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COALITION OF THE WILLING...COALITION OF THE
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A CASE TO REFORM U.S. EXPORT POLICY

by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

Advisor: Title First M. Last

Maxwell Air Force Base, Alabama

April 2005

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE APR 2005		2. REPORT TYPE		3. DATES COVERED 00-00-2005 to 00-00-2005	
4. TITLE AND SUBTITLE Coalition of the Willing...Coalition of the Able? A Case to Reform U.S. Export Policy				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Air University,Air War College,325 Chennault Circle,Maxwell AFB,AL,36112				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT see report					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 83	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

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Acknowledgments

I would like to acknowledge several people for their help and support in accomplishing this research paper. First I want to thank the Washington Institute for their support of the USAF's fellowship program. The whole organization has made me feel welcome and at home over the past 10 months. To my co-fellows at the Washington Institute for Near East Policy, thank you for demonstrating the analytical skills necessary to accomplish my research. Mike Eisenstadt and Michael Knights, I thank you for your friendship and professional guidance. Thank you for taking the time to help a fighter pilot expand his horizons. To Haleh Zareei, your help in researching my topic was instrumental, thank you for taking the time to edit my paper, for your expertise, and professionalism. I wish you all the best in the future.

I thank my wife, Andrea, for your tireless and unwavering support over the past 20 years which has made me the father, husband and officer I am today. Thank you for helping me keep my life in perspective, and helping me focus on what is truly important. It is to you I dedicate this paper.

Abstract

The U.S. export laws have undergone minor changes, mainly directed at speeding up the export process and not since the Cold War have there been any significant changes. Since the end of the Cold War, the world, the defense industries, and the Department of Defense have undergone significant changes. The U.S. export system will have to undergo significant changes itself, more than procedural changes. The U.S. export system needs a top down review if it is to serve U.S. national interests, and adequately protect critical U.S. technology.

No longer is the U.S. the sole keeper of leading edge technology, no longer is the Department of Defense relying solely on the U.S. defense industry, and no longer can the U.S. military endure long developmental cycles for weapon systems. When the Soviet Union broke up, the world entered a new era, one built not on walls but one built on bridges. This reality has changed the defense industry into an industry where mergers and acquisitions, both within national borders and across national borders, are needed to survive and compete.

The U.S. military has undergone its own transformation to a leaner force with global reach built on rapid response. This force is dependent on the procurement of cutting edge technology and the development of the tactics to employ the technology. As the U.S. military reaches to a global defense industry to meet these needs, it is faced with a difficult challenge. How can the U.S. ensure its allies are capable of providing forces that

are technically capable of joining the fight while balancing the ability to control the flow of critical U.S. technology? In this global environment it is obvious that our ability to form international coalitions of the willing is vital to protecting U.S. national interests. But the ability to form coalitions of the able is equally important. The U.S. must address the difficult task of maintaining control of critical technology while enabling allies to keep pace with the U.S. military. Both are vital to U.S. national security.

This report will look at the current U.S. export system, past reform efforts and two factors effecting U.S. export reform, globalization of the defense industry, and the transformation of the U.S. military. Finally, current international agreements, and what application they might have to the U.S. export system will be examined.

Chapter 1

Security Assistance Process and Definitions

To understand the effect of the United States Government's (USG) export policy it is important to first understand the laws which regulate the system, the common terms used, and how the process operates. While the U.S. export system is very complicated this paper attempts to give a general overview to better understand the options for reform.

U.S. Arms Export Laws

The United States (U.S.) arms export policy is governed by five public laws:

- a. Foreign Assistance Act (FAA) of 1961 as amended – The FAA is the authorizing legislation for International Military Education and Training (IMET), Economic Support Fund (ESF), Peacekeeping Operations (PKO), overseas security assistance program management, transfer of excess defense articles (EDA), and a wide variety of other foreign assistance programs.¹
- b. Arms Export Control Act (AECA) of 1976 as amended - The AECA is the statutory basis for the conduct of Foreign Military Sales (FMS), funding for Foreign Military Finance Program (FMFP), and the control of commercial sales of defense articles and services.²

- c. Annual appropriations acts for foreign operations, export financing and related programs - No “traditional” security assistance authorization act has been enacted since the passage of the *International Security and Development Cooperation Act of 1985*, P.L. 99-83, which provided authorizations for fiscal years 1986 and 1987. In the absence of an annual security assistance authorization act, “authorizing language” for security assistance programs has made its way into other legislation, most notably the annual foreign operations appropriations acts.³
- d. International Traffic in Arms Regulation (ITAR) - Section 38 of the Arms Export Control Act (22 U.S.C. 2778) authorizes the President to control the export and import of defense articles and defense services. The President delegated this authority to the Secretary of State by Executive Order 11958, as amended (42 FR 4311). Final administration of the process is delegated to the Director of the Office of Defense Trade Controls, Bureau of Politico-Military Affairs, Department of State. The ITAR implements that authority and defines what are considered defense articles and defense services. It is the regulatory guidance for implementing the sale of defense articles. The ITAR also includes the U.S. Munitions List (USML), Significant Military Equipment (SME) and Major Defense Equipment (MDE).⁴ (see terms below)
- e. The Export Administration Act of 1979, as amended, has been in lapse since August 21, 2001. In the absence of an Export Administration Act, the U.S. dual-use export control system continues to be dependent on the President's

invocation of emergency powers under the International Emergency Economic Powers Act.⁵

In addition to understanding the laws that govern security assistance it is also important to understand the instruments used to implement security assistance and the common terms used. The U.S. export system is implemented by a variety of programs that provide funding for weapon systems and avenues for providing the export of training and services.

Instruments of Security Assistance

Foreign Military Sales (FMS) - FMS is a government-to-government method of selling U.S. defense equipment, services and training authorized by the Arms Export Control Act.⁶

Direct Commercial Sales (DCS) –A Direct Commercial Sale is a sale made by U.S. companies directly to an international customer under an AECA sales license. DCS agreements are not administered by Department of Defense (DoD) and do not involve a government-to-government agreement. U.S. industry is responsible for obtaining a license from the Office of Defense Trade Controls in the Department of State for each of these sales. (Footnote DSCA website). DoD is neutral on the use of FMS or DCS. However there are times when FMS will be required, for example when items will involve access to sensitive U.S. databases or the integration of complex systems is involved.⁷

Foreign Military Financing (FMF) – FMF is a U.S. government program to finance, via grants or loans, the acquisition of U.S. military articles, services and training. The Administration submits requests to Congress via the Security Assistance budget.

Congress then appropriates FMF funds, DoS allocates the funds, and finally, DoD executes the program.⁸

International Military Education and Training (IMET) –IMET is the instrument used to provide training and education to foreign military and civilian persons. The training can occur in the U.S. or in the foreign country. IMET is funded by the State Department International Affairs Budget and/or a country’s own funds. The IMET program exposes students to the U.S. professional military establishment and the American way of life including, among other things, U.S. regard for democratic values, respect for individual and human rights, and belief in the rule of law.⁹

Security Assistance Common Terms

The U.S. Munitions List (USML) – The USML categorizes goods and technologies governed by the ITAR. Defense trade controls are applicable when exporting military-related goods and technologies from the United States. Some items on the USML are identified as Significant Military Equipment (SME) and are even more closely controlled and monitored.¹⁰

Significant Military Equipment (SME) –According to section 47(6) of the AECA, SME is any “articles for which special export controls are warranted because of their capacity for substantial military utility or capability”¹¹

Major Defense Equipment (MDE) – According to section 120.7 of the ITAR and to section 47 (6) of AECA, MDE is a subcategory of SME and is any SME on the U.S. Munitions list having nonrecurring research and development costs of more than \$50,000,000 or total production costs of more then \$200,000,000.¹²

Excess Defense Articles (EDA) – EDA are defense articles owned by the U.S. and in excess of the needs of all DoD departments. They are dropped from the inventory and made available for delivery to other countries and international organizations. EDA is governed by the FAA.¹³

National Disclosure Policy (NDP) – The NDP governs the release of classified military information. The NDP is issued by the Secretary of Defense with concurrence of the Secretary of State, the Secretary of Energy and the Director of Central Intelligence. The NDP establishes the framework for which disclosure decisions can be made.

U.S. Export Policy

The application of these programs is where U.S. foreign policy and security assistance meet. Security assistance links U.S. security and foreign policy and also supports the Combatant Commander goals of coalition building, interoperability, peacetime engagement, regional stability and theater deterrence. Security assistance is instrumental in strengthening alliances and ensuring our allies have interoperability, and thus are able to burden share in times of crisis. Simultaneously, security assistance promotes American values, such as democracy, and helps sustain America's defense industry.

The linkage of security policy and foreign policy makes security assistance an interagency process. The major players in the process are:

- The Administration, submits the security assistance budget
- Combatant Commanders define the military regional policy and engagement plan for each country in the Area of Responsibility (AOR)

- The Chief of Mission and country team define the engagement process within the country
- The country defines its own security needs
- The Department of State (DoS) determines the funding levels and controls the license agreement and sales
- The DoD determines equipment available for sale, recommends funding levels and implements the Foreign Military Sales (FMS), Foreign Military Financing (FMF) and International Military Education and Training (IMET) programs. The Defense Security Cooperation Agency (DSCA) is the DoD focal point for the coordination process, and the military departments are the executors of the programs.

When a foreign nation or defense contractor requests the sale of conventional arms, the process is governed by the AECA. If the sale involves a MDE, the President must notify Congress. Once notified, Congress has 15 days to deny the export if the sale is to a NATO country or Japan, Australia, or New Zealand. If the export is to any other country, Congress has 30 days to deny the export. However, the 15 or 30 day limits only apply if Congress is in session, and the process can take up to several months if Congress is adjourned or on recess. On average it takes more than 90 days for DoS to process a license when outside agency coordination is required.¹⁴ Also, Congress requires that commercial sales have a contract before congressional notification and approval of any third re-transfers. Nations and defense industries are reluctant to enter and complete contract negotiations if the deal is subject to congressional approval. Next, the AECA and the FAA give specific requirements for the re-transfer of defense articles to third

parties. All purchasers must agree not to transfer any defense article, service or training without prior U.S. approval. DoS has been delegated this approval authority. In addition, the DoD program “Golden Sentry” is used to ensure the proper use of defense services and training provided by security assistance programs. The U.S. government’s security assistance is a major tool used in the formulation and implementation of U.S. foreign policy. Engagement either by FMS, DCS or IMET is directly related the U.S. National Strategy.

U.S. security assistance programs and the applicable export laws serve a very important linkage between U.S. national security objectives and the control of sensitive U.S. technology. The process involves many agencies within the U.S. government as well as the foreign purchasers. However, what are also important to understand are the changes in the defense industry and the changes within the U.S. military, which have placed a renewed emphasis on reforming the U.S. export system. Before examining the changes in the defense industry and the U.S. military, it is first necessary to examine what globalization is and what effect it has had on DoD.

¹DISAM’s Online Green Book “The Management of Security Assistance [Latest Edition: 24th.] (The Green Book 24th Edition)” n.p., on-line, Internet, 2 February 05, available from <http://www.disam.dsca.mil/pubs/publications.htm>

² *Ibid*

³ *Ibid*

⁴ *Ibid*

⁵ *Ibid*

⁶ *Ibid*

⁷ DOD 5105.38-M, “Security Assistance Management Manual” 3 October 2003, Incorporating E-Changes 18-23 Oct 2004, 521, on-line, 15 Feb 2005, available from <http://www.dsca.osd.mil/samm/>.

⁸ *Ibid*

⁹ “International Training Programs”, April 18 2003, n.p., on-line, Internet, 13 February 2005, available from <http://www.dsca.osd.mil/programs/imet/imet2.htm>

¹⁰ DOD 5105.38-M, “Security Assistance Management Manual” 3 October 2003, Incorporating E-Changes 18-23 October 2004, 521, on-line, 15 February 2005, available from <http://www.dsca.osd.mil/samm/>.

¹¹ *Ibid*

¹² *Ibid*

¹³ *Ibid*

¹⁴“AIA “Proposed Changes to the Export Control System”, n.p., on-line, Internet, available from http://www.aia-aerospace.org/issues/subject/export_control_changes.pdf

Chapter 2

Globalization's Effects on DoD

Globalization is the blending of politics, economics, and cultures of separated nations. It is not a one-time event or a new phenomenon. However, it is accelerating and it is inevitable. Globalization is not a choice for nations to make, but is a fact to which nations must adjust. This chapter will look at the impact of globalization on the U.S. aerospace industry and the subsequent impact on DOD.

The era of globalization currently sweeping the globe is a continuation from an earlier era. During the 1800s to the late 1920s, the world went through a similar era. Comparing volume of trade relative to the nations' Gross National Product (GNP) and comparing the flow of labor across borders relative to the populations in the era preceding World War I, with today's statistics, show a similarity in scope.¹ Globalization was put on hold due to the effects of World War I and the Great Depression and was stagnate until the end of the Cold War. However, since the Berlin Wall fell in 1989, the world economy awoke, and globalization, which was on hold for roughly seventy-five years, restarted. Due to the effects of the microchip and the World Wide Web, the world economy has emerged in hyper drive. In 1900, foreign trade was measured in millions of dollars per day. In 1992, foreign trade was \$820 billion a day, and by 1998, it was \$1.5 trillion a day.² The first era of globalization involved a select few nations fueled by

advances in transportation such as the steam engine, the railroad and the transatlantic cable. The current era of globalization is reaching to all corners of the globe because of telecommunications and is creating a global neighborhood.

Technology today is allowing nations and corporations to intertwine faster, cheaper and at more levels than ever before. Some of this intermingling of nations and industry is a natural evolution of a shrinking world market place, and the U.S. defense industry is not immune to the effects. Historically, DoD relied on and sustained a dedicated defense industrial base capable of developing and producing weapons systems in an industry that was strictly controlled by the national politics, and national security was the number one factor influencing export policy. Post Cold War, the U.S. is supported by a more diverse industrial base that is becoming more international in character and increasingly relies on the commercial sector.³ As DoD relies less on a dedicated defense industry, the effects of mergers, both nationally and internationally, will have a greater impact on how DoD meets its acquisition needs and how U.S. export policy supports national security issues.

At the end of the Cold War, the defense industry found itself in an ever shrinking global market with national budgets focused more on the “peace dividend” than on defense spending. Concurrently, the world no longer had the clear consensus on arms sales restrictions that existed during the Cold War. During the Cold war, arms sales were dependent upon a nation’s allegiances, whether with the East or the West. However, after the Cold War ended, the global market became a driving force for arms trade, with nation-state’s security sometimes taking second place to economic interests. Globalization had reached the arms industry. In addition, the first Gulf War had a profound impact on the defense industry. The overwhelming success of the U.S. military

led to U.S. made weapons systems becoming the number one choice for most nations seeking weapons after the Cold War. The combination of these factors forced the U.S. defense industry, and subsequently the European arms industry, to consolidate. The impact of the shrinking global market can be seen in the increasing number of Mergers and Acquisitions (M&A) within national borders and the ever-increasing rate of joint ventures in the aerospace defense industry across national borders. The results are evident in the period from 1990–1998 when the U.S. aerospace industry underwent a period of consolidation, resulting in four major producers: Boeing, Lockheed Martin, Northrop Grumman, and Raytheon. (see table 1)

Examples of transnational partnerships are as prevalent. For example, Boeing has partnered with Israeli Aerospace Industry for the Arrow missile defense system, while teaming with BAE Systems on the Meteor and military tankers, and with Finmeccanica developing tankers for the Italian Air Force. (Dr Trice Speech at DSCA conference) The days of the U.S. defense industry existing exclusively for the U.S. DOD are over. Cross-border relationships are now a way of life and are necessary. In fact, the British government led the development of the C-130J by Lockheed Martin, an aircraft purchased by both the USAF and the British Royal Air Force. The production involves over 150 U.K. companies providing over 20 percent of the value of each C-130J that is produced. The resulting impact has been over pounds 1 billion of business to the U.K. aerospace and defense industry.⁴ At one time DoD could depend on, and in fact sustain, a dedicated industrial base, but now DoD reaches to a defense industrial base that is more international and competing for ever shrinking defense budgets.

After 1998, the defense industry continued a period of consolidation but at a reduced rate and with a different focus. M&As, since 1998, are driven by a need to adjust to companies' capabilities and are more focused on the subcontractor level than the prime contractor level. As DoD continues its transformation to newer technologies and ways of employing, the defense industry finds itself in the market place for companies that produce the key technologies necessary to support DoD. This is reflected in the 2003 data compiled by Infobase Publishers Incorporated; the total value of M&As decreased from of \$65.9 billion in 1999 to \$27.2 billion in 2002. However, the most recent data shows the total number of M&As in the first half of 2003 were 129 M&As, a 30 percent increase compared to the same time frame in 2002. The difference from the mid 1990s is the most recent M&As reflect larger numbers of M&As but at a much lower overall value.⁵ These facts are reflected in the U.S. DoD figures as well. DOD figures show 37 total M&As transactions registered in 2003, while the 10 year average from 1994-2003 was 23 M&A transactions per year. In addition, the combined value of the 37 M&As in 2003 was \$8 billion dollars. This is one-eighth of the value of the M&A transactions during 2001.⁶ The result of this trend in M&A on DoD is there is an ever-shrinking pool of contractors, and as a result, this smaller pool of contractors now has a greater influence within the political system.

The European arms industry has undergone a consolidation similar to the U.S., but the concentration went beyond the national level due to the smaller domestic markets and smaller national budgets. Unlike the U.S. defense market where corporations began to consolidate within the U.S., the European defense industry has reached across national borders during its consolidation. The result is the evolution of three major European

arms-producing companies: British Aerospace (BAE) Systems, the European Aeronautic Defense and Space Company (EADS) and Thales. The European defense industry is driven by the need to compete with the U.S. “mega-firms” that led the way in M&A in the 1990s. As discussed earlier, there were several global factors that affected the U.S. defense industry, and these factors affected the European defense industry as well. The end of the Cold War led to decreases in defense spending around the globe, and the Gulf War made U.S. produced defense products the choice for nations seeking defense upgrades. The growing gap in defense budgets between the U.S. and European nations only exasperated the gap in technological know-how and capabilities between U.S. and European defense industries. The U.S. defense industry was quicker to react to the new realities of the industry and began merging into fewer but larger companies. The fragmented European industry was unable to compete with the larger, more technological advanced U.S. industry. As a result, the European defense industry had to begin to merge to compete in the global market. Three large European firms emerged, BAE Systems, the EADS, and Thales. (see tables 2,3 and 4)

These companies began to provide an alternative to U.S. defense products. The recent industry consolidation and rationalization in Europe has led to increased competition for U.S. defense firms in the new defense market, but the U.S. still remains the major arms exporter in the world. The data from 1990-2001 shows that the US has dominated the global market maintaining a share between 40-45 percent of total arms sales.⁷ This data reflects the massive build up of Middle East countries after the first Gulf War and does not reflect the current impact of the strengthened European defense industry. This competition and the growing capabilities of the European Defense

Industry has driven the U.S. defense industry to push for reforms in the U.S. export laws, which they feel are beginning to hinder their ability to compete. The projected arms market over the next 10-15 years will be centered more on international and joint designed programs that will increasingly be for non-U.S. users. The ability of the U.S. defense industry to compete in the future market place will hinge on their ability to gain access to these programs. These programs will involve significant levels of U.S. technology transfers. According to Charles G. Jameson of Northrop Grumman International, "Our ability to obtain the export licenses and other authorizations necessary to support required levels of technology transfer in the major international programs is a key determinant of Northrop Grumman's ability to compete in the global marketplace."⁸

Another factor impacting the defense industry is the increased use of commercial products to meet the need for advanced technology at lower costs. As the arms market becomes smaller, more transnational and thus more competitive, the defense industry and DoD have turned towards the commercial industry as a supplier. The use of the commercial industry allowed arms to be developed using leading edge technology quicker and at substantially lower cost. This is most evident in the Information Technology (IT) sector, which was critical to the rapid transformation DoD has undergone. As weapon systems become more complicated and technology dependent, the benefit of shorter developmental cycles increased. Previously a development cycle of 5-10 years was acceptable. Today with computer power doubling every 18 months, a company or a nation that does not adapt to this reality will quickly find its business or defense industry outdated.

As the defense industry evolved with globalization, the US government began to adjust as well. As the M&A increased, the pool of defense suppliers decreased; therefore the supplier's economic importance became a larger factor in U.S. government export decisions. In 1995, the Clinton administration was the first to identify economic factors as a critical element in conventional arms sales. Presidential Decision Directive 34 (PDD 34), states one of the goals of U.S. arms exports is to "enhance the ability of the U.S. industrial base to meet U.S. defense requirements and maintain long-term military technological superiority at lower costs." In addition, the export decision should be based in part on "the impact on U.S. industry and the defense industrial base." As a result, the export of defense items increased. In 1998, the US weapons' industry delivered arms, signed new contracts or received export licenses for 155 of 190 independent countries.⁹ Economics increased role in defense purchases had a similar impact on purchasing nations. If a strong economy was important to national security, buyers of weapon systems would want to see economic benefits from large defense expenditures instead of just receiving an end item.

During the Cold War, nations received arms as part of the benefit of aligning themselves with the East or the West. After the end of the Cold War, nations looked for more benefits from arms purchases other than receiving the hardware. This is evident in the increase in offsets and co-production agreements as part of arms exports. Offsets can involve local production, subcontracting, joint development and transfers of technology and can be in the form of direct or indirect offsets.^{1 10} Offsets, as part of defense

¹ A merger occurs when two or more companies combine to form one new company. An acquisition (or takeover) occurs when one company buys another company or part thereof and it becomes part of the buying organization, sometimes against the wish of the latter's board of directors (that is, a hostile takeover).

contracts, began to increase in late 1990s in order to secure a contract. The value of these offsets has been over 100 percent of the contract value, but the average offset package required by Europeans during this period was 85.8 percent of the value of the defense contract.¹¹

Direct offsets are those tied directly with the purchase of the weapon system. In contrast, indirect offsets are separate from the arms deal and involve contracts that are not directly related to the manufacture of the weapon system being purchased. For example, when Turkey purchased F-16s, part of the deal was a direct offset in which Lockheed Martin helped establish a production facility in Turkey. This co-production capability helped Turkey establish itself in the global aircraft industry and provided an economic benefit to Turkey in the form of jobs. Turkey's purchase of F-16s exemplifies the trend in weapons procurement, where purchasing nations are looking for a return on investment in exchange for their defense dollars. It is also why some opponents oppose this type of technology transfer, fearing the technological advantage U.S. forces have will diminish, and American jobs will be lost.¹²

Nations purchasing arms expect to gain a benefit in their own economy thus arms exports increasingly involve not just the hardware, but also the technology needed to produce the arms. The expectation to benefit a nation's economy is evident in the growing number of co-production agreements associated with arms sales. U.S. weapons makers are increasingly engaging in cooperative and co-production manufacturing of defense equipment. The effect of co-production and offsets is seen by the increase in the value and number of license applications for defense services. Co-production is the overseas production based upon a government-to-government agreement that permits a

foreign government or producer(s) to acquire the technical information to manufacture all or part of a U.S. origin defense article.¹³ The number of licenses for defense services have increased fourfold since 1994 to over 4,000 in 1999.¹⁴ This increase is dwarfed by the license agreements issued in 2003. According to the Report by the Department of State, pursuant to Section 655 of the *Foreign Assistance Act* the overall number of permanent export license applications submitted in Fiscal Year 2003 was approximately 35,000. The number of manufacturing license agreements and technical assistance agreements submitted was 6,608. This trend appears to reflect the growing complexity of the defense trade as international joint ventures, co-production, licensed manufacturing and offset arrangements increasingly characterize major sales.¹⁵ The U.S. government's position is to encourage arms sales in order to facilitate interoperability with U.S. forces. This is evident in the congressional notification of the Turkish F-16 modernization program in 2004. The notification states "the proposed sale will contribute to foreign policy and national security objectives of the United States by improving the military capabilities of Turkey and further weapon system standardization and interoperability with US forces"¹⁶ Similar points can be found in most congressional notifications, and are a good example of the U.S. government's point of view on the justification for exporting arms.

Two important factors are driving the debate to reform the U.S. export system. As discussed, the globalization of the defense industry, yet just as influential is the rapid transformation of the U.S. DoD. Globalization has changed the face of the defense industry, but the current export laws have not adapted. Compounding the problem is the DoD's shift in its overall war fighting strategy. A leaner, more adaptable force, which is

smaller in size but imposes increased lethality, has required a greater dependence on higher technology. This need to apply the latest technology requires an acquisition system that responds faster, can utilize more commercial products which have shorter developmental time, and depends on a defense industrial base on the leading edge of technology. However, defense contracts are increasing smaller in size, due to the reliance on increased lethality. No longer are defense contracts a one-for-one buy, newer weapon systems are expected to perform the role of multiple weapon systems they replace. As DoD has required higher technology, and with smaller purchase numbers, the per unit costs have increased. This has forced defense contractors to join together in joint ventures that are increasingly international to share the cost burden and risk involved in developing expensive weapon systems.^{2 17} Nations have addressed this international arms market by establishing international agreements for conventional arms control. What are the current international agreements? What benefit can the U.S. gain by studying the benefits and limitations of these agreements?

² A joint venture company is a company jointly owned and operated by two or more parent companies. Joint ventures are often limited to one objective, for example for the joint development, manufacture, sale or marketing of a particular weapon system or class of weapon systems

U.S. Defense Industry Mergers and Acquisitions

1990 1991 1992 1993 1994 1995 1996 1997 1998

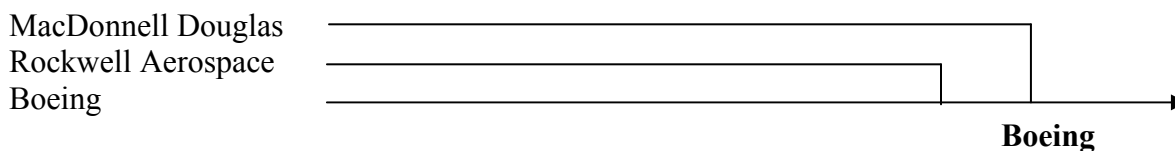
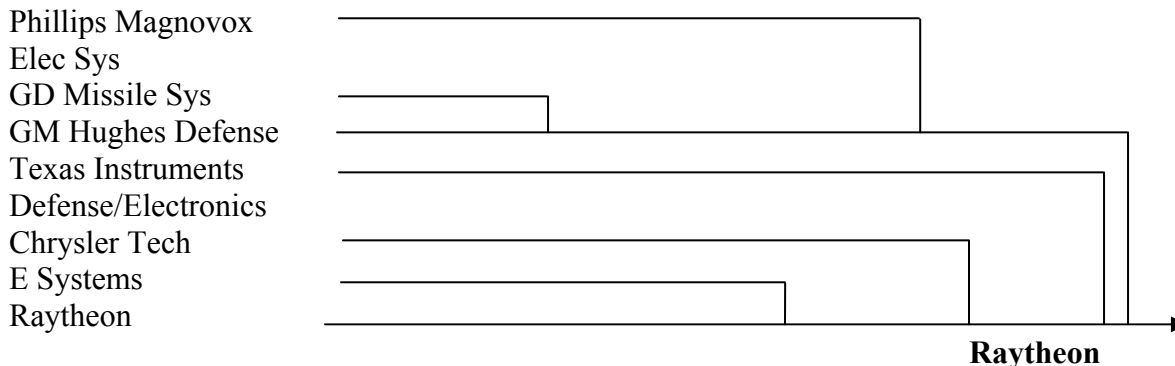
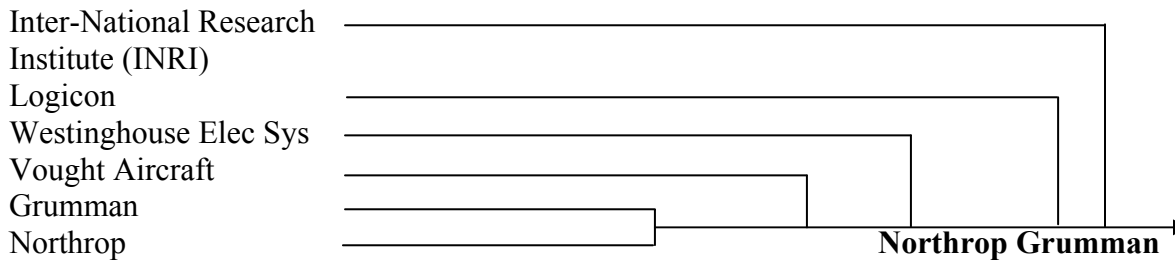
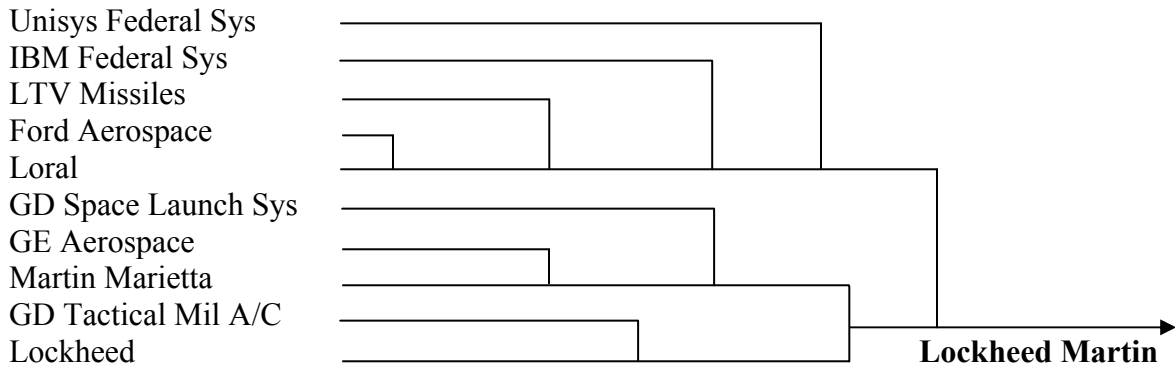


Table 1¹⁸

Thales Mergers and Acquisitions

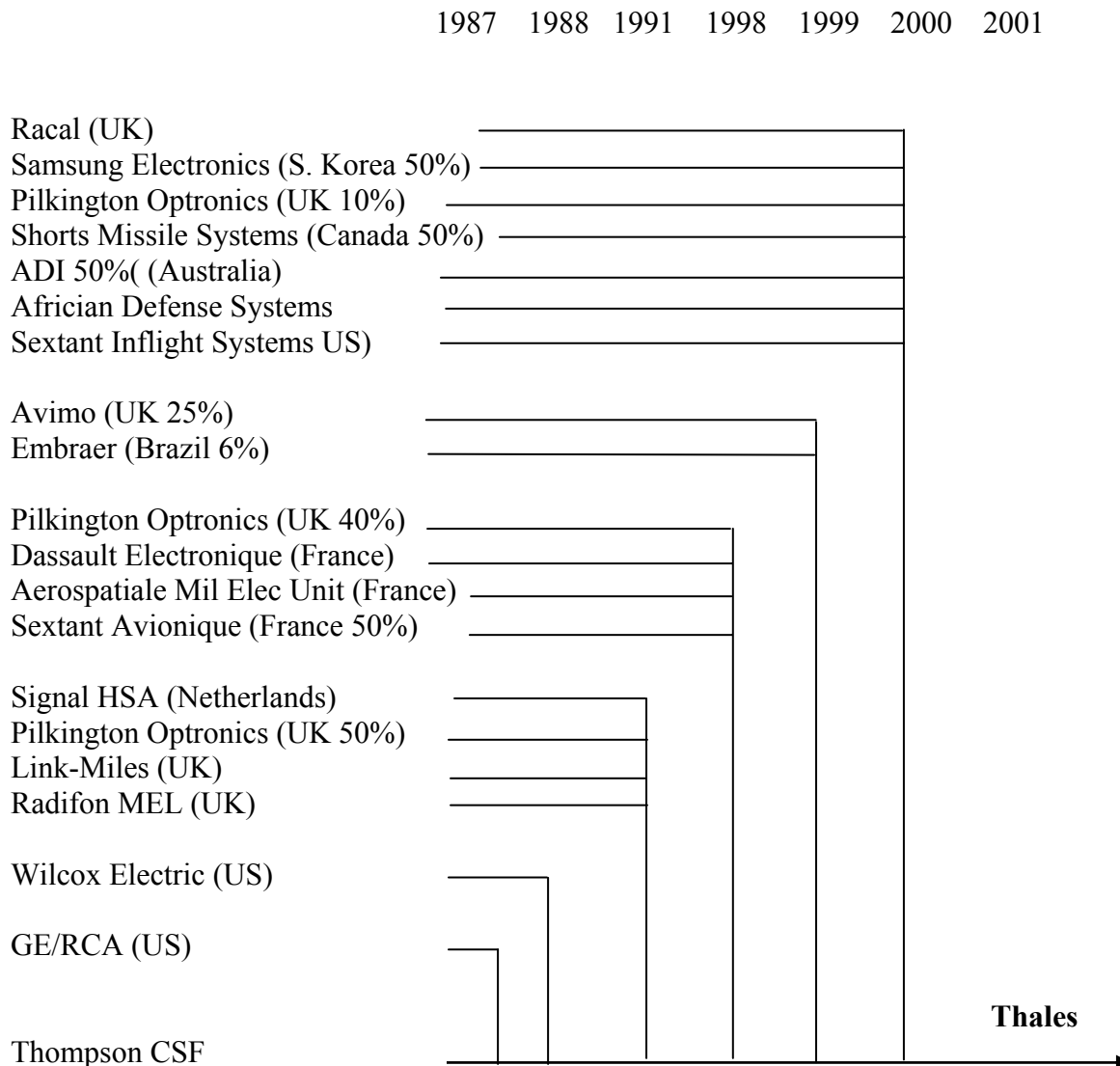


Table 2¹⁹

EADS Mergers and Acquisitions

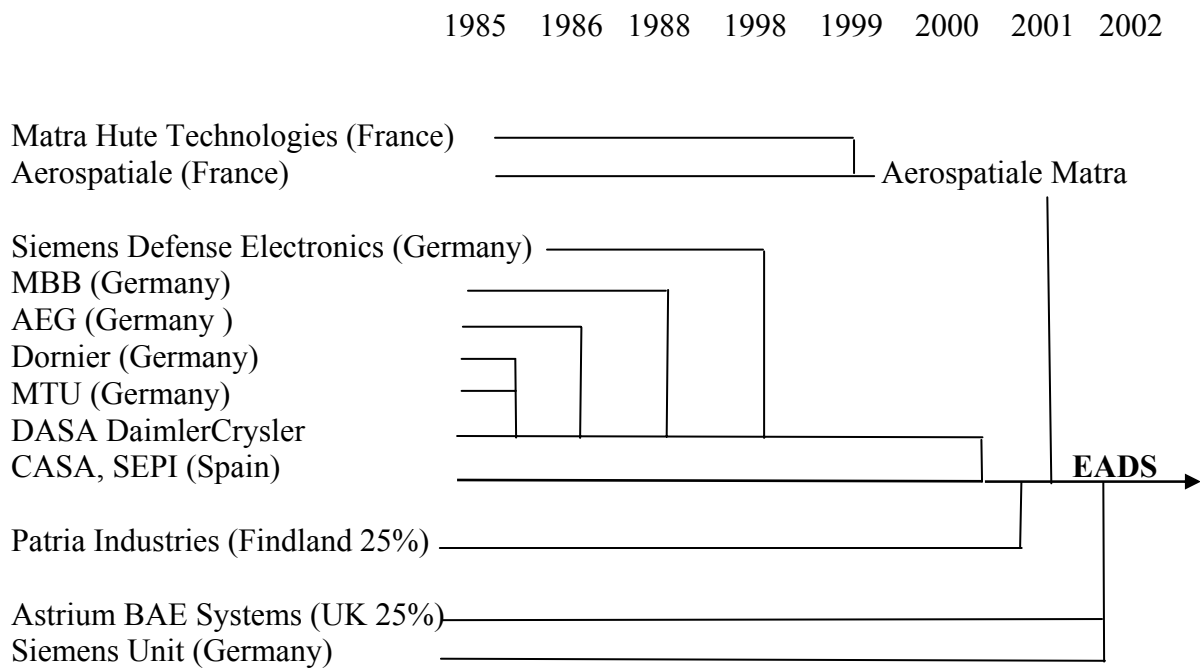


Table 3²⁰

BAE Systems Mergers and Acquisitions

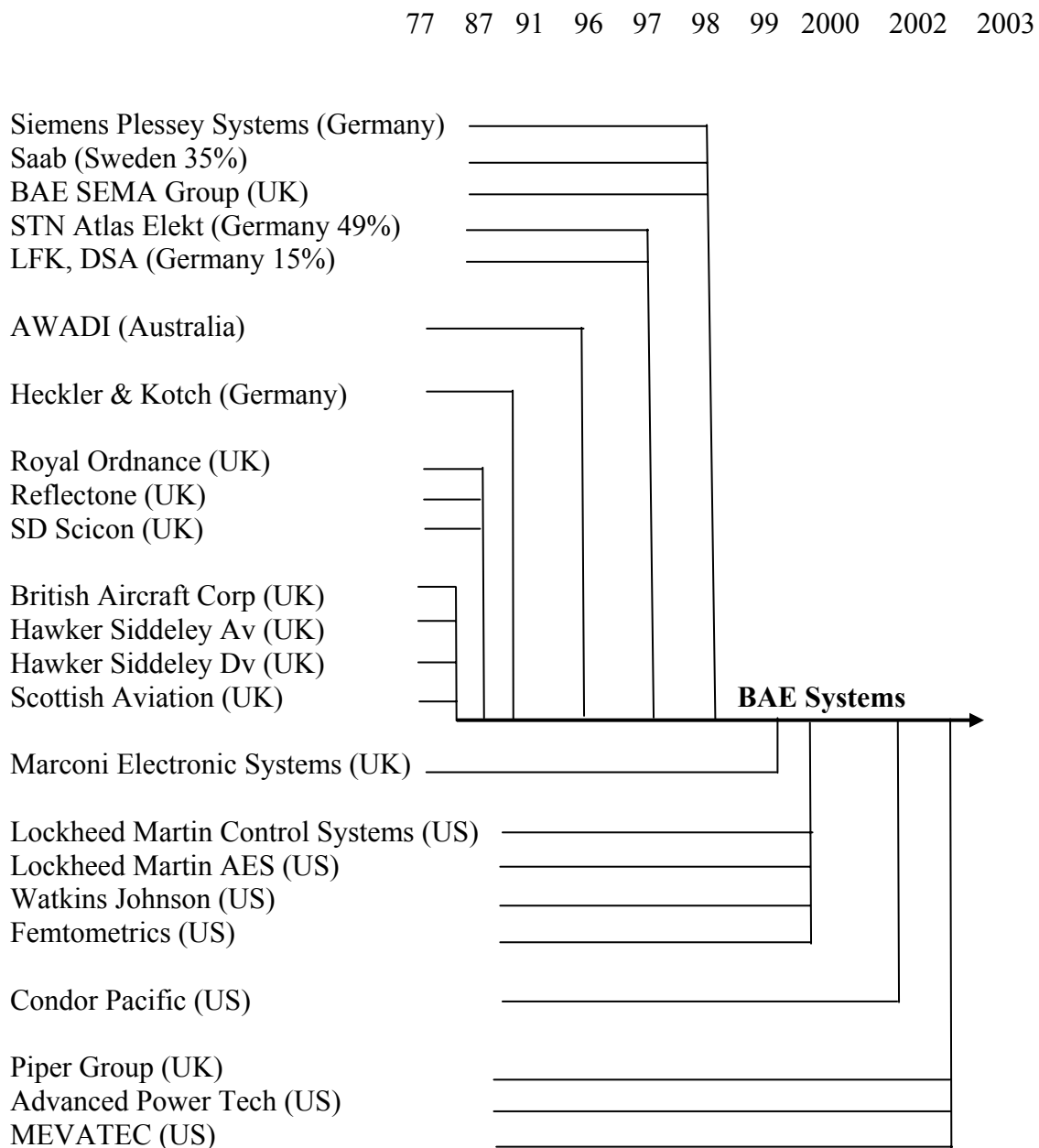


Table 4²¹

¹ Thomas L. Friedman, *The Lexus and Olive Tree*, (New York: Farrar, Straus Giroux, 1999), xvi. Thomas L. Friedman

² Friedman, xviii

³ Defense Science Board Task Force on Globalization and Security n.p., on-line, Internet, 16 November 2004, <http://www.fas.org/asmp/campaigns/control/dsbreport.htm>

⁴ Dr Trice, "The International Defense Market as a Coalition Partner," Hilton Alexandria Mark Center, Alexandria, Va., 14 October 2004

⁵ "Trends in Arms Production" n.p., on-line, Internet, 13 February 2005, available from <http://www.sipri.org/contents/milap/milex/aprod/trends.htm>

⁶ *Ibid*

⁷ Tamar Gabelnick and Rachel Stohl, ed., *Challenging Conventional Wisdom: Debunking the Myths and Exposing the Risks of Arms Export Reform*, (Washington, D.C., Center for Defense Information and Federation of American Scientists June 2003) 53-56 Kevin Speers and RADM Stephen H. Baker, (Ret)

⁸ Charles G. Jameson, "The Technology Transfer Pyramid and How to Climb It", *DISAM Journal*, Fall 2000.

⁹ Tamar Gabelnick, "Spinning Out of Control: the Impact of Globalization on the Conventional Arms Trade," *Journal of the Federation of American Scientists*, Volume 53, Number 2, March/April 2000, n.p., available from www.fas.org/faspir/v53n2a.htm

¹⁰ "Mergers, Acquisitions and Joint Ventures," n.p., on-line, Internet, 14 April 2005, available from http://www.sipri.org/contents/milap/milex/aprod/m_and_a_jv.htm

¹¹ Erik Floden, Editor, *Arms Trade News*, January 2001, n.p., on-line, Internet, 15 December 2004, available from, <http://www.clw.org/cat/atn0101.html>

¹² U.S. Department of Commerce, *Impact of Offsets in Defense Trade: An Annual Report to Congress*, n.p., on-line, Internet, 14 January 2005, available from <http://www.bxa.doc.gov/DefenseIndustrialBasePrograms/OSIES/offsets/default.htm>

¹³ U.S. Department of Commerce, *Offsets in Defense Trade*, The *DISAM Journal* 25, no. 4, (Summer 2003): 66-86, on-line, Internet, 15 December 2004, available from http://www.disam.dsca.mil/pubs/INDEXES/Journals/Journal_Index/v.25_4/US_Department_of_Commerce_Offsets_in_Defense_Trade.pdf

¹⁴ Erik Floden, Editor, *Arms Trade News*, Jan 2001, n.p., on-line, Internet, 15 December 2004, available from, <http://www.clw.org/cat/atn0101.html>

¹⁵ Department of State, "Direct Commercial Sales Authorizations Fiscal Year" *The DISAM Journal* 26, no. 3 (Spring 2003): 111-112, on-line, Internet, 18 December 2004, available from <http://disam.osd.mil/pubs/indexes/journals/journal%5Findex/v.26%5F3/direct%20commercial%20sales.pdf>

¹⁶ Defense Security Cooperation Agency News Release, 7 October 2004, Transmittal number 05-12, n.p., on-line, Internet, 24 November 2004, available from http://www.dsca.osd.mil/PressReleases/36-b/2004/Turkey_05-12.pdf

¹⁷ "Mergers, Acquisitions and Joint Ventures," n.p., on-line, Internet, 14 April 2005, available from http://www.sipri.org/contents/milap/milex/aprod/m_and_a_jv.htm

¹⁸ "Trends in Arms Production" n.p., on-line, Internet, 13 February 2005, available from <http://projects.sipri.se/milex/aprod/m&A/usaconsolidation.pdf>

¹⁹ "Trends in Arms Production" n.p., on-line, Internet, 13 February 2005, available from http://www.sipri.org/contents/milap/milex/aprod/m_and_a/thales.pdf

²⁰ "Trends in Arms Production" n.p., on-line, Internet, 13 February 2005, available from http://www.sipri.org/contents/milap/milex/aprod/m_and_a/eads.pdf

²¹ "Trends in Arms Production" n.p., on-line, Internet, 13 February 2005, available from http://www.sipri.org/contents/milap/milex/aprod/m_and_a/baesystems.pdf

Chapter 3

INTERNATIONAL AGREEMENTS

There are two major international agreements addressing conventional arms control: the Wassenaar Arrangement and the European Union Code of Conduct. Although both are relatively new in their current format and both have limitations on their application and enforcement, it is necessary to understand the state of international agreements and how they might apply to the reform of U.S. export policy.

Wassenaar Arrangement

The Wassenaar Arrangement is the first international multilateral agreement to govern export policy for conventional and dual-use technology. Established in 1996, the agreement has been signed by 33 nations. (see table 5) Most major arms exporting nations have signed the Wassenaar Arrangement with the exception of Belarus, China, Israel, and South Africa.¹ The Wassenaar Arrangement evolved from the Coordinating Committee for Multilateral Export Controls (CoCOM), which was a Cold War era agreement to stop the flow of Western technology to the Soviet Union and the Eastern Block. In 1993, President Clinton and President Yeltsin of the Russian Federation met in Vancouver and addressed the need for a new approach in arms export and control based on the new post Cold War era. In November of 1993, 17 members of the CoCOM agreed to terminate the CoCOM by March 31, 1994 and to replace the agreement with a new

multilateral agreement. The agreement would focus on weapons technology and dual-use equipment acquired by any non-member state that threatened international security. The Wassenaar Arrangement was designed to prevent destabilizing accumulations of arms and dual-use goods and technologies thus contributing to international and regional security. The goal was to stop the massing of arms that could be used to destabilize a region. This was accomplished by promoting transparency of each country's export policies, and establishing a common understanding of sensitive arms transfers.² The Wassenaar Arrangement considers exports to non-members only and is not directed against any specific state or group of states. The Wassenaar Arrangement is not directed at any one nation and does not affect arms sales and technology transfers between member states. The arrangement is directed at areas or nations based on whether a "states behavior is a cause for serious concern." New members are welcomed based upon their export controls, non-proliferation policies and appropriate national policies. Although there is no definition of "destabilizing accumulation" in the Wassenaar Arrangement, the intent is that a nation should not be sold weapons that exceed the needs for maintaining internal control or for self defense. Weapons sales that allow a nation to threaten its neighbors or promote human rights violations are in violation of the Wassenaar Arrangement. Member states, through national policy, agree to ensure that transfers of conventional arms and dual use technology do not undermine the goal of regional and international security. The decision to transfer arms or technology rests with each individual state and the Wassenaar Arrangement limit the legitimate acquisition of arms with which to defend themselves pursuant to Article 51 of the Charter of the United Nations.

Partly born from the lessons learned during the Iraqi arms build up in the 1980s, the Wassenaar Arrangement uses an information exchange process to help member nations identify potential destabilizing accumulations of weapons by a non-member state. Information exchange requirements involve semi-annual notifications of arms transfers, currently covering seven categories derived from the United Nations (UN) Register of Conventional Arms (including model and type information), Sensitive List dual-use transfers and denials of Basic List dual-use transfers. Members are also required to report within 30 to 60 days any denials of sensitive list items. Any member that undercuts such denials (i.e. exports the denied item to the same end-user) within three years of the denial must report the issuance of the export license within 30 to 60 days.³ The denial reports help member states identify non-member states that are seeking an item or technology that may undermine the Wassenaar Arrangement intent and help member states develop a consistent export policy. The goal is that over time such information exchanges will help members detect and prevent destabilizing accumulations or emerging trends or threats that may undermine the member nations' objectives. Thus, the Wassenaar Arrangement is flexible in its application. For example, the Wassenaar Arrangement was used in December 1996, when participating states shared detailed information on export policies to Sudan, Central Africa and the successor states of the former Yugoslavia. The Wassenaar Arrangement was used again when members issued a public statement confirming that, as a matter of national policy, no member state would transfer arms or ammunition to the parties of the conflict in Afghanistan.⁴ The intent of the Wassenaar Arrangement to control destabilizing arms transfers has been moderately successful, especially as an agreement which depends on voluntary implementation.

As part of the voluntary implementation, participating states report on certain categories of export license approvals or transfers and license denials for non-members. In accordance with the Wassenaar Arrangement, all participating states maintain export controls on all items on the Wassenaar Arrangement, including items on the Munitions and Dual-Use Lists. The objective is to prevent unauthorized transfers or re-transfers of those items. The lists are reviewed periodically to take into account advances in technology and current developments in arms technology. The items under the Wassenaar Arrangement are broken down into the following categories:

Dual-use goods and technologies - Major or key elements for the indigenous development, production, use or enhancement of military capabilities.⁵

Sensitive List - Items from the Dual-use List that are key elements directly related to the indigenous development, production, use or enhancement of advanced conventional military capabilities, whose proliferation would significantly undermine the objectives of the Wassenaar Arrangement.⁶

Very Sensitive List - Those items from the Sensitive List that are key elements essential to the indigenous development, production, use or enhancement of the most advanced conventional military capabilities. (e.g. stealth technology materials, high-powered computers, equipment related to submarine detection, advanced radar, advanced jet engine technology). For items on the Very Sensitive List, participating states are to exercise "extreme vigilance" with respect to exports.⁷

Although the Wassenaar Arrangement is an important step towards international arms control, it was not intended to be applicable to a broad based conventional arms control regime. The Wassenaar Arrangement fulfills its role to help prevent a non-member state from developing a destabilizing amount of weapon systems beyond its needs for internal security. It helps promote transparency between member nations on their arms exports, and establishes an agreed upon list of items and technology whose export need to be controlled, yet it leaves much to be desired before it could be used as an example for U.S. export reform. Since the Wassenaar Arrangement only addresses non-member states it disallows for the control of technology between signing nations, it fails to adequately define a violation of the Wassenaar Arrangement, it is not legally binding and its enforcement is left up to the individual countries.

Wassenaar Arrangement Member States

Argentina	Australia
Austria	Belgium
Bulgaria	Canada
Czech Republic	Denmark
Finland	France
Germany	Greece
Hungary	Ireland
Italy	Japan
Republic of Korea	Luxembourg
Netherlands	New Zealand
Norway	Poland
Portugal	Romania
Russian Federation	Slovak Republic
Spain	Sweden
Switzerland	Turkey
Ukraine	United Kingdom
United States	

Table 5⁸

EU Code of Conduct

In May 1998, the European Union (EU) became the first group to implement a regional policy on the export of conventional arms. The EU Code of Conduct is a set of “high standards” that are politically binding but not enforceable by a set of defined punishments for countries that violate the Code. The Code is intended to define the minimum standards for arms sales, allowing member states to enact stricter policies. In fact, enforcement of the Code is an individual country’s determination. The EU Code of Conduct is made of the following provisions:

1. Respect for international commitments of EU Member States. The intent is that the EU Code of Conduct will adhere to any existing agreements such as UN sanctions or other non-proliferation agreements.⁹
2. Respect for human rights in a recipient country. Member States should not export arms where there is significant risk that the export might be used for internal repression.¹⁰
3. Will not export to a country where there exists potential for internal arm conflict. Member States should not export arms which might provoke or prolong armed conflicts or aggravate tensions in the recipient country.¹¹
4. Consideration to regional peace and stability. Member States should not export if there is a clear risk the recipient country would use the technology aggressively against another country.¹²
5. Consider the security of the Member States and external relations of other Member States. Members should consider the risk that the arms export could potentially be used against friends, allies or other Member States. This includes the potential of reverse engineering of unintended technology transfer.¹³
6. Consider the recipient country’s regard for the international community, its attitude towards terrorism, and respect for international law.¹⁴
7. Consider the risk of re-export or diversion of the technology to undesirable end-users based on the ability of recipient countries to enforce export controls.¹⁵
8. Consider the compatibility of the arms exports with the technical and economic capacity of the recipient country and the levels of social and military spending.¹⁶

NOTE: Member States are allowed to take into account the effect of a proposed sale on their economic, commercial and industrial interests. However, these factors will not take priority over the above provisions.

The Code is designed to increase the transparency of arms sales by member countries. Countries are to report to all members on proposed arms sales in an annual report. Member States are also to report, through diplomatic channels, any arm sales that were denied. If another EU state decides to grant a sale to a country that has been denied a “similar” sale within the past three years, the country proposing the sale must first consult the country that denied the similar sale.¹⁷ However, the decision to deny the transfer of any item of military equipment will remain at the discretion of each member state. In the 2003 annual report, several countries included additional information in their report, such as denials justification by region. In some cases, the figures did not add up, such as the total number of denials does not equal some of the denials by region. For example, Italy showed a total of 71 denials for the year, but by region Italy reported 13 denials for South America, 3 for North-East Asia and 18 for non-EU European states. Although the attempt to improve the data reported is noteworthy, the lack of accuracy limits the effectiveness of the report. Along with inaccurate data, France and Germany failed to submit data on exports; in fact only 8 countries out of 15 submitted data on both value and actual arms exports.¹⁸ The EU report acknowledges this and other problems, but until nations’ overcome issues such as confidentiality and decide to report fully, the EU Code of Conduct’s attempts to improve transparency will be suspect.

Like the Wassenaar Arrangement, the EU Code of Conduct helps to improve the transparency of conventional arms sales, but it also suffers from some of the same deficiencies. The Code of Conduct is not legally binding and the decision to export arms is still left to the individual countries. The Code of Conduct’s attempt to provide transparency through annual reports is only partially successful. Although it has

improved every year, it still lacks an agreed upon format for what information is reported, how that information is reported, and what if any consequences there are for failing to report accurate data.

The defense industry in the U.S. and worldwide, particularly in European nations, is becoming intertwined. Major defense projects increasingly involve defense contractors from multiple nations and sources. The international agreements like Wassenaar Agreement and the EU Code of Conduct are examples how the international community is attempting to address conventional arms control. This is a reflection of the changing international environment of the international arms market.

¹ Tamar Gabelnick and Rachel Stohl, ed., et al., *Challenging Conventional Wisdom: Debunking the Myths and Exposing the Risks of Arms Export Reform*, (New York, NY.: Oxford Press 2004), 173. Tamar Gabelnick et al.

² United States Mission to International Organizations in Vienna, Arms Control Section, "Wassenaar Arrangement Questions and Answers," n.p., on-line, Internet, 13 January 2005, available from <http://www.usun-vienna.rpo.at/wassenaar/WAQ&A.htm>

³ *Ibid*

⁴ "Wassenaar Arrangement, History and Present Status," n.p., on-line, Internet, 13 January 2005, available from <http://www.dfa.gov.za/foreign/Multilateral/inter/wasse.htm>

⁵ "Wassenaar Arrangement, List of Dual Use Goods and Technologies And Munitions List," n.p., on-line, Internet, available from <http://www.wassenaar.org/list/wa-listTableOfContents.htm>

⁶ *ibid*

⁷ *ibid*

⁸ *ibid*

⁹ "EU Code of Conduct for Arms Export," n.p., on-line, Internet, 13 January 2005, available from <http://projects.sipri.se/expcon/eucode.htm#Anchor18531>

¹⁰ *Ibid*

¹¹ *Ibid*

¹² *Ibid*

¹³ *Ibid*

¹⁴ *Ibid*

¹⁵ *Ibid*

¹⁶ *Ibid*

¹⁷ *Ibid*

¹⁸ *SIPRI Yearbook 2004 Armaments, Disarmament and International Security*, (New York, Oxford Press, 2004)

Chapter 4

Reality of a Global Defense Market

The defense market of the 1990s was mainly influenced by the US success in the Gulf War and the preceding lack of defense spending by European nations. Today the global defense market has undergone a transformation. The marketplace underwent a first round of mergers in reaction to the shrinking global defense spending. Now there is a move to begin aligning defense industries across national borders. Mega defense companies supported by smaller sub-contractors are now competing for lucrative defense contracts. The defense industries on both sides of the Atlantic realize that the future of defense contracts will be joint or international contracts. The growing use of commercial products has helped level the field between U.S. and European firms. Recognizing this, US defense companies are now seeking joint ventures to tap into expertise from the European defense industry. For example, the U.S. Navy requested bids for a new warship to operate in coastal areas called a Littoral Combat Ship (LCS). Traditionally the U.S. shipbuilding industry has focused on a blue water navy, but the LCS was a new type of ship where many non-U.S. companies held the technological advantage in developing systems exclusive to a LCS. As a result, the Lockheed Martin LCS will be powered by British engines, armed with a Swedish-designed gun, guided by a Spanish fire control radar, alerted by a German built radar, will contain a decoy system built in Denmark, land

aircraft with a Scottish-designed system, and will cruise with Italian fin stabilizers and reduction gears built in Switzerland.¹ This is the reality of the modern defense market. Just as intra-national mergers led the first wave of mergers in the 1990s, a second wave of international mergers and major defense programs will involve multinational industries will occur.

The question remains whether the U.S. export system is ready to operate in this new global market. There has been pressure to update the U.S. export laws with two differing views of the best way forward. The defense industry would like to update the export laws to reflect the new reality of the global defense market represented by the Lockheed Martin LCS bid, where technology transfers will soon become a requirement where multinational companies bid for defense projects, and where more and more of the technology is held outside of the U.S. Opponents to loosening the export laws feel the rapid globalization of the market requires that the U.S. be more restrictive to protect its technology as the advantage for the U.S. military shrinks.

The U.S. defense industry is facing outdated Cold War export laws which were written at a time when the U.S. was the undisputed leader in the defense industry and controlling the majority of advanced technology. The Pentagon is urging defense contractors to save money by increasing the use of off-the-shelf technology and commercializing military products in order to drive down military costs. Today, the increased amount of commercial products complicates export laws built for an exclusive U.S. defense industry. For example, a U.S. made motion sensor, QRS11, which is used for military aircraft, missiles, and satellite ground stations, is also used for commercial aircraft and business jets sold worldwide.² Due to U.S. export laws this sensor is a

controlled item because it is also used for military purposes. As a result, Boeing, which uses the sensor on its commercial aircraft, is technically required by law to apply for an export license every time an aircraft leaves U.S. airspace or is sold to foreign governments. To further complicate the issue, the export laws limit where aircraft with QRS11 sensors can fly. The result has been cases like the QRS11 where commercial and military products become increasingly entangled. This exemplifies the beginning of what will become commonplace in the defense industry.³ Commercial companies will be less willing to include their products in military applications because once they are included; all sales of the product will be subject to U.S. export requirements, regardless of the end user. According to Joel Johnson of the Aerospace Industries Association, “What commercial company in its right mind is going to do business with the Pentagon if doing so is going to be dangerous for the health of their lucrative commercial business?”⁴ Foreign industries are closely watching the U.S. export policies as they affect the use of U.S. technology in their products, but also as they see the potential opening of the U.S. defense market.

With a leveling of the technology gap, the technology flow is no longer a one-way street from the U.S. to allies. The U.S. is still the world’s number one supplier of defense articles, but there has been a trend developing since 1998 of increasing U.S. imports. From 1998-2002, the U.S. was ranked 27th in the world as an arms importer. However, during 1999-2003 the U.S. was ranked 19th, and for the year 2003, the U.S. was the 7th largest importer of arms.⁵ That is a significant shift even though the total dollar amounts remain small.

This can be partly attributed to the U.S. emphasis on the Foreign Comparative Testing (FCT) program. This program was started by DoD to allow the U.S. to evaluate foreign technology in the hopes of taking advantage of a wider defense industrial base and advanced technologies available in other countries. This has helped open the lucrative U.S. defense market to foreign firms and can be advantageous to the Pentagon by allowing for more competition and a larger defense base from which to pull the most advanced technology. However, foreign firms can be leery of entering the U.S. defense market. In March 2004, officials from the Italian government and officials of Finmeccanica met to discuss access to the U.S. defense market. Augusta Westland, an Italian firm is promoting the US101 as the candidate for the presidential helicopter fleet.⁶ Foreign companies are also concerned about technology transfers as they begin to be more competitive with the U.S. defense industry. If the US decides to tighten its defense laws it could create a “fortress America - “fortress Europe” mentality across the Atlantic.

As the U.S. led the world in adapting its defense industry to the post Cold War reality, it may be that Europe is now taking the lead in adapting to the global marketplace. By creating the European Defense Agency (EDA) in July 2004, Europe is adjusting to how defense industries must operate. The EDA is in its infancy, and there are many hurdles before the benefits are realized. The hopes of the EU by starting the EDA are that this united defense agency will provide three benefits. First, it can help reduce duplication of arms production capacities. Second, it will allow access to government funded research, and finally it will support transnational industrial mergers. The EU Member States, with their greater industrial capacity and larger defense budgets, see the agency as a means to leverage some of the military costs on smaller EU member states.

The issue is the gap in defense budgets between the U.S. and Europe. Individually, European countries cannot compete with the U.S. as far as military capabilities, but if Europe can work out an agreement, which it is attempting to do with the EDA, Europe can help level the playing field. For example, EU countries have a combined defense budget of \$193 billion and 1.6 million troops, however, Europe's military lacks many capabilities such as global deployment, real-time battle information and precision-guided munitions. By comparison, the U.S. defense budget is currently in excess of \$400 billion and is built around a global reach, global strike and Network Centric Warfare (NCW) capability.⁷ (See table 7 and table 8)

Top Military Spending 2001-2003

in US \$b at 2000 prices/exchange rates

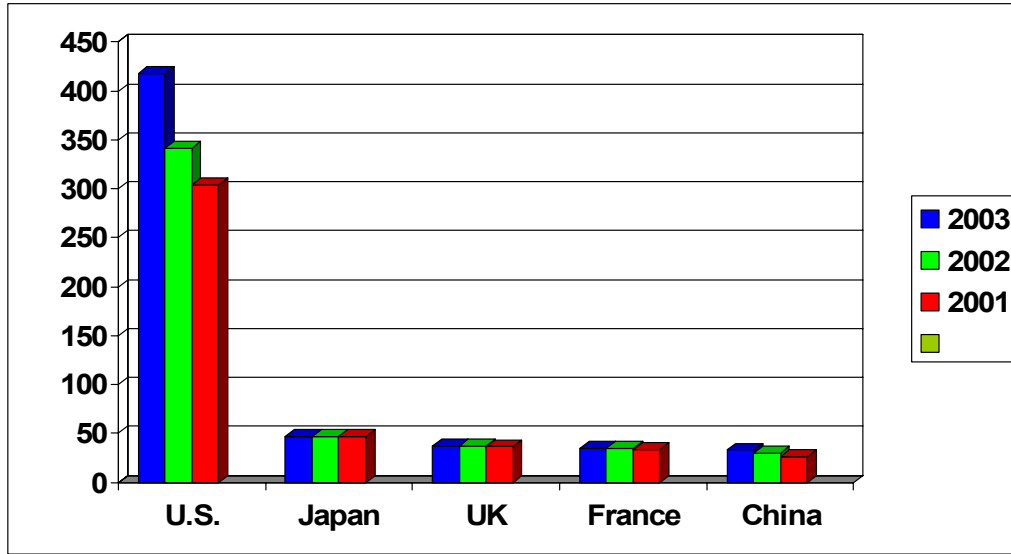


Table 6⁸

Percentage of World Military Spending of Top 5 Arm Producers

Figures are U.S. \$ b., at 2000 constant prices/exchange rates

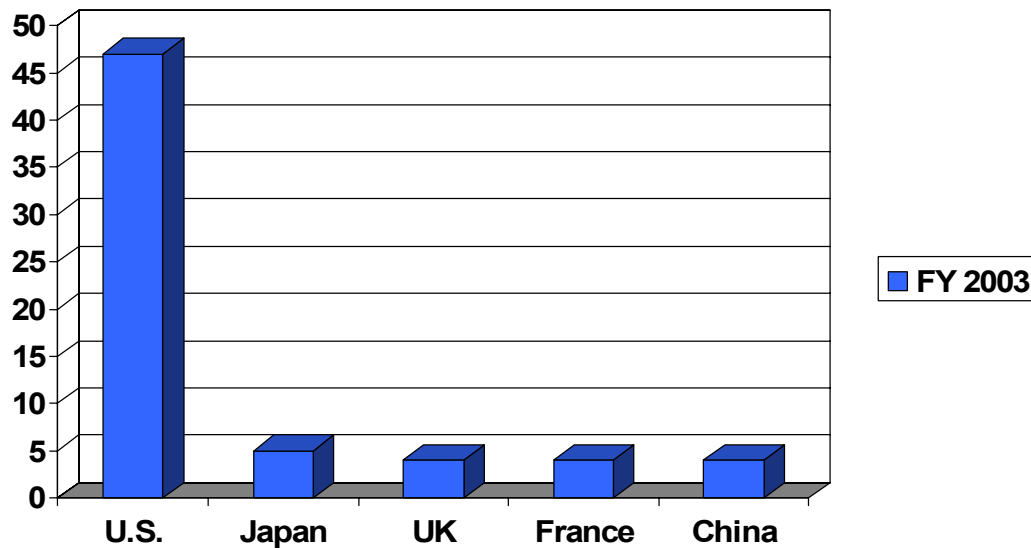


Table 7⁹

Therefore the hope is that the EDA will also help the EU retain control of the direction of European militarization and ultimately strengthen the European arms industry for transatlantic competition. In its final state, the EDA will remove the barriers and help create a common defense market without custom barriers as well as unify the defense budgets of all EU members.¹⁰ The EDA faces numerous challenges before the benefits are realized. But the fact that Europe has recognized the need to join their defense budgets and remove trade barriers to better compete in the global market speaks to the need for the U.S. to take a serious look at its current export laws. The U.S. defense industry will closely watch the developments of the EDA and will most likely increase its acquisition of European defense firms in order to ensure it will not be locked

out of the European defense market. As Christopher Steinmetz stated during a presentation to the EU Parliamentary Group on December 10, 2004, “One potential trip-wire is the future relationship of the EDA to the U.S. and to the involvement of the U.S. arms industry in the build up of European military capabilities. It is difficult to imagine that European governments would agree on a common project financing structure only to purchase U.S. technology.”¹¹

In contrast, at times the U.S. shows signs of moving in a more isolationist direction. Congressman Hunter, Chairman of the House Arms Services Committee, is pushing to ban the use of offsets by U.S. firms.¹² Offsets can be controversial on how they affect the U.S. job market, but they are part of how business is conducted. President George W. Bush warned that a ban on offsets would preclude some European companies, thus “denying U.S. forces access too many ‘best value’ products, undermining U.S. and coalition war-fighting capabilities and hurting military equipment sales to foreign countries.”¹³ This uncertainty in the U.S. export system has an effect on defense contracts available to U.S. firms. For example, when India purchased the British Hawk trainer it requested that all U.S. components be replaced by non-U.S. components. Although DoD has encouraged the opening of the market place to provide a deeper and wider industrial base to draw from, there is still uncertainty on the part of foreign firms to accept U.S. products and face the complicated and uncertain U.S. export system. Even Canada, which is the only country to enjoy an ITAR exemption, has difficulties obtaining U.S. technology. The Canadian ITAR exemption allows US firms to export arms and technology without license requirements. In April 1999, Canada had the special exemption, but due to concerns of re-exporting technology to China, Iraq and Iran, the

U.S. removed the exemption. In 2001, the exemption was reinstated when Canada enacted a tougher export policy. However, Canada still faces difficulties with the ITAR. For example, Canada had to wait for an ITAR exemption when they tried to export used U.S. made helmets. A leery U.S. defense industry still applies for export licenses when shipping to Canada, which is causing further delays for Canada's military. Mr. Kane, Vice President of Policy and Research for the Aerospace Industries of Canada said, "In some cases, if getting access to U.S. technology proves too difficult, foreign companies are going to find different partners." He warned, "They will, in some cases, design out U.S. technology from their products."¹⁴ However, foreign firms have begun to adjust in other ways. With shrinking or stagnant defense spending in Europe, the European defense industry is turning its eyes to the large U.S. defense budgets as a source of income.

Just as U.S. firms will begin to increase the acquisition of European defense industries, European defense industries have already begun to integrate themselves into the U.S. defense industry. European firms are beginning to establish U.S. based companies to tap into the larger U.S. defense budget. The ability to compete for U.S. defense dollars is a major driving factor for foreign firms. Since 1999, BAE has begun buying US companies and has now purchased portions of Lockheed Martin, and General Dynamics.¹⁵ BAE North America now employs more employees than its parent company in Europe.¹⁶ Following BAE's lead, EADS has established a US subsidiary employing 2000 people. EADS is beginning to expand into the helicopter market and missile defense market with hopes to gain the contract for the USAF tanker replacement.^{17 18} This trend is likely to continue in the future.

Fueling the need to develop a more open partnership between US and European defense industry is the gap in Research & Development (R&D) budgets between Europe and the U.S. The U.S. spends \$65 billion, for research while the combined European research budget is about \$13 billion.¹⁹ This gap in research spending will only widen the gap in capabilities between the US and Europe, and a vibrant European defense industry will become critical to the US as the effects of globalization continue to erase national borders. Increasing the industry ties across the Atlantic will allow for portions of the U.S. research budget to maintain the European industry, and in the end it will keep Europe a viable market for U.S. firms and provide the Pentagon with other outlets for defense equipment.

Along with the changing defense industry, the other factor highlighting the need for export reform is the transformation of the U.S. military. As the shift to a smaller, more lethal force continues, an increasing need for technology to act as a force multiplier develops. Advances in precision weapons combined with the concept of NCW have exposed a gap between the U.S. and other nations. This gap in capabilities has the potential to limit viable partners in future coalitions and in the end may hinder our ability to meet national security objectives.

NCW relies on adapting to the rapid developments in the field of technology. The key is the speed that information now flows with advanced microchips. If the U.S. military is dedicated to NCW and wants to operate within coalitions, then how can the U.S. and European defense industries provide the products necessary while operating with U.S. export laws that have essentially remained unchanged since the end of the Cold War. The adaptation of the global defense industry to the market place has had a major

impact on the production and sale of defense. The U.S. and Europe are developing ties that benefit both sides of the Atlantic. The U.S. is attempting to tap into the technology available in Europe, thus increasing the competition and the number of sources available. Europe is striving to maintain itself as a viable market for advanced technology and needs the U.S. as a market for its products. Europe, like the rest of the world, finds itself in a difficult position. The defense budgets in Europe and more importantly the R&D budgets are being eclipsed by U.S. spending. Europe needs to stop the expansion of the gap at a minimum and, if able, to close the gap in capabilities. This can not be done by limiting itself to the European marketplace. The inevitable intermixing of U.S. and foreign defense firms will continue to highlight inefficiencies of the current U.S. export system and bring the need to update the export system forward.

¹ Christopher P. Cavas, Lockheed's LCS Uses Many Non-US Parts, *Defense News* 20, no. 1 (Jan 3 2005):4

² Vago Muradain "Little Chip, Big Problems," *Defense News* 18, no.44 (24 November 2003):1,8

³ *Ibid*

⁴ *Ibid*

⁵ SIPRI Yearbook 2004 Armaments, Disarmament and International Security, (New York, Oxford Press, 2004), 459¹

⁶ Tom Kington "Italian Officials To Push for US Market Access," *Defense News* 19, no. 12 (22 March 2004):10

⁷ Gabrielle Kohlmeier, "New European Defense Agency Approved," *Arms Control Today* 34 no.6, July/August 2004 n.p., on-line, Internet, available from http://www.armscontrol.org/act/2004_07-08/EU.asp

⁸ Source SIPRI Yearbook 2004 Armaments, Disarmament and International Security (New York, Oxford Press, 2004), 322

⁹ Source SIPRI Yearbook 2004 Armaments, Disarmament and International Security (New York, Oxford Press, 2004), 330-390

¹⁰ Christopher Steinmetz, "European Defense Agency: A Core Instrument for European Militarisation" Presentation at a conference of the European Parliamentary Group of the European United Left Brussels 13 December 2004 n.p., on-line, Internet, available from <http://www.bits.de/public/reden/brussels101204.htm>

¹¹ *Ibid*

¹² William Matthews, "U.S. Congress Casts Critical Eye on Offsets," *Defense News* 19 no 27 (12 July 2004) 4

¹³ Defense News Staff, "The New Protectionism," *Defense News* 19, no.24 (14 June 2004):1,8

¹⁴ David Puglises, "Despite Exemptions, Canada Faces Hurdles Obtaining US Tech," *Defense News* 19 no 34 (6 September 2004) 20

¹⁵ Chris Jasper, "BAE Tests U.S. Resolve," *News Analysis* (25 July 2000) 48

¹⁶ *Ibid*

¹⁷ Robert Wall, "Coming of Age," *Aviation Week and Space Technology*, 162 no 4 (24 January 2005) 44-46

¹⁸ Robert Wall, "Treading Carefully," *Aviation Week and Space Technology*, 162 no 4 (24 January 2005) 44-46

¹⁹ Gopal Ratnam, "Execs: Renew Effort to Ease US Export Rules," *Defense News* 19, no.35 (13 September 2004):10

Chapter 5

Military Transformation

Since 1991 the US military has continued the transformation into a force built on innovation and cutting edge technology equipment. The development of new technologies produces new capabilities and new concepts of operations, and in the end, increases the lethality of the U.S. military. The desire to provide the latest cutting-edge technology to the troops has helped the US military maintain its dominance but has also highlighted the need for export reform by expanding the capabilities' gap between U.S. forces and our allies. As the U.S. military develops more advanced weapons and technology, the ability of the U.S. to forge viable coalitions with allied nations becomes more difficult. This technological transformation highlights the growing disparity of capabilities between the U.S. and its long standing allies, but it has also highlighted the need to change U.S. export laws. The transformation in the U.S. military is equally about a change in culture, where the application of force is not as much about applying the newest technology but more about a willingness to apply technology in new ways. As stated by Deputy Secretary of Defense Paul Wolfowitz, "Transformation is about more than what we buy or how much we spend on technology...transformation is about changing military culture into one that encourages innovation and intelligent risk taking."¹ Thus, as allies fall behind in capabilities the more troubling result is a widening

of the gap in how forces are employed. The difference in concept of operations along with differences in capabilities will be a major factor in why U.S. and allied forces will experience increasing problems in forming viable coalitions in the future. However, the application of the latest technology and the growing gap in capabilities is what has reemphasized the issue of reforming the U.S. export laws.

The U.S. military is pursuing a technology transformation in several areas, from equipment to organizational structure, but two areas reflect the rapid change and impact of new technology, the development of precision weapons and the move to a NCW. Although these are not the sole driving force in the transformation of the U.S. military, but they have had a major impact on how the USAF employs.

Precision weapons were a major factor in the transformation of the U.S. military, which began during Vietnam but was not realized until the first Gulf War. Although the term “precision bombing” was used during WWII, in reality precision bombing was not brought to fruition until late in the Vietnam War and then only in minimal amounts. During the first Gulf War the U.S. began to see the results of the investments in technology between 1970 and 1990. The initial answer to increase bombing accuracy was to make the delivery platform precise. The influence of precision from World War II to the Vietnam War was in large part focused on increasing the accuracy of delivery platforms and improving the accuracy of sighting systems used to deliver unguided weapons. Table 8 shows the progression of precision bombing from WWII to the war in Vietnam based on a 90 percent chance to hit a 60 x 100 foot target from medium altitude.

Air Force Bombing Effectiveness

WAR	Number of Bombs	Number of Aircraft	CEP (in Feet)
World War II	9,070	3,024	3,300
Korea	1,100	550	1,000
Vietnam	176	44	400

Table 8²

The development of the F-16 is a good example of a precision platform designed to deliver “dumb” weapons with greater accuracy. The development of a precision platform improved bombing accuracy from low altitudes, which was the primary method of tactical employment of the USAF until the Gulf War. By 1990 the USAF was able to achieve a delivery Circular Error Probable (CEP) of 30 meters by using “smart” airplanes delivering “dumb” bombs from low altitude.³ However, during the Gulf War, the U.S. realized that modern air defenses increased the risk to the point that low altitude deliveries were not feasible. Air power was forced to operate in the medium altitude arena, where accuracies were diminished even using “smart” platforms. Part of the decrease in accuracy is due to inherent system design. The visual pipper used in combat aircraft is 2 milliradians and at a slant range of 20,000 feet the pipper would obscure a 40 foot target making accurate placement of bombs on pinpoint targets, like a tank or bunker, difficult.⁴ Pinpoint bombing was not possible due to the effects of increased bomb dispersion caused by the greater time of fall in medium altitude deliveries. One of the greatest advantages precision bombing offers to a commander is the assurance that when something is identified as a military significant target and airpower is allocated to that target, the target is destroyed. The benefits of precision weapons are even greater when

there is a need to minimize collateral damage. Today's precision weapons allow commanders to hit targets that would not have been possible in the past. During the Second World War, the killing of tens of thousands of civilians or soldiers did not create significant moral outcry; today's conflicts do not afford the same level of tolerance. The ability of the general public to watch a war unfold on the evening news has raised the level of expectation of accuracy and intolerance for collateral damage. One only has to look at the impact of the attacks on the Al Firdos command and control bunker in Baghdad during the first Gulf War.⁵ The attack on the bunker, although a valid military target, resulted in the deaths of hundreds of civilians using the bunker as a shelter. As a result of the political backlash, the air campaign on downtown Baghdad was shutdown for ten days.⁶ The U.S. military fueled the public's demand for minimizing collateral damage and civilian losses by the parade of videos of precision weapon attacks during press briefings. The public was introduced to the new era of precision attack and became addicted to it in the same way that military commanders were becoming addicted. The shift from "smart" platforms delivering "dumb" weapons to "smart" platforms delivering "smart" weapons had begun. The public and combatant commanders now expected pinpoint bombing, where one bomb hit one target and with the expectations of 100 percent accuracy. The impact of precision weapons can be seen by comparing WWII to current Laser Guided Bombs (LGBs). In WWII, it took 108 B-17 bombers crewed by 1080 airmen dropping 648 bombs to achieve a 96 percent hit rate targeting a German power-generation plant. In the Gulf War, a single F-15E with a crew of two delivering two LGBs could achieve the same results.⁷ Although precision weapons only accounted for nine percent of weapons delivered during the first Gulf War, of which 4.3 percent

were LGBs, they accounted for 75 percent of the damage on Iraqi operational and strategic targets.⁸ The transformation to precision weapons was demonstrated in 1995 when NATO forces used airpower to engage the Serbian forces. During the conflict over 98 percent of the munitions employed by U.S. forces were precision weapons, and 28 percent of NATO (non-U.S.) weapons were precision weapons.⁹ Precision weapons which were used almost on an experimental basis until the end of the Vietnam War had become the standard by 1995. The U.S. military had realized that if a bombing platform was not capable of delivering precision weapons, it had little place in the modern battlefield. Yet, the impact and transformation of precision weapons was not yet complete. The ability to hit targets with pinpoint accuracy now placed a demand on precision targeting information. The impact of inaccurate targeting information when employing weapons with near perfect accuracy is best evidenced by the bombing of the Chinese Embassy in Belgrade in 1999.

The need for accurate target information began to fuel a parallel transformation. As weapons developed pinpoint accuracy, the need for pinpoint targeting data grew. If a weapon has evolved to a CEP of less than 5 meters it requires equally accurate target coordinates. The introduction of the Joint Direct Attack Munitions (JDAM) further highlighted the need for more accurate target information and brought a true all weather day/night weapon system. JDAMs are weapons guided by Global Positioning Satellites (GPS) coordinates, thus the more accurate the coordinates, the more accurate the weapon will be.

In response, the U.S. military developed systems like the Joint Surveillance and Target Attack Radar System (JSTARS) to identify targets, and space based systems

capable of providing targeting data necessary for today's precision weapons, as well as ground based systems that provide GPS coordinates. During Operation Enduring Freedom and Operation Iraqi Freedom, the US military had continued its transformation by decreasing the time a target is identified until a weapon strikes. The application of NCW has produced real time information sharing between sensor and shooter and shortened the time from identifying a target to placing a weapon on the target down to minutes. In Operation Desert Storm in 1991, coordinating efforts for targeting required an elapsed time of as much as four days. In Operation Iraqi Freedom, U.S. forces reduced that time to about 45 minutes.¹⁰

NCW is the key to information sharing on the battlefield by relying on network communications to provide a common picture of the battlefield, both friendly and enemy. This ability has taken the advancement in precision weapons and produced a synergistic effect on the USAF abilities. NCW was highlighted in Afghanistan and to a greater extent in Operation Iraqi Freedom (OIF). Although this capability is in its infancy, as LGBs were during Vietnam, in the coming decade NCW will become the standard for combat operations the same way precision weapons did by 1995. NCW uses computers and communication networks to link forces together and depends on the interoperability of the systems used by all forces involved.¹¹ The transformation to NCW is ongoing, and is reflected in the increase in bandwidth requirements from the first Gulf War to OIF. "Net-centric warfare's effectiveness has greatly improved in 12 years. Desert Storm forces, involving more than 500,000 troops, were supported with 100 megabits per second (Mbps) of bandwidth. Today, OIF forces, with about 350,000 war fighters, had more than 3,000 Mbps of satellite bandwidth, which is 30 times more bandwidth for a

force 45 percent smaller. U.S. troops essentially used the same weapon platforms used in Operation Desert Storm with significantly increased effectiveness.”¹²

Just as with precision weapons, the implementation of the technology of NCW by itself does not show the true impact on the transformation of the U.S. military. It is the willingness to apply new technologies and the resultant impact on the concept of operations that shows the true transformation caused by a new technology like NCW. During Operation Enduring Freedom (OEF), US Special Forces utilized NCW and precision weapons in ways that were not even thought possible a few years earlier. By combining NCW and precision weapons, smaller US forces were able to increase their lethality on the battlefield. The ability of US Special Forces riding on horseback to identify targets with GPS accuracy, communicate with 1960s era B-52 Bombers and call in precision strikes with Joint Direct Attack Munitions (JDAMs), shows the true synergistic effect of NCW. As stated previously, technology is just a means to the end; the true impact is realized when U.S. forces apply technology in revolutionary ways.

The development of new tactics continued between OEF and Operation Iraqi Freedom (OIF). During OIF, networked forces fought using newly developed tactics. “U.S. Army forces utilized movement that was described by some as “swarm tactics.” Because networking allows soldiers to keep track of each other when they are out of one another’s sight, forces could move forward in Iraq spread out in smaller independent units, avoiding the need to maintain a tight formation. Using ‘swarm tactics,’ unit movements are conducted quickly, without securing the rear. All units know each other’s location. If one unit gets into trouble, other independent units nearby can quickly come to

their aid, 'swarming' to attack the enemy from all directions at once."¹³ Vice President Richard Cheney voiced his thoughts on the impact of NCW,

"With less than half of the ground forces and two-thirds of the air assets used 12 years ago in Desert Storm, we have achieved a far more difficult objective ... In Desert Storm, it usually took up to two days for target planners to get a photo of a target, confirm its coordinates, plan the mission, and deliver it to the bomber crew. Now, we have near real-time imaging of targets with photos and coordinates transmitted by e-mail to aircraft already in flight. In Desert Storm, battalion, brigade, and division commanders had to rely on maps, grease pencils, and radio reports to track the movements of our forces. Today, our commanders have a real-time display of our armed forces on their computer screens."¹⁴

The longer the U.S. develops new technology outside an agreed upon allied framework, the greater the risk of the U.S. becoming a force that is no longer able to effectively work with coalition partners. There is no longer a Post Cold War alliance with agreed upon enemies and agreed upon tactics. The U.S. and its potential allies will need to work together in the development and application of new technologies if there is to be effective coalition operations in the future. The result of a decade of independent transformation in the U.S. military was evident in Kosovo in 1990, as well as OIF in 2003.

"During OIF, coalition assets reportedly operated as separate entities, and coalition forces were often locked out of planning and execution because most information was posted on systems accessible only to U.S. forces. For example, most major air missions, that supposedly used NCW technology for coalition operations, involved only U.S. aircraft. Policy for sharing of classified information requires a separate contract agreement between the United States and each coalition partner. DOD currently maintains separate secure networks for NCW coalition operations; one for each coalition partner. This is because U.S. National Disclosure Policy restricts what information may be released to coalition partners. In addition, each coalition partner nation has a corresponding policy for release of its own sensitive information. As a result of these policies, operations planning information was spread to coalition forces using a manual process, and the transfer of data fell behind combat operations."¹⁵

If the U.S. is going to continue the transformation to NCW, are there roles for allied forces in future coalitions who are not capable of NCW? The impact of a globalized defense market and the accelerated pace of the transformation in the USAF highlights the need to update the US export laws. The U.S. export laws must allow the U.S. to maintain a technological edge, and ensure the security of the nation but at the same time provide a system that reflects the reality of the market place that U.S. defense industry operates in. There have been several attempts to change the U.S. export system since the mid 1990s; however currently the push to reform the export system is non-existent. The impact of September 11, 2001 has highlighted the need for viable coalition partners, built not only from nations with long term ties to the U.S., like members of NATO, but from what is called a “Coalition of the willing”. What will be the impact of the U.S. export policy on the war fighter and the ability to form effective coalitions? Is the U.S. military and the USAF in particular, undergoing a transformation in capabilities utilizing technologies that create such a gap in allied/U.S. capabilities that will limit future coalition war fighting? To better understand the issue, it is important to look at the attempts to reform U.S. export laws and where the reforms stand today.

¹ Senate, Hearing before the Armed Services Committee on Military Transformation, 107th Cong., 9 April 2002

² Richard P. Hallion, *Precision Guided Munitions and the New Era of Warfare*, Air Power Studies Centre, (Royal Australian Air Base Fairbairn, 2004), 4

³ Hallion, 4

⁴ *Ibid*

⁵ *Ibid*

⁶ Hallion, 6

⁷ Hallion, 4

⁸ Hallion, 10

⁹ Hallion, 12

¹⁰ Clay Wilson, *Network Centric Warfare: Background and Oversight Issues for Congress*, CRS Report for Congress, (Washington, D.C.,: Library of Congress, 2 June 2004, 26

¹¹ Wilson, 6¹

¹² Lt. Gen. Harry D. Raduege Jr., “Crosstalk Net-Centric Warfare Is Changing the Battlefield Environment,” *CrossTalk*, January 2004, n.p., on-line, Internet, 16 January 2005, Available from <http://www.stsc.hill.af.mil/crosstalk/2004/01/0401Raduege.html>

¹³ Clay Wilson, *Network Centric Warfare: Background and Oversight Issues for Congress*, CRS Report for Congress, (Washington, D.C.: Library of Congress) 2 June 2004, 11

¹⁴ Lt. Gen. Harry D. Raduege Jr., “Crosstalk Net-Centric Warfare Is Changing the Battlefield Environment,” *CrossTalk*, Jan 2004, n.p., on-line, Internet, 16 January 05, Available from <http://www.stsc.hill.af.mil/crosstalk/2004/01/0401Raduege.html>

¹⁵ Clay Wilson, *Network Centric Warfare: Background and Oversight Issues for Congress*, CRS Report for Congress, (Washington, D.C.: Library of Congress) 2 June 2004, 28-29

Chapter 6

Export Control Reform

Since the end of the Cold War, there have been attempts to reform U.S. export laws and procedures, which have failed to keep pace with the rate of change in the international security environment, the rapid globalization of the defense industry and the transformation as evidenced in the USAF. There are differing views on how to reform the U.S. export laws. Both views maintain the primary goal of U.S. export policy should be U.S. national Security; however the ways to achieve this goal is anything but similar. The first view is based on the current export policy with reform targeted at ways to streamline the export process. It looks to maintain U.S. security and technology through transaction based export policy. This view tends to see all nations on an equal footing with which to be treated in regards to export policy. For example, Britain and Pakistan are seen as equal risks to U.S. security in determining what U.S. military technology should be released. Although defense systems sold may differ, both countries are subject to the same process. This view tends to be conservative in how it views export policy, meaning that protecting U.S. national security starts with a more restrictive export policy, with industry and economic concerns considered second or not at all. The second view tends to be more aggressive in its view of export policy. It seeks to protect U.S. national security while taking into account the competitiveness and vitality of the U.S. defense

industry. This view seeks to align export policy based on world economy and to protect a more defined list of critical technology while easing restrictions to certain countries.

There have been two key factors that influenced the push for export reforms since the end of the Cold War. First, was President George H. Bush's geopolitical view of the world, which gave way to President Clinton's geo economical view, and its impact on purchasing nations. Second, was the expansion of NATO after the fall of the Berlin Wall and the Global War on Terrorism.

At the end of the Cold War, the first Bush administration increased FMS sales. This was partly due to the administration's view of a geopolitical world where the U.S. looked to maintain a balance in regional powers that were acceptable to the U.S., particularly the regions vital to U.S. interests.¹ In Fiscal Year (FY) 1990 U.S. FMS sales were \$14.2 billion, and in 1991, the total increased to \$23.5 billion.² The Bush administration's view of maintaining regional stability by balancing powers compounded the arms sales increase. After the first Gulf War ended, the Iraqi military, although defeated, still retained a formidable offensive capability and was a threat to the region. To balance the Iraqi threat, the U.S. embarked on a Middle East arms sales campaign partly fueled by the administration's world view and partly by the stunning success of U.S. made equipment displayed during the defeat of the Iraqi army. This increase in demand for U.S. arms set the stage for President Clinton and the emphasis on economics in the conventional arms industry.

When President Clinton came into office, there was a shift in how the U.S. viewed the world and U.S. security. The Clinton administration viewed the world based on the global economy. U.S. security was better ensured by maintaining a strong U.S. economy.

This viewpoint influenced the U.S. export policy when in 1995 Clinton issued Presidential Directive 34, stating arms sales approvals will consider the “impact on US industry and the industrial base.”³ This new view point came at the time of the shrinking U.S. military budgets. After the first Gulf War and as the “peace dividend” was taking effect the US military shrank by 25 percent.⁴ The reality of the Cold War ending was settling in on the U.S. defense industry which realized they could not rely on DoD to fund a defense industry built and manned for a Cold War readiness. As a result of the DoD budget drawdown there began a corresponding drawdown in the defense industry.

The display of U.S. technological advantage displayed in the first Gulf War and subsequent conflicts, like Kosovo and the Balkans, helped drive the need for interoperability within NATO by highlighting the growing gap in capabilities between the U.S. and its allies. This helped produce a demand for U.S. arms. The U.S. defense industry saw foreign markets as a replacement for decreasing U.S. contracts and increasingly turned toward foreign markets for sales. This, at a time when former Eastern Block nations began to join NATO, helped fuel the foreign demand for U.S. arms.

The former Warsaw Pact nations were equipped with outdated, former Russian-made military equipment that would have to be replaced with newer, NATO interoperable equipment. The Clinton administration was seeking to build U.S. security by developing a strong national economy, resulting in increased pressure by a defense industry steeped in technology and seeking markets to replace the peace dividend.

The defense industry sought approval for arms sales to new overseas markets. Combined with this increased arms sales was the U.S. decrease in FMS grants available to U.S. allies, which led allies to look for more return on investment from their defense

dollars. As allies began to spend more of their own budgets on defense, there was a natural desire for nations to increase the requests for technology releases and in-country production to provide a self-sufficient capability as well as a benefit in exchange for their investment. Nations now needed to strengthen their own economies in an increasing global economy and spending billions on U.S. made arms and receiving only a weapon system was no longer economically feasible.

As discussed earlier, Turkey is a good example of this shift in policy. The levels of U.S. aid provided to Turkey under major security assistance programs like the Foreign Military Financing and Economic Support Funds programs have dropped off dramatically, from an average of \$400 million per year in grants and loans under the two programs during the five years from FY 1993 through FY 1997 down to zero in FY 1998 and FY 1999. The MAP and FMF programs are direct subsidies for weapons exports, while the ESF program is a powerful indirect subsidy. ESF grants and loans are provided only to countries of special security concern to the United States, with the bulk of the funds in recent years going to Israel, Egypt and Turkey. In Turkey's case, the vast majority of ESF funds have been in the form of cash grants, which have been used to offset the costs of weapons purchases from the United States.⁵ There were multiple factors that could have effected the U.S. decision to decrease Turkey's grants and loans: the Turkish human rights record when dealing with the Kurdistan Workers Party (PKK), the shrinking FMS pie due to demand for grants and loans to update the militaries of former Eastern block nations and the poor rating of the Turkish economy during the late 1990s. Whatever the cause or causes for the reduction in US loans and grants, Turkey, like many nations, began a shift in its arms deals, increasing the requirements for offsets

in the form of co-production and increased technology transfers. Under the "Peace Onyx" program, which was the purchase of F-16 fighters for the Turkish Air Force, Lockheed Martin (and its predecessor on the F-16 program, General Dynamics) agreed to establish the Turkish Aerospace Industries (TAI), (as an offset to the sale of F-16s). TAI was responsible for the co-production of F-16 fighters as well as the production of F-16s for the Egyptian Air Force. Lockheed Martin retained a 49 percent share ownership in TAI as part of the deal. Included in the F-16, sale General Electric helped create Tusas Engine Industries (TEI), also a Turkish-American joint stock company which manufactures engine parts and assembles the F110-GE-100 engine for the TAI F-16 production line. Both of these programs are examples of how foreign governments began to view arms sales after the Cold War. The resulting technology, training and financing transferred to Turkey have helped Turkey to establish a foothold in the aerospace industry and thus the global arms market. Nations seeking arms are no longer satisfied with buying an end product, they also want to gain the capability to produce, maintain, and sell the weapon system. This requirement for indigenous capability is now a major driving factor in the competition of weapons sales and has helped fuel the need for updated US export laws that reflect the reality of the global arms marketplace.

As a result of September 11, the current Bush administration has made arms exports a key part of the war on terrorism. Countries that have supported the war on terrorism have found a more open policy on arms exports. Before September 11, some of these countries were shut off from U.S. arms exports. Countries like Pakistan and India found that sanctions were lifted on arms exports and countries like Armenia, Azerbaijan and Tajikistan were now new markets for the U.S. arms industry. In the fall of 2002, the

Bush administration began its own review of the US export system. The Bush administration issued Presidential Directive 19, calling for a thorough review of U.S. export laws with the anticipation of reform. As Deputy Secretary of State Richard Armitage stated on October 17, 2002, “Everything is on the table. Our policy, our process, our technology and our management structure.”⁶ At the end of President George Bush’s first term there has been little advancement on export reform. However, in 2003 DoD proposed changes to U.S. export policy in order to support members of the coalition fighting in Iraq. As a result, the Directorate of Defense Trade Controls in DoS established separate procedures for exports to coalition partners fighting in Iraq.

Since 1990, the U.S. export system has been faced with a changing arms export market. The policies of the last three presidencies have adapted to the changes in what the U.S. military mission is and how the military is equipped. These changes, along with changing world views, have paralleled how the U.S. sees allies and coalition partners. Since 1990, every major conflict the U.S. has fought has been along side coalition partners, either from existing alliances like NATO in Kosovo or from ad-hoc coalitions like the coalition of the willing in Iraq. These have also highlighted the need to reform the current U.S. export system.

The problems currently facing our allies and the defense industry will only grow as the U.S. continues to be the sole military superpower, with a defense budget in 2003 that equals 47% of the world’s military expenditures.⁷ Although their effectiveness is questionable, there have been attempts to reform the U.S. export system since 1990.

The U.S. government began the first post Cold War reform of the arms export policy pressured by a global market place, driven by shrinking military budgets, rapid advances

in military technology and the knowledge that future conflicts will involve multinational coalitions. The movement to reform U.S. export policy began in the late 1990s with the International Arms Sales Code of Conduct Act of 1995. This was legislation introduced during the 106th Congress by Senator Mark Hatfield (R-OR). Although this legislation was not passed, it was the first vote on major arms export reform in twenty years. The bill was reintroduced in 1999 and was passed as part of the FY 2000-2001 State Department Authorization Act. This bill requires the President to start negotiations on a multilateral regime on arms export criteria.⁸ The next major attempt to reform U.S. export policy came from the Defense Trade Security Initiatives (DTSI) and most recently by the Center for Strategic and International Studies (CSIS) report *Technology and Security in the Twenty-First Century: US Military Export Control Reform*”.

The Kosovo conflict exposed a gap in technology and capabilities between the U.S. and NATO allies. In response, NATO initiated the Defense Capabilities Initiative (DCI) designed to give a Common operational vision for NATO militaries. DCI was implemented to identify the capabilities required by NATO to fight in the 21st century while still maintaining self defense capabilities. DCI covered five areas: Deployment, engagement, Sustainability, Survivability, Command, Control and Communications. In response, the US DoS announced the DTSI in 2000.

“Our initiative is designed to strengthen NATO and support the DCI by promoting the sharing of technology, which will in turn enhance the interoperability of our forces and contribute to the health and productivity of defense industries on both sides of the Atlantic.”⁹

The DTSI is a DoS initiative involving seventeen procedural and policy reforms to improve the efficiency of the US export system by:

“Streamlining the U.S. Defense Export Control licensing process and forge closer industrial linkages between the U.S. and allied defense suppliers. The initiative

improves the efficiency and competition in defense markets, while maintaining the necessary export controls to safeguard mutual security. The U.S. goal is to make significant steps toward maintaining interoperability within the NATO alliance during a period of rapid defense industrial consolidation.”¹⁰

The DTSI is comprised of seventeen initiatives designed to streamline the export process. The seventeen initiatives can be broken down into four categories.¹¹

1. Creation of new license authorizations. These four initiatives deal with the U.S. commercial export and establish three new license authorizations.

a. Major Program Authorization: This applies to U.S. Government approved program and allows a U.S. firm, acting as the prime contractor, to apply for one license at the beginning of a program and avoid the piecemeal application for licenses throughout a programs lifetime. The license is good for ten years as opposed to the current maximum of four years and applies to programs involving NATO, Japan, Australia or Sweden. Once approved, a U.S. firm is only required to seek additional approval if the program expands beyond the original parameters. The approval would include hardware, technical data and defense services.

b. Major Project Authorization: This is a single comprehensive license for a commercial sale of defense articles to NATO, Japan, Australia or Sweden. The initiative would allow a U.S. contractor to define the parameters of an export license. Once the U.S. Government accepted the parameters of the license, the contractor would have expedited processing of its license requests within the project as long as all the requests were within the parameters of the major project authorization.

c. Global Project License: A license that applies to government-to-government cooperative projects involving NATO, Japan, Australia or Sweden. Once a

company has an initial license to participate in the project, there would be no need for additional licenses as long as the activities were within original terms and conditions.

d. Technical Data Exports for Acquisitions, Teaming, Arrangements, Mergers, Joint Ventures and Similar Arrangements: Unlike a marketing license, this would qualify defense companies to exchange broad sets of technical data that may be required for joint ventures, mergers, or acquisitions with NATO, Japan, Australia or Sweden.

2. Expanding the scope of licensing practices.

a. Multiple Destinations Licenses: This allows U.S. firms to market specific products to specified end-users. This license would create a market area where sales would be approved to all end users identified in license.

b. Overseas Warehousing and Distribution Agreements: This would allow US firms to set up overseas warehouses by approving bulk exports to a foreign company. The agreement would also allow the foreign company to re-export the items to pre-approved end-users.

c. Expedited License Review for NATO: This would expedite US Government review of licenses for any items on the DCI.

d. Special Embassy Licensing Program: The U.S. Government would agree to expedite licenses submitted by the governments of NATO, Japan, Australia or Sweden via their embassies in Washington, D.C. The goal is to provide quick procurement of defense items needed for a coalition.

3. Enhancing Existing ITAR Exemptions.

a. Grant Extensions of IRAT Exemptions to Qualified Countries: This would extend ITAR exemptions to countries that demonstrate export laws and policies that are similar to the U.S. including end use and retransfer laws. This exemption is for unclassified items only and applied to foreign companies identified as reliable by the foreign government.

b. Exemption for Export Licensing for Maintenance Service and Training: This allows ITAR exemption for maintenance and services to NATO, Japan, Australia or Sweden when the maintenance and services do not enhance the original capability of the equipment.

c. Exemption for DoD Bid Proposals: This allows U.S. firms to export technical data that is in support of a DoD proposal.

d. Improving Existing ITAR Exemptions: This simplifies the rules on when DoD will use existing ITAR exemptions.

e. Simplified Licensing for Commercial Satellites: Allows for a streamlined licensing process for commercial satellite parts, minor components and some technical data when all parties involved are NATO or a major non-NATO ally.

4. Improving Government-to-Government Transfers.

a. ITAR Exemptions for FMS Services: This allows license-free exporting when the contract is with a U.S. firm, and where the services are specifically identified in an existing Letter of Agreement (LOA).

b. Advanced Re-transfer of US Goods Sold or Granted: This allows the re-transfer of items sold or granted by the U.S. Government to NATO countries,

Japan or Australia. The re-transfer approval only includes unclassified items and/or items under \$7 million in acquisition value.

c. Periodic Review of the USML: This establishes a review cycle that would ensure the complete USML is reviewed every four years. The goal is to ensure the USML is current and reflects the rapid changing advances in technology.

Following the Clinton Administration, President George W. Bush led an effort to reform the export system as well with Presidential Directive 19. The plan was to put “everything on the table.” However, the efforts to reform the export system have run into resistances in the Congress, particularly from Reps Henry Hyde, (R-IL), and Duncan Hunter, (R-Calif) who have opposed the relaxing of export laws.¹² According to Defense News article “Powell Leaves Scant Export-Control Legacy,” the State Department opted to keep the old system but tried to make it run faster.”

Although DTSI was born from a need to increase interoperability with NATO allies driven by coalition efforts in Kosovo, the U.S. and European allies in NATO are today facing an expanding gap in military capabilities. As the European Union (EU) begin to align their defense industries and harmonize their export laws there is potential for the gap to widen. As Nicholas Burns, Washington’s Ambassador to Nato stated, “Europe needs to reflect on the low level of defence spending, which has left most European militaries in a state of disrepair.”¹³ Nato’s European members spent 1.9 percent of gross GNP, compared to the U.S. which spent \$405 billion or 3.7 percent of GDP.¹⁴ The U.S. is faced with a choice that has far reaching implications on US national security and our ability to operate as a coalition with long standing allies of NATO as well as potential

allies that might be part of the next “coalition of the willing.” The question remains, will there be a coalition of the able?

The current state of export reform is at a stand still, and those looking for an updated export policy, like the U.S. defense industry, are frustrated. U.S. industry sees the current U.S. export laws as outdated and cumbersome to the point that U.S. companies are loosing a competitive edge in the world market. As Joel Johnson from the Aerospace Industries Association states, “As long as we have a competitive edge in technology, people seem to put up with us. But in certain areas, we’re seeing American technology being intentionally designed out of European products. The newest French spy satellites, for example, have been carefully designed to have no US components.”¹⁵ However, those seeking to maintain the current system, that, those who are opposed to loosening our export policy and thus the flow of U.S. technology to overseas buyers, are pleased. As Rachel Stohl, an arms trade analyst from the Center for Defense Information stated, “At this stage, we should have more stringent export controls and the United States should be much more careful about what’s leaving the country and where it’s going. Countries who are our allies today may not be tomorrow.”¹⁶

This leaves U.S. export policy at the same place it was ten years ago. Outside of a few cosmetic changes and improvements to the existing system, the U.S. export policy remains relatively unchanged. The majority of changes applied to the U.S. export system are directed at increasing the efficiency of the system, very few if any changes have addressed changes in policy. Next, I will look into possible changes that can be made to the U.S. export system in hopes of bringing the system up to date with the global situation already discussed. The United State’s ability to benefit from the most up to date

technology and have a viable defense industry able to compete on the global market is a complicated task and one that will not be solved instantaneously. But, Improvements can be made which will enable the U.S. to fight and win with viable coalition partners while protecting critical U.S. technologies.

¹ LTJG Christopher F Atins, USN, "Security Assistance and National Security in the Global Economy," *DISAM Journal*, Summer 1999, 99

² (DISAM Journal Summer 1999 "Security Assistance and National Security in the Global Economy pg 99 by LTJG Christopher F Atins, USN DISAM Instructor)

³ Presidential Directive 34, "Conventional Arms Transfer Policy," 17 February 1995, n.p., on-line, Internet, 11 December 2004, available from <http://www.fas.org/irp/offdocs/pdd34.htm>

⁴ "Military Personnel Statistics," DoD, *Directorate for Information Operations and Reports*, n.p., on-line, Internet, 11 December 2004, available from <http://web1.whs.osd.mil/mmids/military/miltop.htm>

⁵ Tamar Gabelnick, William D. Hartung, and Jennifer Washburn, *Arming Repression: U.S. Arms Sales to Turkey During the Clinton Administration, A Joint Report of the World Policy Institute and the Federation of American Scientists* (October 1999), 13 December 2004, n.p., on-line, Internet, available from <http://www.fas.org/asmp/library/reports/turkeyrep.htm#assist>

⁶ Richard L. Armitage, U.S. Deputy Secretary of State, "Security Cooperation in a Post September 11, 2001 World," Defense Security Cooperation Agency Conference, Alexandria, Va., 17 October 2002.

⁷ *SIPRI Yearbook 2004 Armaments, Disarmament and International Security*, (New York, Oxford Press, 2004) 312

⁸ "Code of Conduct-U.S. Legislative History," n.p., on-line, Internet, 16 January 2005, available from <http://fas.org/asmp/campaigns/code/uscodecon>

⁹ News Brief Released by the Bureau of Political Military Affairs "New Export Exemption for Closest Allies To Promote Defense Security" 26 May 2000, n.p., on-line, 18 January 2005, available from http://www.state.gov/www/global/arms/bureau_pm/dtc/nb_000526_export.html

¹⁰ Philip T. Reeker, U.S. Department of State Office of the Spokesman Press Statement, "Defense Trade Security Initiative," 24 May 2000, n.p., on-line, Internet, 12 December 04, available from <http://www.fas.org/asmp/campaigns/control/ps000524d.html>

¹¹ "Defense Trade Security Initiative," 1, on-line, Internet, 10 December 04, available from <http://www.dsca.osd.mil/dtsi/>

¹² Williams Matthews "Powell Leaves Scant Export-Control Legacy," *Defense News* 19, no.45 (Nov 22 2004):4

¹³ Daniel Dombey, "Europe 'must spend more on defence' *Financial Times*, 28 January 05

¹⁴ *Ibid*

¹⁵ *Ibid*

¹⁶ *Ibid*

Chapter 7

Recommendations

Defining the proper export policy is complicated and must balance the protection of sensitive technologies while enabling allied nations to be viable partners. These seemingly opposing objectives are necessary in order for export policy to be effective and viable. The current export policy of the U.S. is built around protecting U.S. technology but does very little to address the need to enable allied partners. There have been several attempts to reform U.S. export policy and bring into balance these objectives, and each has contained some portions of a viable solution. Some examples of contributors on this topic are the Defense Trade Security Initiative (DTSI), the Center for Strategic and International Studies (CSIS), “Technology and Security in the Twenty-First Century,” “The CSIS Study Group on Enhancing Multilateral Export Controls for U.S. National Security” the Aerospace Industry Association (AIA), and the Center for Defense Information Research, “Challenging Conventional Wisdom, Debunking the Myths and Exposing the Risks of Arms Export Reform.” These studies were carried out between 1990 and 2003 and contain the framework for the solution to U.S. export reform.

The beginning to a solution for U.S. export reform is two-fold. First, changes to the U.S. export system must redefine which technologies are to be considered critical, and thus need to be subject to U.S. export policies. Second, an enforceable international

export treaty that addresses government to government aspects is essential and an international standard for certifying select defense companies internal export controls. By implementing changes in these areas, the U.S. export system, which has remained relatively unchanged since the end of the Cold War, will adapt to the globalized economy and the demand for increasingly advanced technologies in defense systems. As a minimum, the solution to arms' export reform should be based on three principles:

1. Must provide protection of sensitive U.S. technology.
2. Must adapt to the reality of globalized defense industry.
3. Must provide the Combatant Commander with viable options to form coalitions.

As a start, the U.S. needs to review its own export process. An important aspect of the Arms Export Control Act (AECA) and the International Traffic in Arms Regulation (ITAR) is to protect U.S. technologies. The current system was built around a Cold War environment and is very protective of U.S. technology. However, the system is becoming overtaxed and cumbersome as joint ventures with foreign companies and increased use of commercial items become the norm. In order to provide a more focused export policy on the technologies that are truly critical, there needs to be a review of what defines a defense article or defense service. Consequently, the ITAR, which regulates U.S. export policy, needs to be revamped.

The ACEA is still a sound document and forms a solid foundation for the U.S. export policy, but the ITAR, which is the regulation that implements the export policy, is an example of where reform is necessary. The ITAR defines what items are on the

USML and thus fall under license requirements for export. Currently the ITAR is too restrictive in what defines a defense article or service. For example, the AECA states:

“The Arms Export Control Act (22 U.S.C. 2778(a) and 2794(7)) section 38 provides that the President shall designate the articles and services deemed to be defense articles and defense services for purposes of this subchapter. The items so designated constitute the United States Munitions List and are specified in part 121 of this subchapter. Such designations are made by the Department of State with the concurrence of the Department of Defense.”¹

Once an article or service is determined to be a defense article it is placed on the USML and is subject to export license requirements. The ITAR defines what is a defense article or service in section 120.3.

ITAR Section 120.3 explains²

§ 120.3 -- Policy on designating and determining defense articles and services.

An article or service ***may*** (emphasis added) be designated or determined in the future to be a defense article (see § 120.6) or defense service (see § 120.9) if it:

(a) Is specifically designed, developed, configured, adapted, or modified for a military application, and

(i) Does not have predominant civil applications, and

(ii) Does not have performance equivalent (defined by form, fit and function) to those of an article or service used for civil applications; or

(b) Is specifically designed, developed, configured, adapted, or modified for a military application, and has significant military or intelligence applicability such that control under this subchapter is necessary.

The ITAR also defines defense articles in subcategories. For example, in category VIII, which addresses aircraft and associated equipment, the definition of a defense article or service is more restrictive.³

Category VIII-Aircraft, [Spacecraft] and Associated Equipment

(a) Aircraft, including but not limited to helicopters, non-expansive balloons, drones, and lighter-than-air aircraft, which are specifically designed, modified, or equipped for military purposes. This includes but is not limited to the following military purposes: Gunnery, bombing, rocket or missile launching, electronic and other surveillance, reconnaissance, refueling, aerial mapping, military liaison, cargo carrying or dropping, personnel dropping, airborne warning and control, and military training. (See § 121.3.)

(b) Military aircraft engines, except reciprocating engines, [and spacecraft engines] specifically designed or modified for the aircraft in paragraph (a) of this category.

(c) Cartridge-actuated devices utilized in emergency escape of personnel and airborne equipment (including but not limited to airborne refueling equipment) specifically designed or modified for use with the aircraft, [spacecraft] and engines of the types in paragraphs (a), (b), [and (h)] of this category.

(d) Launching and recovery equipment for the articles in paragraph (a) [and (i)] of this category, if the equipment is specifically designed or modified for military use [or for use with spacecraft]. Fixed land-based arresting gear is not included in this category.

(e) Inertial navigation systems, aided or hybrid inertial navigation systems, Inertial Measurement Units (IMUs), and Attitude and Heading Reference Systems (AHRS) specifically designed, modified, or configured for military use and all specifically designed components, parts and accessories. For other inertial reference systems and related components refer to Category XII(d).

(f) Developmental aircraft and components thereof which have a significant military applicability, excluding such aircraft and components that have been certified by the Federal Aviation Administration and determined through the commodity jurisdiction procedure specified in § 120.4 of this subchapter, to be subject to the export control jurisdiction of the Department of Commerce for purposes of section 17(c) of the Export Administration Act, as amended.

(g) Ground effect machines (GEMS) specifically designed or modified for military use, including but not limited to surface effect machines and other air cushion vehicles, and all components, parts, and accessories, attachments, and associated equipment specifically designed or modified for use with such machines.

(h) Components, parts, accessories, attachments, and associated equipment (including ground support equipment) specifically designed or modified for the articles in paragraphs (a) through (i) of this category, excluding aircraft tires and propellers used with reciprocating engines.

The impact of section of paragraph (h) is that any item that is specifically designed or modified for a military aircraft is placed on the USML. For example, if a screw is specially designed for a military aircraft or if a standard hose is designed for a specific length, then those items must be placed on the USML and subject to the export system. This means that for a foreign national to view or discuss the specifications of the screw or hose, an export license is required.⁴ Items like this unnecessarily complicate the U.S. export system and divert attention that could be better applied to actual critical technologies. If the definition of a defense article or service from section 120.3, would allow more leeway, the process, could eliminate unnecessary items form the USML. A review of how items are determined to be defense articles, combined with the DTSI recommendation of an annual review of the items on the USML, would help alleviate many unnecessary demands on the export system and would provide a good starting point on reforming the U.S. export system. Adding definition to what a defense article or service is would eliminate licensing requirements for items that are not “critical technologies” and thus would allow the license process to operate more efficiently while protecting the critical technology.⁵ In addition to defining what critical technology we need to protect, the U.S. the solution needs to address how we operate with our closest allies.⁶

The U.S. needs to look at expanding license waivers to our closest allies, like the United Kingdom and Australia. This was part of the DTSI but has stalled in Congress due to verification problems of common export laws. There needs to be an agreed upon standard for export laws if the U.S. is to apply a Canada-like ITAR exemption, and this issues needs to be readdressed. Although difficult, this type of waiver would allow more

efforts to be applied to licenses where the threat of unauthorized technology transfer is greater. However, no ITAR exemption should be enacted without assurances on both sides that critical technology will be protected. This combined with a parallel effort to establish an international treaty on conventional arms control and a certification of select defense companies provide the basis of necessary reforms.⁷

Maintaining the U.S. advantages in defense technology must be first and foremost the goal of U.S. export policy. The loss of a common enemy after the Cold War has created a world order without an agreed upon threat. This means that nations are no longer aligned by a common threat, and thus their views of world order vary. This inevitably leads to differing views on foreign policy and thus differing views on export policies. The ability to form alliances will require defining a common threat. Since September 11, 2001, there has been a split in how many nations recognize the threat of global terrorism. This difference has many implications, one of which is how governments implement their foreign policy and export policy. Previously, the critical technology that needed to be controlled and how it was released was driven by an agreed upon enemy and thus an agreed upon policy. With the end of the Cold War and the globalization of world economies, countries developed differing views on export laws and how best to control the flow of technology. The conflict in how nations view the world and its threats is a major obstacle in establishing an international agreement on conventional arms control.

However, the globalization of the defense industry points towards the need for an international solution to export policy. Unlike treaties involving nuclear arms, conventional arms control treaties are more intertwined with national economics and

restrictions are more difficult to impose. Where one nation sees a threat, another nation sees a viable market. These interpretations have led to major differences in how Europe and the U.S. view export policies. Currently Europe is pressing to remove an arms' embargo on China, a move opposed by the U.S.⁸ Although Europe insists that changes to the EU Code of Conduct will be as stringent or more so as the current embargo, the U.S. and many others see this as Europe's attempt to tap into the large Chinese defense market. This is an example of how nations can view threats differently and thus apply export policies differently. The U.S. must provide the leadership to forge an international conventional arms control regime.⁹ If an international agreement is successful, it will at times require nations to subvert portions of their foreign policy and therefore will require strong leadership to be developed and implemented.

The U.S. is in the position to provide that leadership. Left alone, regional agreements will develop where it is easier to harmonize foreign policy and export policy. These regional agreements have the potential to limit the influence of the U.S. If the U.S. fails to provide vision and leadership, it could find itself locked into a cross Atlantic battle. The U.S. would be best served by playing a role in defining the framework.

The objective on the international front is two-fold. First, the U.S. needs to define an international agreement that establishes a common list of critical military technologies that must be controlled. This government-to-government agreement, similar to the old CoCOM agreement or the new Wassenaar Arrangement, needs to be enforceable and that member states have similar policies on the re-transfer of defense articles. Second, there needs to be an international standard to certify select defense contractors. This would

reflect the globalization of the defense industry, while ensuring critical technology is still controlled.¹⁰

An international agreement must be a clearly stated list of technology to be controlled.¹¹ Existing arms control regimes, like the Wassenaar Arrangement, provide a good starting point. However, unlike the Wassenaar Arrangement, the new international agreement will have to be legally binding. This can be done in a variety of ways. For example, the agreement could require approval of all signatories to approve the export of critical technologies to a non-member country. The Missile Technology Control Regime (MTCR) could also be used as an example of an existing international agreement used to control the spread of technology. The development of a government-to-government agreement will address the issue of re-transfer of technology but reform also has to address the reality of a globalized defense industry.

To reflect the globalized defense industry and the ever increasing amount of cross-boarder ventures for defense contracts, there needs to be an international certification of select defense industry. Similar to the International Organization for Standardization (ISO), which establishes regulatory guidelines and standards in manufacturing, there could be a certification of defense contractors that meet certain standards in the protection of international technologies.¹² This certification would ensure that certified companies have controls and restrictions preventing the illegal transfer of technology. Certified companies would be subject to annual certification and inspections to ensure the necessary safeguards are in place to control critical technologies. Certification would necessarily be extremely restrictive, and certified companies would enjoy greater freedom in sharing data and technology between each other, providing a strong economic

incentive to companies to meet the standards. This will require a level of trust between industry and governments which will have to be built, and if violations occur, there must be severe penalties. With a foundation like this, the U.S. could enter into ITAR exemptions with select allies, such as Canada, while ensuring the ability to control vital U.S. technology.¹³ This ensures the U.S. military access to the most advanced technology, even if that technology is from a foreign source. And ensuring our closest allies have capabilities required to fight on the modern battlefield. This would be advantageous to the U.S. strategic interests, the U.S. military, and U.S. defense industry.

Using the past as an indicator, it is obvious that when the U.S. military is employed it will be along side allied and coalition partners. Just as the economies of the world are globalized, so is the world security environment. In order for the U.S. to continue its leadership role, it must ensure it has access to the most advanced technology. More and more the U.S. will go off-shore for that technology as other nations develop niche capabilities, some of which may be vital components. Equally important, the U.S. needs partners with the ability to stand on equal footing, both in equipment capabilities and in the employment of forces. The U.S. needs coalition partners. Those coalition partners must be a coalition of the willing, and they must be a coalition of the able if the U.S. is to succeed in this era of global threats. Success in the future will depend on international cooperation, and the U.S. export system has to be changed. Change does not mean losing control of U.S. technology, it does not mean the exodus of U.S. jobs, but it does mean changing an outdated system that once provided the necessary means to control U.S. technology but is quickly losing the means to operate in a new era.

¹ “AECA”, 110, on-line, Internet, 13 November 04, available from <http://www.fas.org/asmp/resources/govern/aeca01.pdf>

² “International Traffic in Arms Regulations,” 22 CFR Parts 120-130, U.S. Government Printing Office, Revised, 1 April 2004, 99, on-line, Internet, 12 November 2004, available from <http://www.pmdtc.org/reference.htm>

³ *Ibid*

⁴ Joel Johnson, Aerospace Industries Association, interviewed by author, 25 January 2005

⁵ CSIS Panel Report, *Technology and Security in the Twenty-First Century* (Washington, D.C.: CSIS Press 2001), 17-21

⁶ Joel Johnson, “Reduce U.S. Legislative and Regulatory Trade Impediments to U.S. Companies Competing in the Global Aerospace Marketplace,” *Aerospace Industries Association Top Ten Issues 2005*, 1, on-line, Internet, 17 January 2005, available from http://www.aia-aerospace.org/issues/topten_2005/2005_tradeimpediments.pdf

⁷ *Ibid* 14-15

⁸ Frederick Studemann, Stephen Fidler, and George Parker, UK expects Brussels to lift China arms ban,” *Financial Times*, 13 January 2005

⁹ CSIS Study Group, *Enhancing Multilateral Export Controls for US National Security* (Washington, D.C., 2001) 25

¹⁰ CSIS Panel Report, *Technology and Security in the Twenty-First Century* (Washington, D.C.: CSIS Press 2001), 13-15

¹¹ “Proposed Changes to the Export Control System,” Aerospace Industries Association Issues, 25 July 2001, 8, on-line, Internet, available from http://www.aia-aerospace.org/issues/subject/export_control_changes.pdf

¹² Joel Johnson, Aerospace Industries Association, interviewed by author, 25 January 2005

¹³ CSIS Panel Report, *Technology and Security in the Twenty-First Century* (Washington, D.C.: CSIS Press 2001), 9-12