND ARMAMENTS												
Tanks	1985-87	289	120	70	99	0	0	0	0	0	0	0
	1988-90	305	90	110	105	0	0	0	0	0	0	0
	1991-93	60	0	0	60	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Artillery, Field and Anti-Air ³	1985-87	707	250	60	57	0	140	0	200	0	0	0
	1988-90	80	50	10	0	0	20	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Armored Personnel Carriers and Armored Cars	1985-87	640	370	70	0	0	100	0	100	0	0	0
	1988-90	270	150	110	0	0	10	0	0	0	0	0
	1991-93	10	0	0	0	0	10	0	0	0	0	0
	1994-96	620	160	400	60	0	0	0	0	0	0	0
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	4	4	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	2	0	0	2	0	0	0	0	0	0	0
Other Surface Combatants ⁵	1985-87	13	1	0	0	6	3	0	3	0	0	0
	1988-90	18	0	0	0	0	0	13	5	0	0	0
	1991-93	11	0	0	0	0	9	0	2	0	0	0
	1994-96	5	0	0	1	0	1	0	3	0	0	0
Submarines	1985-87	1	1	0	0	0	0	0	0	0	0	0
	1988-90	1	1	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	18	10	0	8	0	0	0	0	0	0	0
	1988-90	29	20	0	9	0	0	0	0	0	0	0
	1991-93	5	0	0	5	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Combat Aircraft, Subsonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Aircraft ⁶	1985-87	100	0	50	0	0	0	50	0	0	0	0
	1988-90	10	0	0	0	0	0	10	0	0	0	0
	1991-93	20	0	10	0	10	0	0	0	0	0	0
	1994-96	21	0	20	1	0	0	0	0	0	0	0
Helicopters	1985-87	60	50	0	0	0	10	0	0	0	0	0
	1988-90	40	10	30	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	70	40	0	20	0	10	0	0	0	0	0
MISSILES												
Surface-to-Air	1985-87	1200	1170	0	0	0	30	0	0	0	0	0
	1988-90	80	80	0	0	0	0	0	0	0	0	0
	1991-93	130	130	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anti-Ship	1985-87	130	80	0	0	0	50	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ¹	TOTAL	SOVIET UNION ----- RUSSIA ²	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
CENTRAL AFRICA												
LAND ARMAMENTS												
Tanks	1985-87	360	240	0	0	70	0	0	50	0	0	0
	1988-90	470	180	90	0	0	0	0	0	0	0	200
	1991-93	120	0	0	0	70	0	0	0	0	0	50
	1994-96	20	0	0	0	0	0	0	0	0	0	20
Artillery, Field and Anti-Air ³	1985-87	703	220	10	113	0	50	0	60	30	100	120
	1988-90	1130	220	0	0	0	0	0	0	490	0	420
	1991-93	820	0	20	0	0	0	0	10	780	0	10
	1994-96	41	0	0	1	0	0	0	0	0	0	40
Armored Personnel Carriers and Armored Cars	1985-87	699	270	60	49	10	170	20	40	0	0	80
	1988-90	451	100	10	21	10	190	0	0	40	0	80
	1991-93	120	0	0	0	0	0	0	0	0	10	110
	1994-96	105	0	0	5	0	70	0	0	0	20	10
NAVAL CRAFT												
Major Surface Combatants ⁴	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	1	1	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Surface Combatants ⁵	1985-87	49	5	0	6	0	15	1	15	2	0	5
	1988-90	45	9	0	1	2	3	1	0	3	0	26
	1991-93	14	1	0	0	0	0	0	0	3	1	9
	1994-96	13	0	0	1	0	1	0	1	2	3	5
Submarines	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	1	0	0	0	0	0	0	0	0	0	1
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	20	10	0	0	10	0	0	0	0	0	0
	1988-90	40	10	0	0	0	0	0	0	10	0	20
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Combat Aircraft, Subsonic	1985-87	30	10	0	0	0	10	0	0	10	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Aircraft ⁶	1985-87	104	0	30	4	0	10	10	40	0	0	10
	1988-90	62	10	10	2	0	0	0	10	10	0	20
	1991-93	20	0	10	0	0	0	0	0	10	0	0
	1994-96	14	0	0	4	0	0	0	0	0	10	0
Helicopters	1985-87	100	60	0	0	0	20	0	10	0	0	10
	1988-90	10	0	0	0	0	0	0	0	0	0	10
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	40	10	0	0	0	0	0	10	0	0	20
MISSILES												
Surface-to-Air	1985-87	1563	1050	0	353	0	120	0	0	0	0	40
	1988-90	157	0	0	97	0	0	0	0	0	0	60
	1991-93	30	0	0	0	0	0	0	0	30	0	0
	1994-96	40	0	0	0	0	40	0	0	0	0	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anti-Ship	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	20	20	0	0	0	0	0	0	0	0	0
	1991-93	1	0	0	1	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER ^a	TOTAL	SOVIET UNION ----- RUSSIA ^a	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
SOUTHERN AFRICA												
LAND ARMAMENTS												
Tanks	1985-87	80	70	0	0	0	0	0	0	0	0	10
	1988-90	260	250	0	0	0	10	0	0	0	0	0
	1991-93	40	30	10	0	0	0	0	0	0	0	0
	1994-96	50	40	0	0	0	10	0	0	0	0	0
Artillery, Field and Anti-Air ^b	1985-87	700	690	0	0	10	0	0	0	0	0	0
	1988-90	182	100	0	2	0	0	0	0	80	0	0
	1991-93	80	20	60	0	0	0	0	0	0	0	0
	1994-96	81	30	40	1	10	0	0	0	0	0	0
Armored Personnel Carriers and Armored Cars	1985-87	284	270	0	4	0	0	0	0	0	0	10
	1988-90	190	120	0	10	0	10	0	0	0	10	40
	1991-93	233	80	150	3	0	0	0	0	0	0	0
	1994-96	530	430	60	0	40	0	0	0	0	0	0
NAVAL CRAFT												
Major Surface Combatants ^c	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Surface Combatants ^d	1985-87	21	6	0	0	0	1	0	0	2	0	12
	1988-90	5	3	0	0	0	0	0	0	0	1	1
	1991-93	7	0	0	0	0	0	0	5	0	0	2
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Submarines	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	70	60	0	0	0	0	0	0	10	0	0
	1988-90	40	30	0	0	0	0	0	0	0	0	10
	1991-93	20	0	0	0	0	0	0	0	10	10	0
	1994-96	13	0	0	13	0	0	0	0	0	0	0
Combat Aircraft, Subsonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	20	10	0	0	10	0	0	0	0	0	0
	1991-93	10	0	0	0	10	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Aircraft ^e	1985-87	50	10	0	0	0	0	0	20	10	10	0
	1988-90	30	10	0	0	0	0	0	20	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	73	0	0	3	0	0	0	0	0	60	10
Helicopters	1985-87	130	90	0	0	0	30	0	10	0	0	0
	1988-90	40	30	0	0	0	10	0	0	0	0	0
	1991-93	10	0	0	0	0	0	0	10	0	0	0
	1994-96	40	30	0	0	0	0	0	0	0	0	10
MISSILES												
Surface-to-Air	1985-87	1970	1960	0	0	10	0	0	0	0	0	0
	1988-90	350	150	0	0	0	0	0	0	0	0	200
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	1080	0	0	0	0	0	0	0	0	0	1080
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anit-Ship	1985-87	80	80	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period - continued

WEAPON TYPE	SUPPLIER*	TOTAL	SOVIET UNION ----- RUSSIA*	OTHER WARSAW PACT	UNITED STATES	UNITED KINGDOM	FRANCE	GERMANY	OTHER NATO	CHINA	OTHER DEVELOPED	OTHER DEVELOPING
	PERIOD											
OCEANIA												
LAND ARMAMENTS												
Tanks	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Artillery, Field and Anti-Air ^f	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	10	0	0	0	0	0	0	0	0	10	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Armored Personnel Carriers and Armored Cars	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	15	0	0	15	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	130	0	0	0	0	0	130	0	0	0	0
NAVAL CRAFT												
Major Surface Combatants ^d	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	1	0	0	1	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Surface Combatants ^e	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	2	0	0	0	0	0	0	0	0	2	0
	1991-93	4	0	0	0	0	0	0	0	0	4	0
	1994-96	5	0	0	2	0	0	0	0	0	3	0
Submarines	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Missile Attack Boats	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
AIRCRAFT												
Combat Aircraft, Supersonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	37	0	0	37	0	0	0	0	0	0	0
	1991-93	6	0	0	6	0	0	0	0	0	0	0
	1994-96	12	0	0	12	0	0	0	0	0	0	0
Combat Aircraft, Subsonic	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Other Aircraft ^f	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	20	0	0	0	0	0	0	20	0	0	0
	1994-96	3	0	0	3	0	0	0	0	0	0	0
Helicopters	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
MISSILES												
Surface-to-Air	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	231	0	0	231	0	0	0	0	0	0	0
Surface-to-Surface	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	0	0	0	0	0	0	0	0	0	0	0
	1991-93	0	0	0	0	0	0	0	0	0	0	0
	1994-96	0	0	0	0	0	0	0	0	0	0	0
Anti-Ship	1985-87	0	0	0	0	0	0	0	0	0	0	0
	1988-90	32	0	0	32	0	0	0	0	0	0	0
	1991-93	9	0	0	9	0	0	0	0	0	0	0
	1994-96	11	0	0	11	0	0	0	0	0	0	0

TABLE V. Number of Major Weapons Delivered to Regions and Groups, By Supplier and Weapon Type, Cumulative by Period — continued

0 Nil or Negligible

^a Suppliers include the six largest exporters of major weapons, as well as other major groups.

^b Soviet weapon deliveries ended in 1991 in the main, although a small number were delivered in 1992 under prior-year

agreement and are attributed here to Russia.

^c Air defense artillery includes weapons over 23mm. Field artillery includes mobile rocket launchers, mortars, and recoilless rifles over 100mm.

^d Major surface combatants include aircraft carriers, cruisers, destroyers, destroyer escorts, and frigates.

^e Other surface combatants include motor torpedo boats, subchasers, and minesweepers.

^f Other aircraft include reconnaissance aircraft, trainers, transports, and utility aircraft.

APPENDIX C

Statistical Notes

These notes define the country groupings and variables employed in the Statistical Tables, identify the sources of information, and explain the methods of handling data. A primary aim is to inform the reader of the main qualifications to the data, much of which is not as accurate and reliable as uniform presentation in statistical tables may imply. This is particularly true of the data on military expenditures, armed forces, and arms transfers, which in many countries are subject to severe limitations of incompleteness, ambiguity, or total absence due to governmental secrecy.

Coverage and Groups of Countries

The statistical tables report data for 172 countries (167 in 1995), including most members of the United Nations as well as nonmembers Switzerland and Taiwan. UN members not covered are generally small and not considered militarily significant; relevant data for them are frequently unavailable.³⁸¹

Countries are grouped into normally defined *geographical regions* with the following exceptions: Egypt is assigned to the Middle East rather than to Africa; and Oceania includes only Australia, New Zealand, Papua New Guinea, and Fiji. Note the following redefined and new regions beginning with *WMEAT 1993-1994*: Mexico has been added to Canada and the United States to form *North America* in the "NAFTA" sense; *Central America and the Caribbean* and *South America* replace Latin America; *Central Asia and the Caucasus* contains eight republics from the former Soviet Union (since 1992); *Western Europe* consists of NATO Europe plus Austria, Finland, Ireland, Malta, Sweden, and Switzerland; *Eastern Europe* contains the former Warsaw Pact countries plus Albania and the successors to Yugoslavia and the Soviet Union, except those republics from the latter that are detached to Central Asia and Caucasus. A full listing of specific countries in each region may be found in Main Statistical Table III (pages 151 - 155).

The following political and economic groups are included: NATO, the (former) Warsaw Pact, OPEC, and OECD. *NATO (North Atlantic Treaty Organization)* consists of Belgium, Canada, Denmark, France, West Germany, Greece, Iceland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Turkey, the United Kingdom, and the United States. Spain joined in 1982, and its membership has since been reaffirmed. Although its participation is limited and still evolving, Spain has been included in the NATO grouping since *WMEAT 1991-1992*. France also limits its military participation (since 1966), but is traditionally associated with NATO and is therefore included in the group. The *Warsaw Pact* was formally dissolved on July 1, 1991. It consisted of Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, and the Soviet Union. *OPEC (Organization of Petroleum Exporting Countries)* includes Algeria, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela. *OECD (Organization for Economic Cooperation and Development)* comprises the NATO countries and Australia, Austria, Czech Republic, Finland, Hungary, Ireland, Japan, Mexico, New Zealand, Sweden, and Switzerland.

The 33-country *developed* group was revised in the 1995 edition (primarily on the basis of GNP per capita) by shifting the Czech and Slovak Republics, Greece, Israel, Singapore, South Korea, and Taiwan from the developing group to the developed, and Romania from developed to developing. The developed group in this edition includes the following countries: all Western Europe except Malta and Turkey; in Eastern Europe, all former Warsaw Pact

³⁸¹The UN member countries as of 1995 not covered are Andorra, Antigua and Barbuda, the Bahamas, Comoros, Dominica, Grenada, Liechtenstein, Maldives, Marshall Islands, Micronesia, Monaco, Montserrat, Palau, Saint Christopher and Nevis, Saint Lucia, Saint Vincent and the Grenadines, San Marino, Seychelles, Solomon Islands, Vanuatu, and Western Samoa. Also excluded are: nonmember countries Kiribati, Nauru, Tonga, and The Holy See; the territory with unresolved sovereignty of Western Sahara; the dependencies and areas of special sovereignty of Bermuda, Hong Kong, Macau, Puerto Rico, and numerous others, many being very small islands in the Atlantic and Pacific Oceans.

members (including Czechoslovakia's successors and Russia) except Bulgaria, Romania, and the successor states to the Soviet Union other than Russia; in East Asia, Japan, Singapore, South Korea, and Taiwan; in Oceania, Australia and New Zealand; and Israel and South Africa. The specific countries in each region classed as developed are so designated in Main Statistical Table III (pages 151 - 155). All other countries are classified as *developing*. Besides the newly independent and transitioning economies except Russia coming out of the Soviet Union and Yugoslavia, this developing group includes: the other recently or presently communist countries of Albania, Bulgaria, Cambodia, Mainland China, Cuba, Laos, Mongolia, North Korea, Romania, and Vietnam; all countries in: Africa except South Africa, Central Asia and Caucasus, Central America and the Caribbean, South America, South Asia, and the Middle East except Israel; the rest of East Asia other than Japan, Singapore, South Korea, and China Taiwan; Fiji and Papua New Guinea in Oceania; and Malta and Turkey in Western Europe.

Most of the data are for calendar years. For some countries, however, expenditure data are available only for fiscal years which diverge from calendar years. In such cases, the fiscal year which contains the most months of a given calendar year is assigned to that year; e.g., data for the fiscal year April 1994 through March 1995 would be shown under 1994. Data for fiscal years ending on June 30 are normally entered under the calendar year in which they end.

Sources and Definitions

Military Expenditures

For NATO countries, military expenditures are from NATO publications and are based on the NATO definition. In this definition, (a) civilian-type expenditures of the defense ministry are excluded and military-type expenditures of other ministries are included; (b) grant military assistance is included in the expenditures of the donor country; and (c) purchases of military equipment for credit are included at the time the debt is incurred, not at the time of payment.

For other non-communist countries, data are generally the expenditures of the ministry of defense. When these are known to include the costs of internal security, an attempt is made to remove these expenditures. A wide variety of data sources is used for these countries, including the publications and data resources of other US government agencies, standardized reporting to the United Nations by country, and other international sources.

It should be recognized by users of the statistical tables that the military expenditure data are of uneven accuracy and completeness. For example, there are indications or reasons to believe that the military expenditures reported by some countries consist mainly or entirely of recurring or operating expenditures and omit all or most capital expenditures, including arms purchases. In the case of several countries (Algeria, Chile, Cuba, Ecuador, Egypt, Iraq, Iran, Libya, Nigeria, and Syria), special note of this possibility is made in Table I.

In some of these cases (as indicated in the footnotes of Table I), it is believed that a better estimate of total military expenditures is obtained by adding to nominal military expenditures the value of arms imports (as shown in Table II and converted to local currency by current exchange rates). It must be cautioned, however, that this method may over- or underestimate the actual expenditures in a given year due to the fact that payment for arms may not coincide in time with deliveries, which the data in Table II reflect. Also, arms acquisitions in some cases may be financed by, or consist of grants from, other countries.

In Statistical Table I, the symbol "E" denotes rough estimates such as those described above and others made on the basis of partial or uncertain data. In a few cases of particular interest, very rough estimates are also shown, marked with the symbol "R". It should be understood that these estimates are based on scant information and are subject to a wide range of error. For countries that have major clandestine nuclear or other military weapons development programs, such as Iraq, estimation of military expenditures is extremely difficult and especially subject to errors of underestimation.

Further improvements in the quality of the military expenditure data presented for countries throughout the world will be difficult to achieve without better reporting by the countries themselves. As has been noted elsewhere, "There is growing evidence that important amounts of security expenditures may not enter the accounts or the

national budgets of many developing countries.”³⁸² Among the mechanisms commonly used to obscure such expenditures are: double-bookkeeping, use of extra-budgetary accounts, highly aggregated budget categories, military assistance, and manipulation of foreign exchange.

Particular problems arise in estimating the military expenditures of communist countries due to the exceptional scarcity and ambiguity of released information. As in past editions of this publication, data on the military expenditures of the Soviet Union are based on Central Intelligence Agency (CIA) estimates. For most of the series, these are estimates of what it would cost in the United States in dollars to develop, procure, staff, and operate a military force similar to that of the Soviet Union.³⁸³ Estimates of this type—that is, those based entirely on one country’s price pattern—generally overstate the relative size of the second country’s expenditures in intercountry comparisons.³⁸⁴ Also, such estimates are not consistent with the methods used here for converting other countries’ expenditures into dollars.³⁸⁵

Nevertheless, the basic CIA estimates are the best available for present purposes; in fact, there are no alternative estimates that can inspire confidence and have the capability to detect relatively small changes over time, such as the slowdown and decline in Soviet military spending that the CIA estimates have indicated. Soviet estimates for the most recent years are based on the change in the index of CIA-estimated military expenditures in ruble terms, as reported in the Joint Economic Committee of Congress series, *Allocation of Resources in the Soviet Union and China, op. cit.*

For Russia, estimated military spending trends in rubles are used in conjunction with dollar estimates for earlier years to make very rough estimates of spending in dollars. (See also the section on the ME/GNP ratio, below.)

For former Warsaw Pact countries other than the Soviet Union, the estimates of military expenditures through 1989 are from Thad P. Alton *et al.*³⁸⁶ These estimates cover the officially announced state budget expenditures on

³⁸²Nicole Ball, “Measuring Third World Security Expenditure: A Research Note,” *World Development*, February 1984, pp. 157-164 (Pergamon Press, London).

³⁸³See CIA, *Soviet and US Defense Activities, 1971-80: A Dollar Cost Comparison*, January 1981. The CIA dollar estimates as shown in this source have been updated and augmented by estimated retirement pay at US rates in order to improve comparability with expenditures by NATO countries, which include retirement pay.

³⁸⁴This tendency is widely recognized in both government and non-government circles. For detailed commentaries by academic and government witnesses on this and other problems in estimating and comparing Soviet military expenditures, see the series of Hearings held before the Subcommittee on National Security Economics and the Subcommittee on Technology and National Security, Joint Economic Committee, Congress of the United States, *Allocation of Resources in the Soviet Union and China*. See also Hearing before the Subcommittee on Oversight of the Permanent Select Committee on Intelligence, Congress of the United States, “CIA Estimates of Soviet Defense Spending,” Ninety-Sixth Congress, Second Session; Donald F. Burton. “Estimating Soviet Defense Spending,” *Problems of Communism*, March-April 1983; and Richard F. Kaufman. “Causes of the Slowdown in Soviet Defense” (with comments by others), *Soviet Economy*, January-March 1985.

³⁸⁵An alternative series employing the same basic data but reflecting both the US and Soviet price patterns was provided in previous editions of this publication. See table captioned “Alternative Estimates of Soviet Military Expenditures,” *World Military Expenditures and Arms Transfers 1969-1978*, p.27; and the essay, “Soviet Military Expenditures,” *World Military Expenditures and Arms Transfers 1968-1977*, pp. 13-19.

³⁸⁶The estimates are updates and substantial revisions of those in their article, “East European Military Expenditures, 1965-1978,” (published in the Joint Economic Committee of Congress Compendium, *East European*

national defense and thus understate total military expenditures to the extent of possible defense outlays by non-defense agencies of the central government, local governments, and economic enterprises. Possible subsidization of military procurement may also cause understatement. The dollar estimates were derived by calculating pay and allowances at the current full US average rates for officers and for lower ranks. After subtraction of pay and allowances, the remainder of the official defense budgets in national currencies was converted into dollars at overall rates based on comparisons of the various countries' GNPs expressed in dollars and in national currencies. The rates are based in part on the purchasing power parities (PPPs) estimated by the International Comparison Project of the United Nations, including their latest (Phase V) versions.

Estimates for these countries in 1990 and 1991 are based on total military spending in national currency as reported by the respective governments to the UN (in most cases) or the IMF. These expenditures in toto are converted to dollars at the Alton GNP conversion rates for 1989 as adjusted to 1991 by the respective US and national GNP deflators (per the World Bank), without estimating personnel compensation separately at US dollar rates, as was done for earlier years. The resulting military conversion rates (in national currency per dollar) are substantially higher than the implied rates for previous years, substantially lower than the 1991 market rate, and approximately the same as the implied rate for GNP (see below).

Estimates for the newly independent states of the former Soviet Union, Yugoslavia, and Czechoslovakia and other former Warsaw Pact countries present difficulties due to scarcity of reliable data in national currencies and to problems in converting to dollars. The basic method employed for most of these countries was to establish the ratio of military expenditures to GNP in national currency and then to multiply this ratio by the World Bank's estimate of GNP in dollars as converted to international dollars by estimated PPPs and reported in the *World Bank Atlas 1997*. This method implicitly converts military spending at the GNP-wide PPP, which, as with conversion by exchange rates, preserves the same ME/GNP ratio in dollars as obtains in national currency.

Data for China are based on US Government estimates of the yuan costs of Chinese forces, weapons, programs, and activities.³⁸⁷ Costs in yuan are here converted to dollars using the same estimated conversion rate as used for GNP (see below). Due to the exceptional difficulties in both estimating yuan costs and converting them to dollars, comparisons of Chinese military spending with other data should be treated as having a wide margin of error.

Other published sources used include the *Government Finance Statistics Yearbook*, issued by the International Monetary Fund; *The World Factbook*, produced annually by the Central Intelligence Agency; *The Military Balance*, issued by the International Institute for Strategic Studies (London); and the *SIPRI Yearbook: World Armaments and Disarmament*, issued by the Stockholm International Peace Research Institute.

For the benefit of users concerned with accuracy, table entries based on inadequate data and/or simplistic methods and yielding approximative estimates that are not fully comparable with those for earlier years are marked "R" for "rough estimate".

Gross National Product (GNP)

GNP represents the total output of goods and services produced by residents of a country, valued at market prices. The source of GNP data for most non-communist countries is the International Bank for Reconstruction and Development (World Bank).

Economic Assessment, Part 2, July 10, 1981, pp. 409-433) and particularly in their most recent Occasional Papers, Nos. 115-119 (published by the Research Project on National Income in East Central Europe).

³⁸⁷Edward P. Parris, *Chinese Estimated Expenditures, 1967-83*. (Defense Intelligence Agency), November 1984. See also the series of Hearings before the Subcommittee on Priorities and Economy in Government of the Joint Economic Committee, US Congress, "Allocation of Resources in the Soviet Union and China," op. cit.

For a number of countries whose GNP is dominated by oil exports (Bahrain, Kuwait, Libya, Oman, Qatar, Saudi Arabia, and the United Arab Emirates), the World Bank's estimate of deflated (or constant price) GNP in domestic currency tends to understate increases in the monetary value of oil exports, and thus of GNP, resulting from oil price increases. These World Bank estimates are designed to measure real (or physical) product. An alternative estimate of constant-price GNP was therefore obtained using the implicit price deflator³⁸⁸ for US GNP (for lack of a better national deflator). This is considered appropriate because a large share of the GNP of these countries is realized in US dollars.

GNP estimates of the Soviet Union are by the CIA, as published in its *Handbook of Economic Statistics 1990* and updated. GNP estimates for other Warsaw Pact countries through 1989 are from "East European Military Expenditures, 1965-1978" by Thad P. Alton and others, *op. cit.*, as updated and substantially revised by the authors. These estimates through 1989 have been extended to 1990 and 1991 on the basis of estimates for those years in the CIA's *Handbook of Economic Statistics, 1992*. Estimates of GNP in 1992-1994 for successor states to the Soviet Union, Yugoslavia, and Czechoslovakia are based on World Bank estimates of GNP per capita employing PPPs and of population, as published in the *World Bank Atlas 1997*.

GNP data for China are based on World Bank estimates in yuan. These are in line with estimates of GDP in Western accounting terms made by Chinese authorities. Converting estimates in yuan to dollars is highly problematic, however, due to the inappropriateness of the official exchange rate and lack of sufficient yuan price information by which to reliably estimate PPPs. (The ratio of the highest to the lowest estimates by various sources of China's GNP is on the order of 6 or 7 to 1, which would make the world rank of China's GNP vary between about 3rd or 4th and 12th.) The conversion rate used here is based on a PPP estimated for 1981³⁸⁹ and moved by respective US and China implicit GNP deflators to 1994.

GNP estimates for a few non-communist countries are from the CIA's *Handbook of Economic Statistics* cited above. Estimates for the other communist countries are rough approximations.

Military Expenditures-to-GNP Ratio

It should be noted that the meaning of the ratio of military expenditures to GNP, shown in Table I, differs somewhat between most communist (or previously communist) and other countries. For non-communist countries, both military expenditures and GNP are converted from the national currency unit to dollars at the same exchange rate; consequently, the ratio of military expenditures to GNP is the same in dollars as in the national currency and reflects national relative prices. For communist countries, however, military expenditures and GNP are converted differently. Soviet military expenditures, as already noted, are estimated in a way designed to show the cost of the Soviet armed forces in US prices, as if purchased in this country. On the other hand, the Soviet GNP estimates used here are designed to show average relative size when both US and Soviet GNP are valued and compared at both dollar and ruble prices. The Soviet ratio of military expenditures to GNP in ruble terms, the preferred method of comparison, is estimated to have been 15-18% in that country's latest years.

The estimated ratio for Russia derived here in dollars is probably somewhat overstated, since military spending in dollars is related to earlier estimates for the Soviet Union, while GNP estimates (at PPPs) are by the World Bank. Russia's burden ratio in ruble terms is preferably estimated to be under 10%.

³⁸⁸The implicit price deflator is the ratio of GNP in current prices to GNP in constant prices.

³⁸⁹Jeffrey R. Taylor, *Dollar Estimates for China*, Center for International Research Staff Paper No. 59, US Bureau of the Census, March 1991. This PPP appears to be carefully constructed from detailed Chinese data and yields an intermediate result. When moved to 1993, this parity (1.293 yuan/dollar) is used to produce dollar values in the same manner as the 1993 exchange rate for other countries. (See below, Conversion of National Currencies to Dollars.)

For Eastern European countries before 1992, the ratios of military expenditures to GNP in dollars were about twice the ratios that would obtain in domestic currencies. (See Alton and others, *op. cit.*) However, since official military budgets in these countries probably substantially understated their actual military expenditures, the larger ratios based on dollar estimates are believed to be the better approximations of the actual ratios.

Central Government Expenditures (CGE)

These expenditures include current and capital (developmental) expenditures plus net lending to government enterprises by central (or federal) governments. A major source is the International Monetary Fund's *Government Finance Statistics Yearbook*. The category used here is "Total Expenditures and Lending minus Repayment, Consolidated Central Government."

Other sources for these data are the International Monetary Fund, *International Financial Statistics* (monthly); OECD, *Economic Surveys*; and CIA, *The World Factbook* (annual). Data for Warsaw Pact countries are from national publications and are supplied by Thad P. Alton and others. For all Warsaw Pact countries and China, conversion to dollars is at the implicit rates used for calculating dollar estimates of GNP.

For all countries, with the same exceptions as noted above for the military expenditures-to-GNP ratio, military expenditures and central government expenditures are converted to dollars at the same rate; the ratio of the two variables is thus the same in dollars as in national currency.

It should be noted that for the Soviet Union, China, Iran, Jordan, and possibly others, the ratio of military expenditures to central government expenditures may be overstated, inasmuch as the estimate for military expenditures is obtained at least in part independently of nominal budget or government expenditure data, and it is possible that not all estimated military expenditures pass through the nominal central government budget.

Population

Population estimates are for midyear and are made available to ACDA by the US Bureau of the Census.

Armed Forces

Armed forces refer to active-duty military personnel, including paramilitary forces if those forces resemble regular units in their organization, equipment, training, or mission. Reserve forces are not included unless specifically noted.

Figures for the United States and all other NATO countries are as reported by NATO. Estimates of the number of personnel under arms for other countries are provided by US Government sources. The armed forces series for the Soviet Union includes all special forces judged to have national security missions (e.g., KGB border guards) and excludes uniformed forces primarily performing noncombatant services (construction, railroad, civil defense, and internal security troops).

Arms Transfers

Arms transfers (arms imports and exports) represent the international transfer (under terms of grant, credit, barter, or cash) of military equipment, usually referred to as "conventional," including weapons of war, parts thereof, ammunition, support equipment, and other commodities designed for military use. Among the items included are tactical guided missiles and rockets, military aircraft, naval vessels, armored and nonarmored military vehicles, communications and electronic equipment, artillery, infantry weapons, small arms, ammunition, other ordnance, parachutes, and uniforms. Dual use equipment, which can have application in both military and civilian sectors, is included when its primary mission is identified as military. The building of defense production facilities and licensing fees paid as royalties for the production of military equipment are included when they are contained in military transfer agreements. There have been no international transfers of purely strategic weaponry. Military services such as training, supply operations, equipment repair, technical assistance, and construction are included where data are available. Excluded are foodstuffs, medical equipment, petroleum products and other supplies.

Redefinition of US Arms Exports. The scope of US arms exports data was modified in the *WMEAT 1995* edition. These exports include both government-to-government transfers under the Foreign Military Sales (FMS), Military Assistance Program (MAP), and other programs administered by the Department of Defense, and commercial (enterprise-to-government) transfers licensed by the Department of State under International Traffic in Arms Regulations.

Under the previous practice, the materiel component (arms, equipment, and “hardware” items) of FMS and MAP sales was included, while the military services component was excluded (although the magnitude and general destination of the omitted services was reported in these Statistical Notes).

Beginning with the previous edition, both the materiel and the military services components of FMS and other government-to-government sales (such as the International Military Education and Training Program—IMET) are included in total US arms exports as reported here. The commercial sales category, covering both materiel and military services, was included in its entirety.

The omission of FMS and other military services prior to the previous edition had been intended to improve comparability with available estimates of the arms exports of other countries, which tended to contain a much smaller services component and/or were subject to significant underestimation (services being less easily observed). The increasing importance of these services and the desire to present a full picture of US arms exports consistent with other sources prompted the change to inclusion. Users should be aware, however, of both the lower true share of services in other countries’ arms exports and the tendency to underestimate them. It should also be noted that a portion of the IMET program is devoted to programs that promote improved civil-military relations.

The change in scope of US arms exports increased their overall volume by amounts ranging over the last decade from \$2.3 billion (current dollars) to \$3.7 billion for deliveries and \$2.3 billion to \$7.3 billion for agreements. The statistics contained in Tables II, III and part of IV are estimates of the value of goods actually delivered during the reference year, in contrast both to payments and the value of programs, agreements, contracts, or orders concluded during the period, which are expected to result in future deliveries. However, summary data on arms transfer agreements are presented in part of Table IV. Both deliveries and agreements data represent arms transfers to governments and do not include the value of arms obtained by sub-national groups.

Figures for US arms exports are for fiscal years as reported by the US Departments of Defense and State. Data on US arms export agreements shown in Table IV have the same coverage as deliveries data. Commercial agreements are here taken to equal deliveries, since agreements data as such are not available and data on commercial licenses issued are not considered sufficiently indicative.

US Arms Imports. US arms import data in this and the previous four editions are revised upward substantially from earlier editions. The present series consists of data obtained from the Department of Commerce, Bureau of Economic Analysis (BEA), including (a) imports of military-type (formerly “special category”) goods, as compiled by the Bureau of the Census, and (b) Department of Defense direct expenditures abroad for major equipment, as compiled from DOD data by BEA. The goods in (a) include: complete military aircraft, all types; engines and turbines for military aircraft; military trucks, armored vehicles, etc.; military (naval) ships and boats; tanks, artillery, missiles, guns, and ammunition; military apparel and footwear; and other military goods, equipment, and parts.

Data on countries other than the United States are estimates by US Government sources. Arms transfer data for the Soviet Union and other former communist countries are approximations based on limited information.³⁹⁰

It should be noted that the arms transfer estimates for the most recent year, and to a lesser extent for several preceding years, tend to be understated. This applies to both foreign and US arms exports. In the former case, information on transfers comes from a variety of sources and is sometimes acquired and processed with a

³⁹⁰Soviet arms transfers and foreign trade data are taken from sources that present them directly in dollars; hence, particular caution should be used in comparing these statistics for arms transfers and foreign trade with other Soviet data.

considerable time lag. In the US case, commercial arms transfer licenses are now valid for three years, causing a delay in the reporting of deliveries made on them to statistical agencies. Data for the most recent two years in Main Statistical Tables II, III, and IV therefore can be expected to undergo some upward revision in succeeding editions.

Close comparisons between the estimated values shown for arms transfers and for GNP and military expenditures are not warranted. Frequently, weapons prices do not reflect true production costs. Furthermore, much of the international arms trade involves offset or barter arrangements, multiyear loans, discounted prices, third party payments, and partial debt forgiveness. Acquisition of armaments thus may not [necessarily] impose the burden on an economy, whether in the same or in other years, that is implied by the estimated equivalent US dollar value of the shipment. Therefore, the value of arms imports should be compared to other categories of data with care.

Total Imports and Exports

The values for imports and exports cover merchandise transactions and come mainly from International Financial Statistics published by the IMF. The trade figures for presently and formerly communist countries are from the CIA's *Handbook of Economic Statistics*, 1996 edition.

Estimates for "NAs"

The "NA" entries in the Main Statistical Tables for a given country/variable/year signify that data considered sufficiently valid and reliable for presentation as such is not available. However, in all such cases, a rough or approximative estimate has been made and is used in aggregative estimates for the world, region, or other country group. This is done in order that the absence of data for a given country/year/variable not distort group totals unduly, and to permit the inclusion of the country in a ranking. Such "fill" estimates are based on a variety of grounds, such as available fragmentary information, previous trends, or assumptions as to the relationships between known and unknown variables.

Conversion of National Currencies to Dollars

All value data in the report are expressed in US dollars. For most countries, this requires the conversion into dollars of amounts expressed in national currencies at current (or "then-year") prices. Available methods for doing so are less than satisfactory in all respects. The approach adopted in this series of reports relies on market or par exchange rates. In this method, current-price national currency data for an entire series of years is converted to current US dollars through the use of a single (base-year) exchange rate and two price indexes, one national and one US.

Basic Steps

The conversion approach used here consists essentially of three steps:

- a) Each country's data, expressed originally in the national currency and at current prices, are "deflated" or put into constant-price terms, usually by means of the country's implicit deflator for GNP as a whole. This GNP price index is used also for other variables—military and central government expenditures—because more appropriate price indices for those sectors are not generally available. National currency data for all years are expressed in prices of the conversion base year (1995 in this issue).
- b) These data are then divided by the average exchange rate in the base year between the national currency and the US dollar and thus converted into constant base-year (1995) dollars. Exchange rates are provided by the World Bank and are usually the annual average par/market rate, (the "rf" rate as designated by the International Monetary Fund).
- c) Data in constant dollars are then expressed in current dollars by multiplying by the US implicit GNP deflator. The calculation may be illustrated by an example, assuming the following data:

1985 national military expenditures, in national currency	
at current (1985) prices.....	4,600
1985 implicit GNP deflators (1995 = 100):	
National.....	.55.5
US.....	.77.7
1995 exchange rate, national currency units.	
per dollar.....	15.92
Then, 1985 national military expenditures:	
In constant 1995 dollars = 4,600 , .555 , 15.92 = 520.6	
In current (1985) dollars = 520.6 x .777 = 404.5	

Advantages and Disadvantages

The use in this report of the same rate for converting all variables from national currencies to US dollars (with the exceptions noted below) means that the relationships among variables in national currency terms remain the same when those variables are expressed in dollars.

The conversion method used here has an advantage in that it takes into account national differences in the behavior of prices and, within each edition, avoids the distorting effect that can result from changes in exchange rates during the decade. It does not, however, allow for a number of other factors. One is that any within-country differences between the price indices for military or central government expenditures and for GNP are not taken into account. For example, indices for compensation of military personnel or prices of imported arms might behave differently from the overall index.

A more serious problem is that exchange rates in many cases do not adequately reflect the relative purchasing power of currencies. This has been demonstrated by a detailed study of purchasing power parities (PPPs) for the GNPs of a large number of countries.³⁹¹ This study found that the greater the disparity in the per capita income of countries, the greater the tendency for exchange rates to understate the value of the poorer country's product, and that the understatement can be very large, reaching as much as threefold in some cases. However, since this study did not estimate PPPs for military expenditures as such, it does not shed much light on how PPPs specific to military expenditures or arms purchases might differ from exchange rates or from either overall or other sector-specific PPPs.³⁹²

A disadvantage of the method used here in WMEAT is that the resulting conversion to current dollars for a given year can vary from edition to edition, despite the absence of any change in data for that year itself. The change is due solely to the rolling up of the exchange rate base year so as to make it more up-to-date, which usually means a change in the exchange rate used.

Such changes have been exceptionally large and frequent recently. This was due to two major factors: (1) the change from an appreciating and overvalued US dollar (until 1985) to a depreciating one and (2) the very high inflation rates and concomitantly large exchange rate movements occurring in a number of developing countries, together with the tendency of the exchange rate changes to undercompensate or overcompensate for relative price movements.

³⁹¹These PPPs have been estimated by the United Nations International Comparisons Project, a cooperative undertaking of the United Nations, the World Bank, and the University of Pennsylvania. See Irving Kravis, Alan Heston, and Robert Summers, *World Product and Income: International Comparisons of Real Gross Product*, published for the World Bank by the Johns Hopkins University Press, Baltimore and London, 1982.

³⁹²A United Nations expert group has studied the feasibility of constructing purchasing power parities and price indices for military expenditures (A/40/421, 13 August 1985). However, practical prospects for the future availability of usable military PPPs are poor due to the lack of underlying national data, especially on military prices.

For a discussion of the extent of the changes and their impact on inter-country comparisons and group averages, see *WMEAT 1988*, pp. 135-136. The changes in exchange rates have not been as extensive in recent years, except for the growing number of high inflation countries.

Exceptions

There are several exceptions to the general conversion procedures discussed above. Data on arms transfers in value terms for all countries obtained by this Agency are already expressed in current dollars. (Original data in foreign currencies have generally been converted by the source at current exchange rates.) These current dollars are converted to constant 1995 dollars in the manner shown above. For the Soviet Union, GNP estimates in rubles are converted by the source into constant dollars at what is in effect an average US-and-Soviet-weighted PPP for GNP as a whole. This same conversion rate is also used for Soviet central government expenditures. Soviet military expenditures are in effect converted by the source at a military-sector PPP using only Soviet weights. (See also the discussion of Military Expenditures, above).

For other Warsaw Pact countries and China, the available estimates for GNP and military expenditures are also already in terms that accounted for domestic price changes and have been converted to constant dollars using estimated purchasing power parities, rather than official exchange rates.

For successor states to the Soviet Union, Yugoslavia, and Czechoslovakia and other former Warsaw Pact countries, GNP in dollars is based on estimates of GNP per capita converted at PPPs and published by the World Bank in its *World Bank Atlas 1997*. Other variables are converted to dollars by multiplying a ratio of the variable to GNP in national currency by GNP in dollars. This is equivalent to using the GNP PPP to convert the other variable from national currency to dollars.

It should be noted that in all cases the relationship between current and constant dollars in this report is determined entirely by the US GNP deflator index. To facilitate reconversion to other constant-dollar bases if desired, this index, rebased here to 1995=100, is as follows:

1985	72.96	1990	87.01
1986	74.92	1991	90.50
1987	77.26	1992	92.97
1988	80.10	1993	95.39
1989	83.46	1994	97.55

Growth Rates

The average annual rates of real growth shown in Tables 1-5 of the Highlights are based on data in constant 1995 dollars from Main Tables I and II. The rates are calculated by a least-squares fit to all years of the period of the log form (to the base 10) of the following "compound interest" equation:

$$Y = A(1 + r/100)^T,$$

or

$$\text{Log}Y = \text{Log}A + \text{Log}(1 + r/100) \times T,$$

where Y is military expenditures (or other variable) in a given year, A is the initial value for year 0, T is time in years, and r is the growth rate in percent. This formula was used in all cases to provide a consistent measure of change and is not intended to provide the best fit for projection purposes.

Revision of US Arms Export Data Series

With the *WMEAT 1997* edition, the data series on US arms exports in dollar value terms is revised upward substantially using a new interim methodology, in the interest of improved accuracy. The revision was made in one of the two major component types of exports, namely, the “commercial” arms sales made directly by US firms to foreign importers under authorization of the Department of State in accordance with the US Government’s International Traffic in Arms Regulations. The other major type is exports under the “Foreign Military Sales” (or FMS) program administered by the Department of Defense, which serves as an intermediary in transfers to other governments. After the present data revision, commercial exports made up 52% of total US arms exports over the past decade, FMS sales, 47%, and several minor types of exports, one percent.

In the previous methodology, the commercial arms component was represented by “preliminary” data on the deliveries (or actual exports) made under approved export licenses, as compiled by the Department of State.¹ Due to growing difficulties in the availability, reporting, and recording of this data (which passes on State-approved licenses from exporting firms to the US Customs Service and back to State and its databank), this data series has become unacceptably incomplete and provides an inadequate measure of the full volume of such exports.

A fully satisfactory replacement for this data series, however, is not available at the present time, either in the form of an alternative series or a reasonably reliable estimate of actual deliveries. Therefore, pending the establishment of reliable recording of actual commercial exports, the US arms exports data series in this edition of *WMEAT* incorporates an *estimated* data series employing an *interim* methodology, which is to be replaced in an early successor edition with a more satisfactory solution based on ongoing research efforts.

In the temporary estimate of total US arms exports used in this edition, the commercial component is estimated from the only other data series available, the value of approved arms export licenses and authorizations issued by the Department of State.² Approved licenses for commercial arms exports generally should be strongly indicative of actual exports, since license applications must be accompanied by evidence of concluded sales, such as signed contracts, purchase orders, or letters of intent. However, the real relationship between commercial deliveries and authorizations—that is, the exact extent to which authorizations result in actual exports—is uncertain, and the scarce empirical evidence presently available is inadequate for sound estimating purposes. In the interim, therefore, it is assumed as a temporary expedient that deliveries constitute a medial 50 percent of total authorizations by country. These deliveries are then distributed in a fixed pattern over the years of license duration, which changed during the past decade from three years to four.

Efforts are currently underway, with the collaboration of the Department of State, to acquire sufficient empirical evidence for a more reliable method of estimating actual commercial exports from authorizations. This method will then be used in *WMEAT* until a fully reliable system of reporting of actual deliveries is in place.

¹ These data can be found in the annual *Congressional Presentation for Foreign Operations*, prepared by the Departments of State and Defense, and in the Defense Security Assistance Agency’s *Foreign Military Sales, Foreign Military Construction Sales and Military Assistance Facts as of September 30, 19—*.

² Reported to the Congress under Sections 36(a)(4) of the Arms Export Control Act and Section 655 of the Foreign Assistance Act. The Section 36 report shows the total value of approved licenses (for defense articles) by recipient country, and the Section 655 report, initiated in 1997, also shows agreements (for defense services) and defense articles by type.

The table below shows US commercial arms exports in three forms: reported (“preliminary” or partial) deliveries, total approved licenses and authorizations (both as reported by the Department of State), and

the present estimate of deliveries based on 50 percent of authorizations, distributed over license duration. Also shown is the ratio (in percent) of partial deliveries to authorizations.

US Commercial Arms Exports, Alternative Series, 1986-1996
(In millions of current dollars)

Fiscal Year	Reported (Partial) Deliveries	Authori zations	Ratio, Reported Deliveries to Authorizations (%)	Estimated Deliveries (At 50%)
1986	3,678	14,727	25.0	6,150
1987	6,436	14,578	44.2	6,840
1988	4,637	19,155	24.2	8,220
1989	8,165	21,181	38.6	9,530
1990	6,064	33,041	18.4	12,800
1991	5,039	39,899	12.6	16,200
1992	2,563	15,817	16.2	14,200
1993	3,806	25,796	14.8	12,100
1994	3,332	25,394	13.1	11,800
1995	2,759	19,234	14.3	10,100
1996	1,077	26,802	4.0	10,600

Note: These data are total exports to the "world" as in *WMEAT*, and are slightly smaller than global totals due to the omission of some very small recipients.

It should be noted that the data on authorizations through 1995 covers only licenses for defense articles. Data on agreements for defense services (for manufacturing and technical assistance) are available and included beginning with 1996. These agreements are usually valid for longer periods than licenses, a difference that is ignored in the present method.

The newly estimated interim commercial exports series is confidently believed to be more accurate than the previous series. However, in view of the less-than-desirable present supporting information, it should be kept in mind that considerable uncertainty attaches to the new commercial and the resulting total arms export series, and both are subject to further change in succeeding editions when adequate information becomes available. The new methodology has a substantial effect on the total US arms export series; it is 45 percent higher on average for the 1986-1996 decade, and nearly 60 percent higher for 1990-1996.

It should also be noted that there is some uncertainty regarding the comparability of (total) US arms exports data with the estimates used for the exports of other countries. Although comparable in conceptual scope, the latter estimates are based on US Government sources, which may not be able to capture the full extent of small arms, spare and production parts and components, and defense services exported by these countries. The question is not believed to be serious under the present temporary methodology, which is thought more likely to underestimate than overestimate commercial deliveries, and thus total US exports. The expected availability of data on the full extent of US commercial exports of defense articles and services will make this question more acute.

The use of data on the value of other-country arms exports as published by sources in those countries is of little assistance in this regard because not all major exporting countries regularly release such data, and when they do, the scope and content of the reported arms exports is not adequately revealed or known. These issues are also currently under investigation.

APPENDIX D

Appendix D
 Total Value of Defense Articles and Services Sold to Each Country/Purchaser as of September 30, 1997 under
 Foreign Military Sales
 (Dollars in thousands)¹

Albania	\$759	Lebanon	21,960
Antigua & Barbados	262	Lithuania	1,175
Argentina	18,981	Luxembourg	4,326
Australia	287,524	Macedonia (Fyrom)	2,057
Austria	27,187	Malaysia	11,481
Bahamas	51	Mexico	27,663
Bahrain	54,049	Morocco	3,466
Bangladesh	1,592	Nacisa	602
Barbados	139	Namibia	286
Belgium	122,049	Namsa-General + Nike	7,358
Belize	327	Namsa-Hawk	1,956
Bolivia	3	Namsa-Weapons	4,438
Bolivia--Intl Narcotics	8,638	Napmo	2,184
Bosnia-Hercegovina	2,103	Nato	1,839
Botswana	439	Nato AEW+C (O+S)	38,299
Brazil	24,962	Nato EFA (NEFMA)	1,505
Brunei	69	Netherlands	225,314
Bulgaria	4,332	New Zealand	24,271
Cambodia	1,246	NHPLO	200
Canada	103,253	Norway	64,494
Chad	36	OAS HQ	601
Chile	2,322	Oman	11,541
Colombia	74,487	Org of African Unity	250
Costa Rica	175	Pakistan	101
Czech Republic	2,268	Paraguay	31
Denmark	32,558	Peru	285
Dominican Republic	187	Peru--Intl Narcotics	100
Ecuador	4,158	Poland	4,893
Ecuador--Intl Narcotics	1,812	Portugal	19,241
Egypt	1,065,593	Rep of Philippines	20,055
El Salvador	4,869	Romania	331
Eritrea	1,934	Saudi Arabia	742,372
Estonia	999	Senegal	1,965
Ethiopia	1,120	Seychelles	62
Finland	291	Shape	2,100
France	102,163	Singapore	192,230
Germany	325,754	Slovakia	2,003
Greece	224,467	Slovenia	216
Grenada	353	South Africa	154
Guinea-Bissau	121	Spain	828,768
Guyana	70	Sri Lanka	74
Haiti	877	St. Kitts and Nevis	187
Honduras	910	St. Vincent + Grenadines	66
Hungary	6,905	Sweden	6,194
India	299	Switzerland	13,413
Indonesia	793	Taiwan	353,737
Israel	524,988	Thailand	187,413
Italy	41,194	Trinidad--Tobago	185
Ivory Coast	187	Tunisia	15,235
Jamaica	50	Turkey	339,597
Japan	346,758	Uganda	3,872
Jordan	18,253	UNDHA	945
Kenya	779	United Arab Emirates	5,586
Korea (Seoul)	853,987	United Kingdom	558,949
Kuwait	48,116	Uruguay	1,078
Laos	1,070	Venezuela	59,421
Latvia	1,417	Zimbabwe	91
		Classified totals ²	609,749
		Subtotal	8,778,248

Congressional Record of March 4, 1998, page E295.

Construction sales

Bolivia--Int'l. Narcotics	\$485
Cambodia	49
Colombia	500
Egypt	21,356
El Salvador	1,834
Eritrea	544
Ethiopia	388
Germany	1,405
Morocco	3,476
Singapore	266
Subtotal	30,303
Total	\$8,808,551

[Footnote] 1 Totals may not add due to rounding.

[Footnote] 2 See the classified annex to the CPD.

Comparison: Direct Commercial Licenses and Approvals

The following chart compares Direct Commercial Licenses/Approvals values (in thousands of U.S. dollars) for FY 1996 as reported in the Congressional Record and in the 655 Report. Only the nations approved to receive Manufacturing and Technical Assistance are listed.

	Congressional Record	655 Report	Difference	Manufacturing & Technical Assist.
Angola	89	80,089	80,000	80,0000
Argentina	57,421	81,579	24,158	25,000
Australia	1,117,515	1,404,604	287,089	283,192
Austria	8,725	28,739	20,014	20,000
Bahrain	9,256	9,348	92	595
Belgium	290,289	342,200	51,911	50,550
Bosnia- Herzegovina	80	81,080	81,000	81,000
Brazil	62,317	75,941	13,624	41,500
Burkina Faso	0	4,645	4,645	4,645
Canada	49,268	430,648	381,380	381,381
Chile	24,327	44,527	20,200	20,000
Colombia	12,934	27,934	15,000	15,000
Costa Rica	1,890	6,615	4,725	5,000
Croatia	238	16,537	16,299	15,700
Czech Republic	12,604	61,190	48,586	48,600
Denmark	237,051	290,337	53,286	54,486
Ecuador	12,456	23,694	11,238	11,090
Egypt	150,340	281,040	Error! Not a valid link.	130,700
Finland	33,653	58,684	25,031	25,010
France	194,957	330,108	135,151	133,004
Germany	851,040	1,022,723	171,683	165,379
Greece	242,890	304,850	61,960	61,490
Hong Kong	24,018	85,711	61,693	61,855
Hungary	23,771	33,771	10,000	10,000
India	38,558	165,681	127,123	127,523
Indonesia	212,176	211,788	(388)	100
Ireland	4,295	135,668	131,373	70,000
Israel	696,201	916,426	220,225	231,101
Italy	362,216	1,012,720	650,504	646,477
Japan	1,058,537	5,692,853	4,634,316	3,178,603
Kenya	21,355	22,103	748	750
Korea, Rep. of	926,560	1,309,507	382,947	391,210
Kuwait	37,520	38,193	673	725
Lebanon	2,077	3,422	1,345	1,345
Luxembourg	29,975	30,319	344	342

Malaysia	438,171	506,118	67,947	70,032
Mexico	94,450	146,618	52,168	52,338
Neth. Antilles	144	1,354	1,210	1,211
Netherlands	463,398	636,323	172,925	164,853
New Zealand	108,966	192,328	83,362	77,550
Norway	107,262	160,841	53,579	53,975
Oman	4,115	3,779	(336)	200
Pakistan	74,793	82,874	8,081	7,994
Peru	16,272	31,294	15,022	15,000
Philippines	140,268	161,457	21,189	22,750
Portugal	48,692	80,551	31,859	32,000
Russian Federation	77,709	100,810	23,101	23,101
Saudi Arabia	392,034	693,242	301,208	40,686
Singapore	524,084	591,135	67,051	67,052
Slovenia	380	20,380	20,000	20,000
South Africa	29,889	64,892	35,003	35,040
Spain	136,058	413,842	277,784	277,296
Sri Lanka	17,104	41,102	23,998	24,000
Sweden	172,417	294,394	121,977	121,825
Switzerland	348,417	467,516	119,099	133,037
Thailand	342,764	384,025	41,261	42,000
Turkey	584,325	556,676	(27,649)	150,741
Ukraine	885	13,585	12,700	12,700
United Arab Emirates	24,396	75,522	51,126	51,486
United Kingdom	1,422,605	3,985,353	2,562,748	1,378,253
Venezuela	376,475	711,892	335,417	335,500
Various	249,414	1,071,099	821,685	438,592
Total of All Direct Commercial Licenses in FY 1996	14,557,414	26,685,118	12,127,704	10,022,565

Congressional Record: Reported on 2/6/97 655 Report: Released 9/97

June 1998

APPENDIX E

SOURCES AND METHODS (According to SIPRI)

I. The SIPRI sources

The sources of the data presented in the arms trade registers are of five general types: newspapers; periodicals and journals; books, monographs and annual reference works; official national documents; and documents issued by international and intergovernmental organizations. The registers are largely compiled from information contained in around 200 publications searched regularly.

Published information cannot provide a comprehensive picture because the arms trade is not fully reported in the open literature. Published reports provide partial information, and substantial disagreement among reports is common. Therefore, the exercise of judgement and the making of estimates are important elements in compiling the SIPRI arms trade data base. Order dates and the delivery dates for arms transactions are continuously revised in the light of new information, but where they are not disclosed the dates are estimated. Exact numbers of weapons ordered and delivered may not always be known and are sometimes estimated--particularly with respect to missiles. It is common for reports of arms deals involving large platforms--ships, aircraft and armoured vehicles--to ignore missile armaments classified as major weapons by SIPRI. Unless there is explicit evidence that platforms were disarmed or altered before delivery, it is assumed that a weapons fit specified in one of the major reference works such as the Jane's or Interavia series is carried.

II. Selection criteria

SIPRI arms trade data cover five categories of major weapons or systems: aircraft, armour and artillery, guidance and radar systems, missiles, and warships. Statistics presented refer to the value of the trade in these five categories only. The registers and statistics do not include trade in small arms, artillery under 100-mm calibre, ammunition, support items, services and components or component technology, except for specific items. Publicly available information is inadequate to track these items satisfactorily.

There are two criteria for the selection of major weapon transfers for the registers. The first is that of military application. The aircraft category excludes aerobatic aeroplanes and gliders. Transport aircraft and VIP transports are included only if they bear military insignia or are otherwise confirmed as military registered. Micro-light aircraft, remotely piloted vehicles and drones are not included although these systems are increasingly finding military applications.

The armour and artillery category includes all types of tanks, tank destroyers, armoured cars, armoured personnel carriers, armoured support vehicles, infantry combat vehicles as well as multiple rocket launchers, self-propelled and towed guns and howitzers with a calibre equal to or above 100 mm. Military lorries, jeeps and other unarmoured support vehicles are not included.

The category of guidance and radar systems is a residual category for electronic-tracking, target-acquisition, fire-control, launch and guidance systems that are either (a) deployed independently of a weapon system listed under another weapon category (e.g., certain ground-based SAM launch systems) or (b) shipborne missile-launch or point-defence (CIWS) systems. The values of acquisition, fire-control, launch and guidance systems on aircraft and armoured vehicles are included in the value of the respective aircraft or armoured vehicle. The reason for treating shipborne systems separately is that a given type of ship is often equipped with numerous combinations of different surveillance, acquisition, launch and guidance systems.

The missile category includes only guided missiles. Unguided artillery rockets, man-portable anti-armour rockets and free-fall aerial munitions (e.g., 'iron bombs') are excluded. In the naval sphere, anti-submarine rockets and torpedoes are excluded.

The ship category excludes small patrol craft (with a displacement of less than 100 t), unless they carry cannon with a calibre equal to or above 100 mm; missiles or torpedoes; research vessels; tugs and ice-breakers. Combat support vessels such as fleet replenishment ships are included.

The second criterion for selection of items is the identity of the buyer. Items must be destined for the armed forces, paramilitary forces, intelligence agencies or police of another country. Arms supplied to guerrilla forces pose a problem. For example, if weapons are delivered to the Contra rebels they are listed as imports to Nicaragua with a comment in the arms trade register indicating the local recipient. The entry of any arms transfer is made corresponding to the five weapon categories listed above. This means that missiles and their guidance/launch vehicles are often entered separately under their respective category in the arms trade register.

III. The value of the arms trade

The SIPRI system for arms trade evaluation is designed as a trend-measuring device, to permit measurement of changes in the total flow of major weapons and its geographic pattern. Expressing the evaluation in monetary terms reflects both the quantity and quality of the weapons transferred. Aggregate values and shares are based only on actual deliveries during the year/years covered in the relevant tables and figures.

The SIPRI valuation system is not comparable to official economic statistics such as gross domestic product, public expenditure and export/import figures. The monetary values chosen do not correspond to the actual prices paid, which vary considerably depending on different pricing methods, the length of production runs and the terms involved in individual transactions. For instance, a deal may or may not cover spare parts, training, support equipment, compensation, offset arrangements for the local industries in the buying country, and so on. Furthermore, to use only actual sales prices--even assuming that the information were available for all deals, which it is not--military aid and grants would be excluded, and the total flow of arms would therefore not be measured.

Production under licence is included in the arms trade statistics in such a way as to reflect the import share embodied in the weapon. In reality, this share is normally high in the beginning,

gradually decreasing over time. However, as SIPRI makes a single estimate of the import share for each weapon produced under licence, the value of arms produced under licence agreements may be slightly overstated.

IV. Conventions

The following conventions are used in appendices:

.. Data not available or not applicable

- Negligible figure (< 0.5) or none

() Uncertain data or SIPRI estimate

(1998)

APPENDIX F

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release

February 17, 1995

STATEMENT BY THE PRESS SECRETARY

Conventional Arms Transfer Policy

The President has approved a comprehensive policy to govern transfers of conventional arms. This policy, as detailed in the attached fact sheets, serves our nation's security in two important ways. First, it supports transfers that meet the continuing security needs of the United States, its friends and allies. Second, it restrains arms transfers that may be destabilizing or threatening to regional peace and security.

This policy reflects an approach towards arms transfers that has guided the Administration's decisions over the last two years. Specifically, the United States continues to view transfers of conventional arms as a legitimate instrument of U.S. foreign policy--deserving U.S. government support--when they enable us to help friends and allies deter aggression, promote regional security, and increase interoperability of U.S. forces and allied forces. Judging when a specific transfer will meet that test requires examination of the dynamics of regional power balances and the potential for destabilizing changes in those regions. The criteria guiding those case-by-case examinations are set forth in the attached guidelines for U.S. decisionmaking on conventional arms transfers.

The centerpiece of our efforts to promote multilateral restraint is our initiative to work with allies and friends to establish a successor regime to COCOM. The new regime should establish effective international controls on arms sales and the transfer of sensitive technologies--particularly to regions of tension and to states that pose a threat to international peace and security. While pursuing multilateral restraint through this and other mechanisms such as the UN conventional arms register and regional initiatives, the United States will exercise unilateral restraint in cases where overriding national security or foreign policy interests require us to do so.

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THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release

February 17, 1995

FACT SHEET

Conventional Arms Transfer Policy

U.S. conventional arms transfer policy promotes restraint, both by the U.S. and other suppliers, in transfers of weapons systems that may be destabilizing or dangerous to international peace. At the same time, the policy supports transfers that meet legitimate defense requirements of our friends and allies, in support of our national security and foreign policy interests.

Our record reflects these considerations. U.S. arms sales remain close to our historical average--approximately \$12 billion in government-to-government sales agreements in FY 1994. U.S. arms deliveries have also remained flat. Sales and deliveries have been primarily to allies and major coalition partners such as NATO member states and Israel.

U.S. Goals

The policy issued by the President will serve the following goals:

- 1) To ensure that our military forces can continue to enjoy technological advantages over potential adversaries.
- 2) To help allies and friends deter or defend themselves against aggression, while promoting interoperability with U.S. forces when combined operations are required.
- 3) To promote regional stability in areas critical to U.S. interests, while preventing the proliferation of weapons of mass destruction and their missile delivery systems.
- 4) To promote peaceful conflict resolution and arms control, human rights, democratization, and other U.S. foreign policy objectives.
- 5) To enhance the ability of the U.S. defense industrial base to meet U.S. defense requirements and maintain long-term military technological superiority at lower costs.

Supporting Arms Control and Arms Transfer Restraint

A critical element of U.S. policy is to promote control, restraint, and transparency of arms transfers. To that end, the U.S. will push to increase participation in the UN Register of

Conventional Arms. We will also take the lead to expand the Register to include military holdings and procurement through national production, thereby providing a more complete picture of change in a nation's military capabilities each year.

The U.S. will also support regional initiatives to enhance transparency in conventional arms such as those being examined by the OAS and ASEAN, and will continue to adhere to the London and OSCE guidelines, while promoting adherence to such principles by others.

The United States will continue its efforts to establish a successor export control regime to the Cold-War era COCOM. Our goals for this regime are to increase transparency of transfers of conventional arms and related technology, to establish effective international controls and to promote restraint--particularly to regions of tension and to states that are likely to pose a threat to international peace and security.

The United States will also continue vigorous support for current arms control and confidence-building efforts to constrain the demand for destabilizing weapons and related technology. The United States recognizes that efforts such as those under way in the Middle East and Europe bolster stability in a variety of ways, ultimately decreasing the demand for arms in these vital regions.

The United States will act unilaterally to restrain the flow of arms in cases where unilateral action is effective or necessitated by overriding national interests. Such restraint would be considered on a case-by-case basis in transfers involving pariah states or where the U.S. has a very substantial lead on weapon technology, where the U.S. restricts exports to preserve its military edge or regional stability, where the U.S. has no fielded countermeasures, or where the transfer of weapons raises issues involving human rights or indiscriminate casualties, such as anti-personnel landmines.

Finally, the U.S. will assist other suppliers to develop effective export control mechanisms to support responsible export policies. The United States will also continue to provide defense conversion assistance to the states of the former Soviet Union and Central Europe as a way of countering growing pressures to export.

Supporting Responsible U.S. Transfers

Once an approval for a transfer is made, the U.S. Government will provide support to the proposed U.S. export. In those cases the United States will take such steps as tasking our overseas mission personnel to support overseas marketing efforts of American companies bidding on defense contracts, actively involving senior government officials in promoting sales of particular importance to the United States, and supporting Official Department of Defense participation in international air and trade exhibitions when the Secretary of Defense, in accordance with existing law, determines such participation to be in the national interest and notifies Congress.

Decisionmaking on U.S. Arms Exports: Criteria and Process

Given the complexities of arms transfer decisions and the multiple U.S. interests involved in each arms transfer decision, decisions will continue to be made on a case-by-case basis. These case-by-case reviews will be guided by a set of criteria that draw the appropriate balance between legitimate arms sales to support the national security of our friends and allies, and to support the national security of our friends and allies, and the need for multilateral restraint against the transfer of arms that would enhance the military capabilities of hostile states or that would undermine stability.

THE WHITE HOUSE

Office of the Press Secretary

For Immediate Release

February 17, 1995

FACT SHEET

Criteria for Decisionmaking on U.S. Arms Exports

Given the complexities of arms transfer decision and the multiple U.S. interests involved in each arms transfer decision, the U.S. Government will continue to make arms transfer decisions on a case-by-case basis. These reviews will be guided by the criteria below.

General Criteria

- All arms transfer decisions will take into account the following criteria:
- Consistence with international agreements and arms control initiatives.
- Appropriateness of the transfer in responding to legitimate U.S. and recipient security needs.
- Consistency with U.S. regional stability interests, especially when considering transfers involving power projection capability or introduction of a system which may foster increased tension or contribute to an arms race.
- The degree to which the transfer supports U.S. strategic and foreign policy interests through increased access and influence, allied burden sharing, and interoperability.
- The impact of the proposed transfer on U.S. capabilities and technological advantage, particularly in protecting sensitive software and hardware design, development, manufacturing, and integration knowledge.
- The impact on U.S. industry and the defense industrial base whether the sale is approved or not.
- The degree of protection afforded sensitive technology and potential for unauthorized third-party transfer, as well as in-country diversion to unauthorized uses.
- The risk of revealing system vulnerabilities and adversely impacting U.S. operational capabilities in the event of compromise.

- The risk of adverse economic, political or social impact within the recipient nation and the degree to which security needs can be addressed by other means.
- The human rights, terrorism and proliferation record of the recipient and the potential for misuse of the export in question.
- The availability of comparable systems from foreign suppliers.
- The ability of the recipient effectively to field, support, and appropriately employ the requested system in accordance with its intended end-use.

Upgrade Criteria

Upgrades of equipment--particularly that of former Soviet-bloc manufacture--is a growing segment of the market. The U.S. government should support U.S. firms' participation in that market segment to the extent consistent with our own national security and foreign policy interests. In addition to the above general criteria, the following guidelines will govern U.S. treatment of upgrades:

- Upgrade programs must be well-defined to be considered for approval.
- Upgrades should be consistent with general conventional arms transfer criteria outlined above.
- There will be a presumption of denial of exports to upgrade programs that lead to a capability beyond that which the U.S. would be willing to export directly.
- Careful review of the total scope of proposed upgrade programs is necessary to ensure that U.S. licensing decisions are consistent with U.S. policy on transfers of equivalent new systems.
- U.S. contributions to upgrade programs initiated by foreign prime contractors should be evaluated against the same standard.
- Protection of U.S. technologies must be ensured because of the inherent risk of technology transfer in the integration efforts that typically accompany an upgrade project.
- Upgrades will be subject to standard USG written end use and retransfer assurances by both the integrator and final end user, with strong and specific sanctions in place for those who violate these conditions.
- Benchmarks should be established for upgrades of specific types of systems, to provide a policy baseline against which (1) individual arms transfer proposals can be assessed and (2) proposed departures from the policy must be justified.

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APPENDIX G

This document is the European Union Code of Conduct for Arms Exports as adopted on 8-9 June 1998.

EU Code of Conduct for Arms Exports

List of criteria

Operative provisions

Annex

The Council of the European Union,

BUILDING on the Common Criteria agreed at the Luxembourg and Lisbon European Councils in 1991 and 1992,

RECOGNISING the special responsibility of arms exporting states,

DETERMINED to set high common standards which should be regarded as the minimum for the management of, and restraint in, conventional arms transfers by all EU Member States, and to strengthen the exchange of relevant information with a view to achieving greater transparency,

DETERMINED to prevent the export of equipment which might be used for internal repression or international aggression, or contribute to regional instability,

WISHING within the framework of the CFSP to reinforce their cooperation and to promote their convergence in the field of conventional arms exports,

NOTING complementary measures taken by the EU against illicit transfers, in the form of the EU Programme for Preventing and Combating Illicit Trafficking in Conventional Arms,

ACKNOWLEDGING the wish of EU Member States to maintain a defence industry as part of their industrial base as well as their defence effort,

RECOGNISING that states have a right to transfer the means of self-defence, consistent with the right of self-defence recognised by the UN Charter,

have adopted the following Code of Conduct and operative provisions:

CRITERION ONE

Respect for the international commitments of EU member states, in particular the sanctions decreed by the UN Security Council and those decreed by the Community, agreements on non-proliferation and other subjects, as well as other international obligations

An export licence should be refused if approval would be inconsistent with, inter alia:

a) the international obligations of member states and their commitments to enforce UN, OSCE and EU arms embargoes;

b) the international obligations of member states under the Nuclear Non-Proliferation Treaty, the Biological and Toxin Weapons Convention and the Chemical Weapons Convention;

c) their commitments in the frameworks of the Australia Group, the Missile Technology Control Regime, the Nuclear Suppliers Group and the Wassenaar Arrangement;

d) their commitment not to export any form of anti-personnel landmine.

CRITERION TWO

The respect of human rights in the country of final destination

Having assessed the recipient country's attitude towards relevant principles established by international human rights instruments, Member States will:

a) not issue an export licence if there is a clear risk that the proposed export might be used for internal repression;

b) exercise special caution and vigilance in issuing licences, on a case-by-case basis and taking account of the nature of the equipment, to countries where serious violations of human rights have been established by the competent bodies of the UN, the Council of Europe or by the EU.

For these purposes, equipment which might be used for internal repression will include, inter alia, equipment where there is evidence of the use of this or similar equipment for internal repression by the proposed end-user, or where there is reason to believe that the equipment will be diverted from its stated end-use or end-user and used for internal repression. In line with operative paragraph 1 of this Code, the nature of the equipment will be considered carefully, particularly if it is intended for internal security purposes. Internal repression includes, inter alia, torture and other cruel, inhuman and degrading treatment or punishment, summary or arbitrary executions, disappearances, arbitrary detentions and other major violations of human rights and fundamental freedoms as set out in relevant international human rights instruments, including the Universal Declaration on Human Rights and the International Covenant on Civil and Political Rights.

CRITERION THREE

The internal situation in the country of final destination, as a function of the existence of tensions or armed conflicts

Member States will not allow exports which would provoke or prolong armed conflicts or aggravate existing tensions or conflicts in the country of final destination.

CRITERION FOUR

Preservation of regional peace, security and stability

Member States will not issue an export licence if there is a clear risk that the intended recipient would use the proposed export aggressively against another country or to assert by force a territorial claim.

When considering these risks, EU Member States will take into account inter alia:

- a) the existence or likelihood of armed conflict between the recipient and another country;
- b) a claim against the territory of a neighbouring country which the recipient has in the past tried or threatened to pursue by means of force;
- c) whether the equipment would be likely to be used other than for the legitimate national security and defence of the recipient;
- d) the need not to affect adversely regional stability in any significant way.

CRITERION FIVE

The national security of the member states and of territories whose external relations are the responsibility of a Member State, as well as that of friendly and allied countries

Member States will take into account:

- a) the potential effect of the proposed export on their defence and security interests and those of friends, allies and other member states, while recognising that this factor cannot affect consideration of the criteria on respect of human rights and on regional peace, security and stability;
- b) the risk of use of the goods concerned against their forces or those of friends, allies or other member states;
- c) the risk of reverse engineering or unintended technology transfer.

CRITERION SIX

The behaviour of the buyer country with regard to the international community, as regards in particular to its attitude to terrorism, the nature of its alliances and respect for international law

Member States will take into account inter alia the record of the buyer country with regard to:

- a) its support or encouragement of terrorism and international organised crime;

b) its compliance with its international commitments, in particular on the non-use of force, including under international humanitarian law applicable to international and non-international conflicts;

c) its commitment to non-proliferation and other areas of arms control and disarmament, in particular the signature, ratification and implementation of relevant arms control and disarmament conventions referred to in sub-paragraph b) of Criterion One.

CRITERION SEVEN

The existence of a risk that the equipment will be diverted within the buyer country or re-exported under undesirable conditions

In assessing the impact of the proposed export on the importing country and the risk that exported goods might be diverted to an undesirable end-user, the following will be considered:

a) the legitimate defence and domestic security interests of the recipient country, including any involvement in UN or other peace-keeping activity;

b) the technical capability of the recipient country to use the equipment;

c) the capability of the recipient country to exert effective export controls;

d) the risk of the arms being re-exported or diverted to terrorist organisations (anti-terrorist equipment would need particularly careful consideration in this context).

CRITERION EIGHT

The compatibility of the arms exports with the technical and economic capacity of the recipient country, taking into account the desirability that states should achieve their legitimate needs of security and defence with the least diversion for armaments of human and economic resources

Member States will take into account, in the light of information from relevant sources such as UNDP, World Bank, IMF and OECD reports, whether the proposed export would seriously hamper the sustainable development of the recipient country. They will consider in this context the recipient country's relative levels of military and social expenditure, taking into account also any EU or bilateral aid.

OPERATIVE PROVISIONS

1. Each EU Member State will assess export licence applications for military equipment made to it on a case-by-case basis against the provisions of the Code of Conduct.

2. This Code will not infringe on the right of Member States to operate more restrictive national policies.

3. EU Member States will circulate through diplomatic channels details of licences refused in accordance with the Code of Conduct for military equipment together with an explanation of why the licence has been refused. The details to be notified are set out in the form of a draft pro-forma at Annex A. Before any Member State grants a licence which has been denied by another Member State or States for an essentially identical transaction within the last three years, it will first consult the Member State or States which issued the denial(s). If following consultations, the Member State nevertheless decides to grant a licence, it will notify the Member State or States issuing the denial(s), giving a detailed explanation of its reasoning.

The decision to transfer or deny the transfer of any item of military equipment will remain at the national discretion of each Member State. A denial of a licence is understood to take place when the member state has refused to authorise the actual sale or physical export of the item of military equipment concerned, where a sale would otherwise have come about, or the conclusion of the relevant contract. For these purposes, a notifiable denial may, in accordance with national procedures, include denial of permission to start negotiations or a negative response to a formal initial enquiry about a specific order.

4. EU Member States will keep such denials and consultations confidential and not to use them for commercial advantage.

5. EU Member States will work for the early adoption of a common list of military equipment covered by the Code, based on similar national and international lists. Until then, the Code will operate on the basis of national control lists incorporating where appropriate elements from relevant international lists.

6. The criteria in this Code and the consultation procedure provided for by paragraph 2 of the operative provisions will also apply to dual-use goods as specified in Annex 1 of Council Decision 94/942/CFSP as amended, where there are grounds for believing that the end-user of such goods will be the armed forces or internal security forces or similar entities in the recipient country.

7. In order to maximise the efficiency of this Code, EU Member States will work within the framework of the CFSP to reinforce their cooperation and to promote their convergence in the field of conventional arms exports.

8. Each EU Member State will circulate to other EU Partners in confidence an annual report on its defence exports and on its implementation of the Code. These reports will be discussed at an annual meeting held within the framework of the CFSP. The meeting will also review the operation of the Code, identify any improvements which need to be made and submit to the Council a consolidated report, based on contributions from Member States.

9. EU Member States will, as appropriate, assess jointly through the CFSP framework the situation of potential or actual recipients of arms exports from EU Member States, in the light of the principles and criteria of the Code of Conduct.

10. It is recognised that Member States, where appropriate, may also take into account the effect of proposed exports on their economic, social, commercial and industrial interests, but that these factors will not affect the application of the above criteria.

11. EU Member States will use their best endeavours to encourage other arms exporting states to subscribe to the principles of this Code of Conduct.

12. This Code of Conduct and the operative provisions will replace any previous elaboration of the 1991 and 1992 Common Criteria.

ANNEX A

_____ (name of Member State) has the honour to inform partners of the following denial under the EU Code of Conduct:

Destination country: _____

Short description of equipment, including quantity and where appropriate, technical specifications: _____

Proposed consignee: _____

Proposed end-user (if different): _____

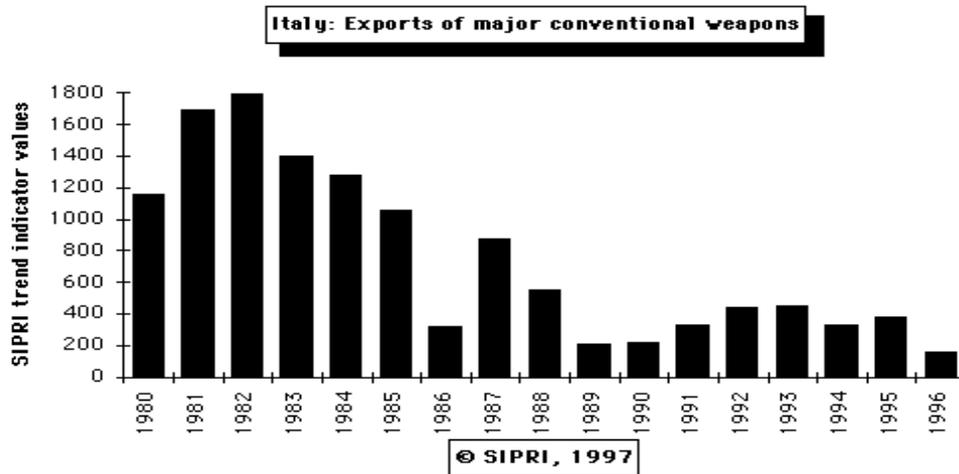
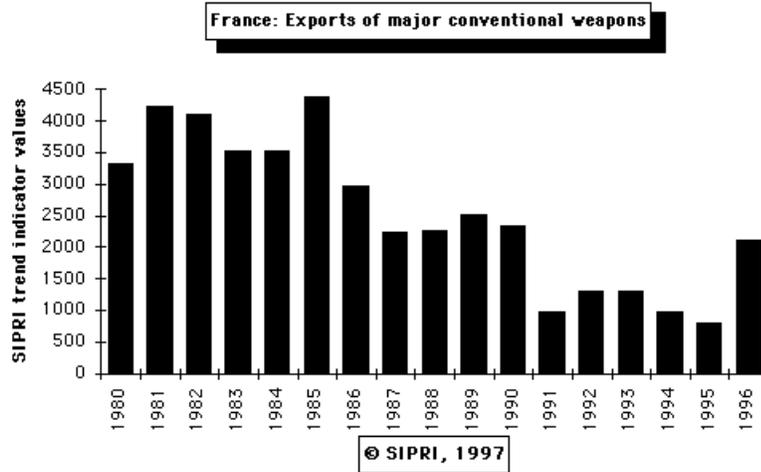
Reason for refusal: _____

Date of denial: _____

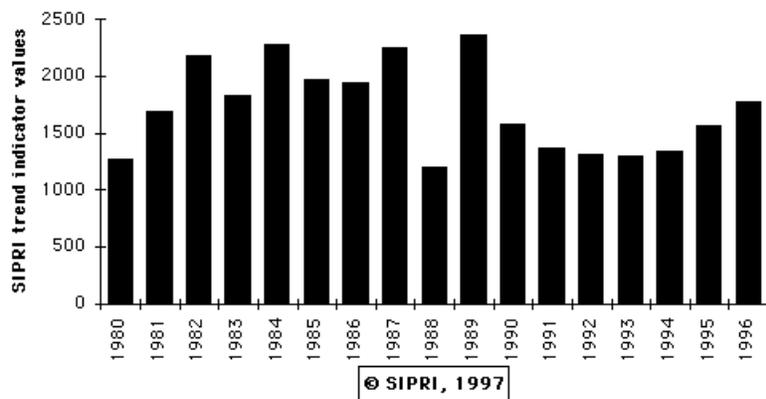
APPENDIX H

Appendix H

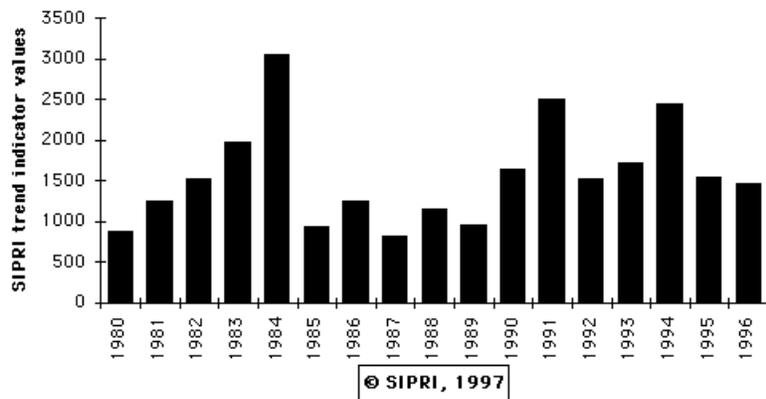
(On the tables below the left-hand side "Indicator Values" change in proportion from one table to the next.)



UK: Exports of major conventional weapons



Germany, FR: Exports of major conventional weapons



APPENDIX I

Defense News 1997 Top 100

Principal Business Key

A-aircraft; M-missiles; SP-space systems; PS-professional services; DE-defense electronics; AV-armored vehicles; S-ships and/or submarines; CS-computer services; AR-artillery; E-engines; H-helicopters; C-communications; O-ordnance; T-trucks; MU-maintenance and upgrades

1996 Rank	Country	Company	Principal Line of Business	1995 Rank	1996 Defense Revenue	1996 Total Revenue	1995 Net Income	Percent of Revenue in Defense
1	U.S.	<u>Lockheed Martin Corp.</u>	A,M,SP,PS, DE,CS,C,MU	1	14,300.0	26,800.0	1,350.0	53.4
2	U.S.	<u>McDonnell Douglas Corp.</u>	A,M,SP,DE, H	2	10,130.0	13,834.0	788.0	73.2
3	U.K.	<u>British Aerospace plc</u>	A,M,PS,DE, AV,AR,O,MU	3	9,055.0	12,630.0	773.0	71.7
4	U.S.	<u>Northrop Grumman Corp.</u>	A,SP,DE,CS ,C,MU	5	6,699.0	8,100.0	234.0	82.7
5	U.S.	<u>Hughes Electronics Corp.</u>	M,SP,PS,DE ,CS,C,MU	4	6,300.0	15,900.0	1,150.0	39.6
6	U.K.	<u>General Electric Co. (GEC) plc</u>	M,SP,DE,AV ,S,CS,AR,C ,MU	9	6,056.9	18,938.8	1,201.2	32.0
7	U.S.	<u>Boeing Co.</u>	A,SP,DE,CS ,H,C,MU	6	5,770.0	23,000.0	1,095.0	25.1
8	France	<u>Thomson Group</u>	M,PS,DE,S, CS,C,O,MU	8	4,433.5	6,931.3	142.3	64.0
9	U.S.	<u>Raytheon Co.</u>	A,M,PS,DE, CS,C,MU	10	4,032.0	12,300.0	783.3	32.8
10	France	<u>Lagardere Group</u>	M,SP,DE,CS ,C	12	3,830.0	11,060.0	202.0	34.6
11	U.S.	<u>United Technologies Corp.</u>	A,SP,E,H	11	3,400.0	23,500.0	906.0	14.5
12	U.S.	<u>General Dynamics Corp.</u>	AV,S,AR,O	15	3,300.0	3,581.0	270.0	92.2

13	Germany	<u>Daimler-Benz Aerospace AG</u>	A,M,SP,PS,DE,E,H,C,M U	13	3,224.8	8,403.5	773.8	38.4
14	France	Direction des Constructions Navales	PS,DE,S,CS,C,O,MU	14	3,045.0	3,045.0	-16.0	100.0
15	U.S.	<u>Litton Industries Inc.2</u>	SP,PS,DE,S,CS,C,MU	18	2,966.6	3,611.5	150.9	82.1
16	Japan	<u>Mitsubishi Heavy Industries Ltd.3</u>	AV,S	20	2,839.5	27,043.5	1,063.7	10.5
17	France	<u>Alcatel-Alsthom S.A.</u>	SP,DE,C	63	2,286.9	30,977.3	516.0	7.4
18	U.S.	<u>TRW Inc.</u>	SP,PS,DE,C	24	2,267.0	9,857.0	480.0	23.0
19	France	<u>Aerospatiale</u>	A,M,SP,H,M U	16	2,237.2	9,727.0	155.2	23.0
20	U.K.	<u>Rolls-Royce plc</u>	M,PS,E,MU	27	2,059.2	6,864.0	-47.6	30.0
21	U.S.	<u>Texas Instruments Inc.</u>	M,DE,CS,C	23	1,773.0	9,940.0	62.6	17.8
22	U.S.	<u>Newport News Shipbuilding</u>	S	22	1,760.0	1,870.0	55.0	94.1
23	U.S.	<u>General Electric Co.</u>	E	21	1,700.0	79,180.0	7,280.0	2.1
24	U.K.	GKN Group	A,AV,H,MU	33	1,632.7	5,669.6	388.6	28.8
25	U.S.	<u>ITT Industries Inc.</u>	SP,PS,DE,C S,C,MU	25	1,571.6	8,718.1	222.6	18.0
26	Italy	<u>Finmeccanica SpA</u>	A,M,SP,DE,AV,AR,E,H, C,O,MU	17	1,487.0	9,086.4	-0.3	16.4
27	U.S.	<u>AlliedSignal Inc.</u>	DE,E,H,C,M U	34	1,260.0	13,970.0	1,020.0	9.0
28	France	Giat Industries4	AV,AR,O,MU	29	1,210.1	1,571.6	-477.8	77.0
29	France	Dassault Aviation S.A.	A,SP	31	1,192.5	2,484.3	219.2	48.0

30	Japan	<u>Mitsubishi Electric Corp.3</u>	DE	35	1,134.3	24,484.0	222.0	4.6
31	Sweden	<u>Celsius Group</u>	M,PS,DE,AV, S,CS,AR,C, O,MU	28	1,130.2	1,614.6	50.4	70.0
32	Russia	<u>VPK Mapo</u>	A,MU	46	1,100.0	N/A	N/A	N/A
33	U.S.	<u>Computer Sciences Corp.5</u>	SP,PS,CS,C, MU	40	1,082.8	5,616.0	192.4	19.3
34	U.S.	<u>Science Applications International Corp.</u>	PS,CS,C,MU	38	1,046.9	2,402.2	63.7	43.6
35	Germany	<u>Siemens AG</u>	DE,C	41	1,030.1	60,633.0	2,097.5	1.7
36	Israel	Israel Aircraft Industries	A,M,SP,DE, AV,S,E,H,C, MU	36	1,024.0	1,467.0	N/A	69.8
37	U.S.	<u>United Defense L.P.</u>	DE,AV,C	39	1,010.0	1,010.0	N/A	100.0
38	U.S.	<u>Textron Inc.</u>	A,M,DE,AV, S,E,H	30	1,000.0	9,300.0	253.0	10.8
39	U.S.	<u>Alliant Techsystems Inc.5</u>	SP,DE,AR,C, O	37	959.0	1,089.4	59.2	88.0
40	U.S.	<u>Tracor Inc.</u>	DE,S,CS,H, C,MU	43	928.2	1,082.5	36.6	85.7
41	France	<u>SNECMA</u>	SP,E,MU	53	893.8	3,575.3	-53.5	25.0
42	Germany	<u>Thyssen Industrie AG</u>	S,MU	45	878.8	5,888.8	41.8	14.9
43	Japan	<u>Kawasaki Heavy Industries Ltd.3</u>	A,M,SP,S,E, H,MU	26	853.6	8,976.1	189.2	9.5
44	U.K.	Hunting plc	M,SP,PS,DE, AR,C,O,MU	47	852.9	2,174.7	28.7	39.2
45	U.K.	LucasVarity plc	DE	83	840.0	7,300.0	-267.0	11.5
46	U.S.	<u>Lucent Technologies Inc.</u>	DE,C	73	750.0	24,000.0	224.0	3.1

47	France	<u>SAGEM S.A.</u>	DE,C,MU	51	745.3	1,930.1	75.7	38.6
48	U.S.	<u>Harris Corp.</u> ⁷	SP,PS,DE,C ,MU	48	684.0	3,600.0	178.4	19.0
49	Japan	<u>Ishikawajima- Harima Heavy Industries Ltd.</u> ³	E	64	615.0	9,224.4	118.0	6.7
50	U.S.	<u>Rockwell International Corp.</u> ⁸	C	19	600.0	10,400.0	555.0	5.8
51	U.S.	<u>GTE Corp.</u> ⁹	PS,DE,CS,C	52	599.0	21,300.0	2,798.0	2.8
52	Germany	Diehl Group	A,M,PS,DE, AV,AR,O,T, MU	42	597.4	1,733.8	N/A	34.5
53	U.K.	<u>Racal Electronics plc</u>	DE,C,MU	59	596.3	1,933.4	53.5	30.8
54	U.K.	Smiths Industries plc ²	DE,MU	70	584.5	1,562.4	182.6	37.4
55	U.S.	<u>Dyncorp</u>	PS,CS,H,MU	67	574.7	1,020.0	14.6	56.3
56	Sweden	<u>Saab Group</u>	A,M,DE,MU	58	573.5	1,198.5	-102.0	47.9
57	France	Dassault Electronique S.A.	M,SP,PS,DE ,CS,C	54	559.2	871.2	22.4	64.2
58	U.S.	<u>Ceridian Corp.</u>	SP,PS,DE,C S,C,MU	66	553.0	1,495.6	181.9	37.0
59	U.S.	Logicon Inc.	SP,PS,DE,S ,CS,C,MU	69	538.0	566.4	32.7	95.0
60	Germany	STN Atlas Elektronik GmbH	PS,DE,S,E, C,MU	55	537.6	867.2	N/A	61.4
61	Germany	Rheinmetall Industrie AG	M,DE,AV,AR ,O	62	528.6	714.2	12.2	74.0
62	South Africa	<u>Denel Ltd.</u>	A,M,PS,DE, AV,CS,AR,E ,H,C,O,MU	50	505.4	726.1	80.9	69.6
63	Switzer land	<u>Oerlikon- Contraves AG</u> ¹⁰	M,SP,DE,AR ,O,MU	57	500.0	566.0	39.0	88.3

64	Russia	Sukhoi Design Bureau	A	N/R	500.0	N/A	N/A	N/A
65	U.S.	<u>GenCorp Inc.</u>	M,SP,E	65	494.0	1,500.0	42.0	32.9
66	Japan	<u>NEC Corp.3</u>	SP,C	49	491.5	34,680.5	531.9	1.4
67	U.S.	<u>Avondale Industries Inc.</u>	S	72	481.0	624.9	30.8	77.0
68	U.S.	Allegheny Teledyne Inc.	DE	56	456.0	3,800.0	211.0	12.0
69	Japan	<u>Toshiba Corp.3</u>	DE	68	449.2	32,888.7	517.2	1.4
70	India	Hindustan Aeronautics Ltd.5	A,SP,PS,DE,CS,E,H,C,MU	76	444.4	480.0	307.5	92.6
71	Sweden	<u>Ericsson Microwave Systems</u>	DE,C	61	375.3	18,055.8	1,475.1	2.1
72	Israel	<u>Tadiran Ltd.</u>	DE	78	370.0	1,117.0	93.0	33.1
73	U.S.	Primex Technologies Inc.	SP,DE,O	44	368.3	471.5	-7.9	78.1
74	Spain	<u>Constructiones Aeronauticas S.A. (CASA)</u>	A,SP,MU	71	366.7	839.9	34.0	43.7
75	U.S.	<u>BDM International Inc.</u>	PS,CS,C	60	362.0	1,002.0	27.3	36.1
76	Australia	Australian Defence Industries Ltd.	M,PS,DE,AV,S,AR,E,C,O,T,MU	87	345.3	506.0	3.7	68.2
77	France	Sextant Avionique	A,SP,DE,H,MU	77	344.0	936.4	N/A	36.7
78	U.S.	AM General Corp.11	PS,T,MU	84	342.2	462.4	-19.6	74.0
79	Canada	CAE Inc.5	PS,DE,S,MU	88	339.3	632.6	44.0	53.6
80	Canada	<u>Bombardier Inc.</u>	A,M	81	336.4	5,836.8	297.7	5.8
81	Germany	<u>Krauss-Maffei AG13</u>	AV,MU	N/R	309.7	1,404.7	N/A	22.0

82	Japan	Hitachi Shipbuilding ³	S	N/R	309.5	4,325.5	129.5	7.2
83	Israel	<u>Elbit Systems Ltd.</u>	DE,C,MU,M, SP,AV,AR,H	86	307.5	307.5	18.0	100.0
84	Spain	Bazan S.A.	S	N/R	303.0	480.1	N/A	63.1
85	U.S.	Esco Electronics Corp.13	DE	79	301.0	438.5	26.1	68.6
86	U.S.	<u>Motorola Inc.9</u>	SP,DE,C,O	91	290.0	28,000.0	1,015.0	1.0
87	U.S.	<u>Booz-Allen & Hamilton Inc.</u>	PS,C	80	280.0	1,300.0	N/A	21.5
88	U.S.	<u>Honeywell Inc.</u>	DE	85	263.6	7,312.0	402.7	3.6
89	Spain	<u>Indra</u>	M,SP,PS,DE ,CS,MU	N/R	259.6	460.1	7.7	56.4
90	France	<u>SNPE5</u>	M,SP,O	89	259.1	878.3	7.5	29.5
91	India	Bharat Electronics Ltd.	DE,C	N/R	256.1	341.5	18.1	75.0
92	Japan	<u>Komatsu Ltd.3</u>	AV	99	254.9	9,457.2	156.3	2.7
93	U.S.	<u>Kaman Corp.</u>	SP,CS,H	100	253.3	953.6	23.6	26.6
94	U.S.	UNC Inc.	PS,MU	94	252.3	832.1	41.7	30.3
95	U.S.	Oshkosh Truck Corp.13	T,MU	97	251.5	413.5	-3.1	60.8
96	U.K.	Vosper Thornycroft Holdings plc5	PS,DE,S,CS ,MU	92	248.1	407.8	N/A	60.8
97	Japan	<u>Mitsui Shipbuilding3</u>	S	N/R	247.0	3,176.5	3.6	7.8
98	U.S.	<u>Johnson Controls Inc.9</u>	PS	95	245.0	10,000.0	234.7	2.5
99	U.S.	<u>Thiokol Corp.7</u>	M,SP,O	96	241.1	889.5	58.3	27.1
100	U.S.	<u>Sundstrand Corp.</u>	A,SP,S,H	98	240.0	1,521.0	114.0	15.8

Footnotes: 1 Profit before taxes; 2 Year ended July 31; 3 Japanese defense contract awards rather than revenue; 4 Defense analyst estimate; 5 Year ended March 31; 6 Operating profit for Hunting Defence; 7 Year ended June 30; 8 Figures based on continuing operations; 9 Ranking based on U.S. Department of Defense

prime contract awards only;10 Earnings before interest and taxes;11 Year ended Oct. 31;12 Year ended Jan. 31; 13 Year ended Sept. 30

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