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GLOBALIZATION; U.S. EXPORT CONTROL POLICY AND IMPLICATIONS FOR U.S. MILITARY DOMINANCE

by

Lieutenant Colonel Philip A. Bennett
United States Marine Corps Reserve

Professor Gary Maybarduk
Project Advisor

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

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The very success of a nation's national military strategy is dependent upon superior technology, the operational capability of its armed forces, and the capacity to sustain those forces to achieve national objectives. The post-Cold War reduction in defense spending coupled with the effects of globalization has reoriented defense industry to depend on international trade to sustain profits. Globalization has permitted foreign competitors to exploit newfound access to military useful technology. From a strategic viewpoint, a significant challenge facing the Department of Defense is the leveling effect that globalization is having on the ability to maintain the U.S. military technical advantage. The results of unchecked weapons technology proliferation can lead to a serious erosion of U.S. military dominance.

What should the DoD's strategy be to hedge against the military and economic effects of globalization while balancing the realities of international cooperation with the need to maintain military dominance? The paper will examine the strategic impact of globalization upon the DoD and how existing export controls and national policies should be modified to meet these challenges. It will present recommendations to balance the continuing need for safeguarding critical U.S. technology with the effects of globalization upon the proliferation of conventional weapons technology.

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> Today, the distinction between domestic and foreign affairs is diminishing. In a globalized world, events beyond America's borders have a greater impact inside them.
>
> –President George Bush
> The National Security Strategy of the United States
> September 2002

GLOBALIZATION AND NATIONAL SECURITY

Globalization is the integration of the political, economic and cultural activities of geographically and/or nationally separated peoples. The end of the World War II propelled an information and technology revolution spawning an age of global integration. The collapse of communism and the end of the Cold War facilitated globalization and the spread of democratic ideals, capitalism, free trade, international exchange and the virtual reshaping of the world through faster and more efficient forms of communication and transportation.[1] Accelerating these trends are the unprecedented advancements in information technology predominately the World Wide Web and the use of the Internet. International borders, until heretofore distinct under their centuries of Westphalian order, are now largely mere lines on a map through which goods and services, materials, capital, information, and people flow molding humanity into a global community. Despite the importance of free trade, globalization involves more than an increase in economic activity around the world. Globalization brings with it, not just its benefits but new challenges, risks and vulnerabilities. Global integration is largely unavoidable. Globalization, therefore, is not a policy option, political movement or societal trend to monitor, but a force of immense effect that decision makers in all capacities cannot ignore.[2]

> America is now threatened less by conquering states than we are by failing ones. We are menaced less by fleets and armies than by catastrophic technologies in the hands of the embittered few.
>
> –President George Bush
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GLOBALIZATION AND THE DEPARTMENT OF DEFENSE

Globalization affects the Department of Defense (DoD) in two distinct ways. First, it is altering fundamentally the composition of DoD's supporting industrial base while, in turn,

necessitating a reengineering of DoD acquisition and business practices. Second, and perhaps more significantly, it is reshaping the military-technological environment in which DoD operates. These trends present DoD with both opportunities for and challenges to the maintenance of global military dominance.[3]

From a strategic viewpoint, one of the greatest challenges facing the Department of Defense is the leveling effect that globalization is having on the ability to maintain the U.S. military-technical advantage. Globalization has permitted foreign competitors to exploit newfound access to military useful technology to the detriment of the U.S. technical advantage. Trends suggest that advanced conventional weapons technology will be available to any person, organization or nation state that can afford them. The results of unchecked weapons technology proliferation could lead to a serious erosion of U.S. military dominance.[4]

What should the DoD's strategy be to hedge against the military and economic effects of globalization while balancing the realities of international cooperation with the need to maintain military dominance? The paper will examine the strategic impact of globalization upon the DoD and the debate regarding whether and how existing export controls and national policies should be modified to meet the new international environment. It will present recommendations to balance the continuing need for safeguarding critical U.S. technology with the effects of globalization upon the proliferation of conventional weapons technology.

GLOBALIZATION'S IMPACT ON DOD'S SUPPORTING INDUSTRIAL BASE

The very success of a nation's national military strategy is dependent upon superior technology, the operational capability of its armed forces, and the capacity to sustain those forces to achieve national objectives. DoD once depended upon, and could afford to sustain, a dedicated domestic industrial base for the development, production and provision of its equipment and services. Today, the U.S. defense industrial base no longer exists in its Cold War form. An emerging global economy and declining defense budgets have altered the business of defense industry. The DoD could once depend on a dedicated domestic industrial base to develop and supply its equipment needs pioneering both the development of technology and its application. Such is not the case today. Instead, DoD now is supported by a broader, less defense-intensive industrial base that is becoming increasingly international in character. Major advances in information technology are being driven primarily by the demands of the commercial sector. Moreover, information technology is being applied commercially in ways that are transforming the international business model.[5]

Fifty years ago, high spending on defense fueled by the Cold War produced many technical breakthroughs, from semiconductors to nuclear power, bringing great benefits to the world economy. Notwithstanding, commercial industry, lead by the technology giants of Silicon Valley, has facilitated a global explosion in research and development and technical advances. Reversing this trend, U.S. defense industry is now, with few exceptions, reconstituting itself into a global, more commercially-oriented industry. That which remains of the traditional U.S. defense sector has undergone an intense period of consolidation. News of international mergers, acquisitions, joint ventures and strategic partnerships with global partners dominated business journals over the past decade. DoD is now supplied to a large degree by the commercial sector and is increasingly dependent on commercial industry and defense exports to leverage limited resources.[6] Since the peak of the Cold War, the DoD has experienced a 70% decline in real procurement dollars coupled with a 25% drop in research and development funding. Acknowledging that the FY04 defense budget of 399 billion dollars is the highest on record, defense spending has been on a general decline as a measure of U.S. Gross National Product from over 6% in 1986 to a low of 3% in 2000, inching out a marginal increase to just over 3.3% this year as result of the war on terrorism.[7]

Expectations that U.S. defense industry, following the demise of the Soviet Union, would shift its business strategy to the development of commercial products were not realized. What has emerged instead is a business worth over 800 billion dollars in world military spending dominated by the U.S. defense industry with sales of nearly 300 billion dollars alone in 2000. The combined NATO allies are a distant second at just over 150 billion dollars with the individual countries of Russia, Japan, and China, France, Britain and Germany respectively making up the bulk of the remaining field. Of the total in defense spending, exports of military hardware run at nearly 40 billion dollars a year. U.S. industry's share of military exports is calculated to be nearly half of total sales likewise accounting for approximately 40% of defense production worldwide. By contrast, in Europe government spending takes up a larger share of the economy and defense is always an easy target for cuts. Other than in Britain and France, defense budgets remain flat everywhere.[8]

Despite the considerable lead in U.S. defense spending and military exports, the competition for the share of the world arms market is fierce. Unable to compete with the sheer numbers in dollars invested by the U.S. government and defense industry, international weapons manufacturers weigh their future success on accelerating the development of lead military technologies. This strategy has fueled an international military technology race that is permanently altering the arms sales landscape. As a consequence, weaponry available on the

international arms market is increasingly sophisticated. Exporting countries no longer offer less-capable export versions of their most advanced weapon systems. Now, in order to gain a competitive advantage, nations are offering state-of-the-art equipment, particularly electronics, sensors and munitions.[9]

Beyond the arms market, the general diffusion of technological know-how and commercial availability of "strategic" or "enabling" dual-use technologies (e.g., advanced machine tools, high speed computers and production capability) will significantly improve foreign industrial development and weapons production capability. New production and manufacturing concepts such as modular construction, otherwise known as “plug and play” technology, is enabling manufactures to combine the best technology from around the globe. For example, it is now entirely possible that a defense firm could purchase a Russian airframe outfitted with British or U.S. engines, outfitted with Israeli avionics, and armed with French precision munitions. These new production techniques allow international weapons manufactures to leverage weapons systems capabilities by balancing one nation’s technological weaknesses with another’s strengths.[10]

The increased use of the commercial business applications cannot be separated from the effects of globalization. The adoption of new business practices by the public sector including DoD, that emphasize the use of information technologies to streamline work processes to capture efficiencies are responsible for such initiatives as the Revolution in Military Affairs, Acquisition Reform and Transformation. While globalization and free trade are mutually supportive, the economic advantages derived from the cooperation between international companies primarily in the area of cost sharing and risk reduction methodologies, hold the greatest potential to answer questions of interoperability between allied armed forces.[11]

GLOBALIZATION'S IMPACT ON U.S. MILITARY TECHNOLOGY

Acknowledging positive effects of globalization, risks to DoD remain. The international conventional arms market, once driven and constrained mainly by political imperatives, is now shaped heavily by economic considerations. From a strategic standpoint, globalization is reshaping the military technological environment in which DoD must operate. The economic and political pressure upon defense firms to increase exports to gain market share and reduce their reliance on domestic resources will erode the effectiveness of conventional arms and defense technology export controls worldwide. Combined with the availability of most types of defense products either legally or illegally, and the pressure on arms producers to market their most sophisticated systems, advanced conventional weapons are increasingly available on the open

market to anyone capable of meeting the asking price. Indeed, because of the proliferation of military technology, the commercialization of former military-specific technology, and the increasing reliance upon commercial technology by armed forces world wide, access to commercial technology is virtually universal, and its exploitation for both civil and military ends is largely unconstrained.[12]

The weight of major international non-proliferation initiatives since the outset of the Cold War have concentrated on the restraint of technologies associated with weapons of mass destruction or effects (WMD/E). Undertaken primarily by Western nations as a principal component of the containment strategy aimed against the former Soviet Union, the focus lay primarily upon nuclear, biological and chemical weapons. The principal weapons control/non-proliferation treaties or "regimes" to which the United States is a party include the Nuclear Non-Proliferation Treaty, the Chemical Weapons Convention and the Biological Weapons Convention, the Strategic Arms Reduction Treaties, and the Missile Technology Control Regime. Throughout the bipolar struggle of the Cold War these efforts to control WMD/E technologies were by and large successful. WMD/E concerns over the past decade have been directed toward central Asia and the cross boarder tensions between India and Pakistan.[13] Not until the posturing of Iraq followed closely by North Korea has a serious nuclear threat to world peace confronted the international community.

The record on non-proliferation of conventional weapons cannot claim the same level of interest from the international community. The proliferation of advanced conventional weapons can trace its origins back to the turn of the 20th century. The United States emerged from the post World War I era accounting for more than 52% of the global arms market.[14] Controversy over the global impact of advanced weapons proliferation is mixed among the industrialized nations in comparison with the catastrophic implications of WMD/E. The minority, primarily the military services of industrialized nations and international peace advocacy groups, recognize the human cost of an estimated 24 million lives lost over the past 50 years through the use of conventional weapons. These numbers are much greater than the aggregate of human lives lost to WMD/E since the bombing of Hiroshima and Nagasaki at the end of World War II. Consequently, a comparative analysis of the impact of WMD/E and conventional weapons upon the global community to date warrants its share of equity in the global non-proliferation club.[15]

In order to raise the veil on the role of the United States in the global arms market, it is necessary to have a basic understanding of the components making up the policy and programs by which the DoD participates in the international sales of conventional weapons. Security assistance is the process by which the United States, via the DoD, "provides defense articles,

military training and other defense related services, by grant, loan, credit, or cash sales in furtherance of national policy and objectives."[16] In a broader context, security assistance is used with other terms such as foreign aid, foreign assistance, military assistance, arms transfers, international defense cooperation and international logistics. For the purposes of this discussion, the focus is placed on "arms transfer" defined as "the international transfer (under terms of grant, credit, barter, or cash) of military equipment, usually referred to as "conventional," including weapons of war, parts thereof, ammunition, support equipment, and other commodities designed for military use." [17] The two major security assistance program components germane to the discussion of DoD arms and technology transfer are Foreign Military Sales and Direct Commercial Sales.

Foreign Military Sales

With roots extending back to the turn of the 20th century, government sponsored Foreign Military Sales (FMS) is the patriarch of U.S. arms transfer programs. Governed primarily by the Arms Export Control Act (AECA), and the Foreign Assistance Act, FMS is "a non-appropriated program through which eligible foreign nations or international organizations can acquire defense articles and services through government-to-government sales from DoD stocks or through new procurements under managed DoD contracts." [18] FMS contracts or "cases" have a history of being the method preferred by foreign nations to purchase U.S. military hardware. Sales are based on formal agreement backed by the full faith and confidence of the U.S. government. U.S. commercial arms manufacturers, therefore, sell their products through the U.S. government abiding by the requirements of U.S. law and statues. Traditionally, a normal component of FMS includes "follow on support" beyond the sale of the individual weapon systems purchased. This is normally furnished as long term logistical support such as spare parts, maintenance and training. While purported as a more reliable means of weapons procurement, foreign nations invariably pay a premium for the added guaranties.

Total dollar value of defense articles and services delivered to foreign nations under FMS agreements averaged approximately 10 billion dollars up to 1994. Commensurate with the down trend in defense spending following the Gulf War, the U.S. government has aggressively pursued alternatives to bolster the loss of business income suffered by the U.S. defense industry. Consequently, FMS has increased from a low of 9.6 billion dollars in 1994, reaching a peak of 17.1 billion in 1999.[19]

Direct Commercial Sales

The other major component of U.S arms and technology transfer programs is Direct Commercial Sales (DCS). Likewise governed by the ACEA, U.S. laws and regulation affecting DCS also extend to “dual use” technologies under the Export Administration Act (EEA). Dual use technologies are those technologies which have both civil and military application.[20] Contrary to the formal government-to-government requirements surrounding FMS, DCS are negotiated directly between the foreign nation and the U.S. arms manufacturer without the Pentagon serving as an intermediary. Government oversight is otherwise enforced through the granting of an export license by the Department of State in accordance with the International Traffic in Arms Regulation (ITAR).[21] The bureaucratic red-tape of government-to-government FMS can be a detractor to potential customers. Less transparent than FMS, many buyers opt for the relative lack of reporting requirements associated with DCS. As a result, fewer reliable records of DCS exist. Foreign customers with more experience in military procurement, not needing the U.S. government to negotiate sales on their behalf, tend to choose DCS over FMS.

An unfortunate reality of the incomplete information maintained on commercial exports is an inconsistent record by which the history of DCS can be traced. Recent numbers collected by the State Department reflect an increase in worldwide DCS deliveries from just over 57 billion dollars in 1999 to 413 billion dollars in 2001.[22] This dramatic increase is consistent with reports of doubled efforts by U.S. defense industry to leverage lost revenues from domestic procurement programs through increases in commercial exports. In the March 2000 edition of the Journal of the Federation of American Scientists (FAS), a prominent Washington, D.C. arms control and proliferation advocacy group, FAS argues that “the phenomenon of globalization has reached the arms industry…the limited political consensus for arms sales restrictions that existed during the Cold War has evaporated, leaving no widely accepted norm of restraint in its place. Instead, global market forces are driving the arms trade, with governments' political and security interests often taking second place to the economic interests of the arms industry.” [23] By and large, up through the current administration, our national leadership is receptive to the economic argument for military exports. Presidential Decision Directive (PDD) 34, signed in 1995 during the Clinton administration, offered the first indication of a general leaning towards economics as a priority when considering export decisions. The PDD stated that "the impact on U.S. industry and the defense industrial base" with one of the goals of U.S. arms exports being "to enhance the ability of the U.S. defense industrial base to meet U.S. defense requirements and maintain long-term military technological superiority at lower costs." [24]

Consequences of Proliferation

FAS and other non-proliferation groups contend that the economic benefits of U.S. arms exports are largely overstated. They point to a 1999 report by the General Accounting Office that challenges common perceptions that arms exports significantly lowered procurement costs of the U.S. government. The report stated that the Unites States spends upwards of 8 billion dollars a year in support of domestic arms exports to cover such expenses as grants and loans to foreign governments to underwrite U.S. arms sales and the salaries of U.S. employees that manage arms sales cases.[25] Perhaps most troubling from a national security perspective is the practice of defense offsets.

Shrinking military budgets have reduced domestic demand for military equipment, increasing competition among international arms manufacturers. This market pressure allows customers to negotiate compensation from suppliers as "offsets" to the final purchase price. Offsets are defined as "industrial or commercial compensation required of a contractor by a purchasing foreign government as a condition for the purchase of defense articles or services."[26] Historically, offsets have served U.S. foreign policy and national security objectives such as increasing the industrial capabilities of allied countries, standardizing military equipment, and modernizing allied forces. The use of offsets is now commonplace. Today, virtually all of the defense trading partners of the United States imposes some type of offset requirement. Foreign governments require offsets for a variety of reasons: to lower the cost of large defense purchases, to increase or preserve employment levels or to obtain advanced technologies not available domestically. Offsets are categorized as "direct" or "indirect." Direct offsets refer to compensation, such as co-production or subcontracting, directly related to the system being exported. Indirect offsets apply to compensation unrelated to the exported item and may include supplier purchases of commodities or manufactured goods produced in the purchasing country.[27]

One of the more politically sensitive issues related to offsets is their capacity to export U.S. jobs overseas. American defense jobs are put at risk when increasing levels of production and technical capability are exported to foreign countries in the form of offsets. Increasing popular pressure resulted in Congressional interest and subsequent legislation in 1992 amending the Defense Production Act of 1950. The amendment requires the Department of Commerce to report annually to Congress on the effects of offsets upon the industrial base. The 2001 report concluded that the average offset in1998 equaled 57.9% of the commercial value of contracts. Approximately 72 percent of the value of new offset agreements was attributed to European nations. Almost one half of all new agreements required 100% or more in offsets. The total amount of direct offsets between 1993 and 1998 "supplanted $2.3 billion in U.S. work or 25,300

work-years."[28] Beyond the potential loss of American jobs, and perhaps more detrimental to U.S. national security in the long term, is the accelerated proliferation by offsets of advanced weapons technologies to foreign competitors.

The 2001 report to Congress concluded that the continuing practice of offsets results in the regular transfer of advanced technologies to foreign defense industry.[29] Approximately one-quarter of all defense offset transactions involve the transfer of technology. A business reality is that any refusal by a supplier to transfer technology through an offset can place a pending sale at risk. The end result is a quantitative jump in foreign weapons systems capability rarely resulting in the reciprocal exchange of technology useful to U.S. defense interests. While the ingenuity of U.S. industry continues to maintain a technical advantage in military materiel development, that advantage may be jeopardized by offsets designed to satisfy foreign demands for technology. Ironically, the practice of offsets can be viewed as feeding a continuous cycle of investment in research and development needed to preserve the U.S. technical advantage. As a consequence of offset technology transfer, a real probability exists of advanced weapons technology falling into the hands of potential adversaries. A problematic legacy of U.S. offset practices is manifested in the warnings about the threat posed by al Qaeda terrorists armed with Stinger shoulder-launched missiles in Afghanistan likewise the transfer of advanced U.S. missile technology to Iraq by an allied country originally provided the technology through offsets agreements linked to commercial weapons sales.[30]

Another motivation driving technology transfer, while not having the same level of implications as defense offsets, nonetheless, still poses proliferation concerns that require mentioning. The interoperability of U.S. weapons and command and control systems with those of its allies is an issue of considerable debate within the Pentagon. Whether on the traditional battlefield or engaged in foreseen network centric warfare, the United States will undoubtedly operate as part of multilateral coalitions. The ultimate success of coalition operations lies increasingly upon the ability of coalition partners to operate seamlessly and share a common picture of the battlefield. This requires a level of systems compatibility that must be achieved and maintained complimented by common tactics and operational concepts. Of concern to many allied nations is that the technical superiority of the U.S. military, exemplified in the “leap ahead” transformation initiatives ongoing within the DoD today, will extend beyond current thresholds surpassing the capacity of allied technical capability.[31] In the February 10 edition of the *Marine Corps Times* magazine, Amy Svitak opines on a conference held in January 2003 between U.S. and allied nations stating, “As the Defense Department presses ahead with transformation, the technology gap between the U.S. military and its NATO allies is widening.” To bridge the growing

technology gap with NATO, DoD decision makers will face the test of having to choose what front line systems technology to transfer without risking the loss of technical advantage.

On balance, valid arguments can be made that, acknowledging the negative aspects of defense offsets, technology transferred via offsets has reduced the technology gap between the U.S. and NATO, greatly improving interoperability over time. Europe and NATO allies have technologies of their own that may enhance interoperability and multiply weapon systems capability. Close relationships and long standing agreements with NATO allies for the protection of national security information exchanged between member nations temper most concerns over the risk to loss or compromise of U.S. advanced technology. The likelihood of the U.S. industrial base collapsing as a result of trends in military technology leveraging is remote. However, a significant challenge facing decision makers is how to maintain a viable industrial base while not mortgaging the advances made in U.S. critical technology thereby negating our military technical advantage or worse, encountering those same technologies in the hands of an adversary on a future battlefield.

The gravest danger to freedom lies at the crossroads of radicalism and technology.

–President George Bush
The National Security Strategy of the United States
September 2002

DECLINE OF U.S. AND INTERNATIONAL MILITARY-TECHNOLOGY CONTROLS

Globalization challenges existing export control policy in many ways. As economies become more international and national and cultural boundaries fade under the influence of the ethernet, the continuing ability of export regimes to limit unrestricted access to dual-use technologies and commodities has come under scrutiny. Not immune to the ubiquitous influence of globalization, U.S. export control policies must be relevant to the current global environment and the years ahead.[32] U.S. Export controls themselves date back to a 1774 when the First Continental Congress convened in Philadelphia and the following December declared the importation of British goods to be illegal. Twelve months later the Congress outlawed the export of goods to Great Britain, thus establishing the first American export controls. Since that time, legislation imposing export controls included the Embargo Act, the Trading with the Enemy Act, and the Neutrality Act. The Export Control Act of 1949 gave the Department of Commerce primary responsibility to administer and enforce export controls on dual-use commodities and, for

the first time, defined three reasons for the imposition of these controls: to preserve national security, to advance foreign policy goals, and to prevent short supply.[33]

MULTI-LATERAL CONTROLS; PAST AND PRESENT

Current strategic export control programs have their roots in the Cold War era and were intended to deny the transfer of western lead technology to the Soviet Union and the People's Republic of China. Established in 1949, the Coordinating Committee on Multilateral Export Controls (COCOM) was designed to preclude access to certain commodities and technologies by communist block countries. Throughout the Cold war period, COCOM was effective in coordinating multilateral controls of conventional military and dual-use technology exports between the U.S. and western allied nations. The end of the Cold War removed COCOM's cooperative impetus plunging the U.S. and its allies into the roles of peacetime economic competitors that exist today.[34] Reflecting the loss of solidarity among western allies following the end of the Cold War, COCOM was disbanded in 1994. This effectively put to an end nearly 50 years of consistent non-proliferation cooperation on the export of conventional weapons technology.

Because unilateral export controls are less effective than controls enforced by many nations, the United States joined forces with other countries to help further its national security and foreign policy interest. Currently, the United States is a member of the Nuclear Suppliers Group, the Australia Group, the Missile Technology Control Regime, and the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies. Created as a successor to the COCOM regime in 1996, the Wassenaar Agreement is hampered by the inclusion of Russia and former Warsaw Pact countries, and is viewed as a less viable mechanism for multilateral controls.[35]

As previously discussed, the post-Cold War reduction in defense spending coupled with the effects of globalization have reoriented defense industry to become more dependent on international trade to sustain business profits while the military has become more reliant on commercial technologies to meet its equipment needs. These developments have created the basis for renewed emphasis on export control policies. To appreciate the challenges to mitigating the effects of military technological leveraging, an understanding of U.S. export control policy, agency roles and stakeholders involved is essential.

THE TECHNOLOGY DEBATE; MARKET SHARE VS NATIONAL SECURITY

Statutory authority for export controls emanates from Congress under its Constitutional powers to regulate commerce. While the burden of implementing export policy extends beyond

its role, advocate groups look to Congress to adopt legislation favorable to all parties. Consistent implementation of laws and national policy is the eternal struggle of the interagency process to which export control is not immune. The obstacle confronting the adoption of revised export legislation is the debate over which strategic interest, national security or the viability of the industrial base should carry the greatest weight. The problem is the extent to which the export of critical technology should be controlled given the inherent fungibility of technology and the proliferation challenges faced by an increasingly interconnected world. Industry proponents argue that technology cannot be effectively controlled in today's mass market economy. They point to the dilemma of keeping pace with advances in high speed computers. Once controlled for export, advanced computers increasing become available on the commercial market before the government has a chance to react. In testimony before Congress, industry representatives reported in 1998, that 75% of technology company revenues came from products that did not exist just 2 years before.[36] A subsequent review of computer export policy by the Clinton administration in February 2000 concluded that is was already apparent that computer capabilities "were outpacing the ability of export control policy to keep up."[37]

Industry advocates therefore contend that cumbersome unilateral export controls will deny U.S. companies the ability to compete in the global marketplace and that customers will find sources elsewhere, denying them business and facilitating the growth of foreign companies. Thus, they profess that U.S. export laws should be further liberalized allowing U.S. companies to generate the profits that drive technological advances benefiting the economy as well as the defense establishment. Opponents, however, reject this view, maintaining that national security, specifically the U.S. military technical advantage, does not benefit from extensive sales of high technology. They point to the challenges currently faced by the United States in the war on terrorism as proof that continued liberalization of dual-use and advanced weapons technology can pose a significant threat to the national security regardless of how technically superior U.S. capabilities may be.[38] The challenge is how the existing interagency process can be improved to operate effectively in the post Cold War environment. An examination of the Executive Branch agencies charged with executing export control policy is needed to fully appreciate the difficulties of export control management.

Department of State

Administered by the Department of State, the Arms Export Control Act (AECA) governs the export of U.S. military technologies and is codified within the International Traffic in Arms Regulation or ITAR. The ITAR contains the U.S. Munitions List which outlines all defense articles

and related technologies that are controlled. Articles on the list intended for export require an approved export license from the State Department's Office of Defense Trade Controls (ODTC).[39]

A major industry criticism of the ODTC is that the definition of controlled technologies in the ITAR is much too broad and thereby complicates the overall licensing process from the start. Another complaint is that the timeline to process and approve a license is out of sync with modern business processes that often demand results in days while license processing can take weeks. In response to industry complaints, Congress directed the General Accounting Office (GAO) to investigate. In their December 2001 report, "Reengineering Business Processes Can Improve Efficiency of State Department License Review," GAO found that the absence of formal guidelines to process and monitor export licenses, reduced the overall efficiency of the ODTC's license review process. State's review times are similar to those of the Commerce Department which reviews licenses for dual-use items. Citing current data for licensing times, State said export licenses that require the review of other government agencies take between 51 and 60 days, and those licenses not passed on to other agencies take 7 to 11 days to review.[40] In a February 2002 speech before industry representatives, the Assistant Secretary of State for Political-Military Affairs, Lincoln P. Bloomfield, stated that of the 47,000 license applications received by ODTC each year, it handled approximately 70% internally (just under 33,000) with a median processing time reduced from 15 days in 1999 to 8 days. The remaining applications, those staffed to outside agencies normally for reasons of national security, were reduced to 58 days, down from 76 in 1999.[41] The point remains that, while the State Department has made progress in their license review timeline, industry contends that the interagency process is incompatible with current business practices.

Complaints of the protracted licensing process from both U.S. industry and NATO allies prompted attempts by the Clinton administrations to reform export policy. In May 2000, then Secretary of State Madeline Albright announced the Defense Trade Security Initiative (DTSI), a series of broad reforms consisting of 17 specific changes to the U.S. export control system. The reforms are designed to increase interoperability with allies, facilitate cooperative technology exchange in foreign markets and streamline U.S. export controls. The most far reaching reform, the Global Project License would exempt favored allies from arms export license requirements. In September 2002, this provision was used for the first time in support of the multi-national Joint Strike Fighter Program, granting a single export license for technology transfer to allied partners for the life of the program. Initiated late in the Clinton administration, these reforms were delayed due to the turnover of the Bush administration and unfortunately have been delayed by other priorities.[42]

Department of Commerce

The Export Administration Act (EAA), Administered by the Commerce Department, sets regulatory requirements for the export of commercial and "dual use" technologies (items having both commercial and military application). Signed into law in 1979, the EAA contained a sunset clause and formally expired on August 20, 2001. Since, a revised EAA has languished in Congress entangled in an ongoing tug-of-war between defense industry and non-proliferation advocates. Interestingly however, while not yet formally renewed by Congress, the provisions of the EAA remain in affect as a result of a presidential declaration of national emergency by President Bush under the National Emergency Act.[43]

The EAA is implemented by the Export Administration Regulation (EAR) and is administered by the Bureau of Export Administration (BXA). The EAR contains the Commerce Control List (CCL) which lists approximately 2400 controlled items requiring a license for export. The EAR regulates sensitive commodities, computers, and related technology. Due to the wide expanse of commercial technologies, the CCL is significantly more detailed than the ITAR.[44] In its 2001 annual report, the BXA stated it processed approximately 10,000 license applications approving 82% of requests and denying only 2%. The remaining 16% were returned for administrative reasons. They reported an increase in average processing time for license requests to 44 days from a low of 26 days in 1996. Consequently, Commerce Department licensing practices have likewise been under scrutiny. Industry advocates use the reported timelines for both the ODTC and the BXA as ammunition to lobby for reform.[45] Finally, by the very nature of their missions and associated culture, export policies and procedures of the Commerce Department and those of the Department of State, seem at odds. The ODTC is traditionally concerned with the proliferation of technology, of which the loss or compromise, would damage the national security. The BXA on the other hand, is charted to facilitate the rapid exchange of enabling technologies to foster U.S. economic development. Over time, these fundamental differences result in contradictory export decisions and misinterpretation of export policy.

Department of Defense

Although the DoD does not have any specific statutory responsibility delegated to it for the administration of U.S. export controls, DoD nonetheless, because of its primary role in the identification of advance technologies with military application, plays a significant role in export decisions. Even though DoD fills a secondary role, division of labor amongst DoD agencies for export control implementation is widely spread. A handful of Assistant and Under Secretaries of

Defense often share overlapping aspects of DoD export program management that serves to cloud the internal coordination process.[46]

Classified military information intended for disclosure to a foreign government in support of a defense program passes through a separate vetting process that eliminates the need for State Department approval for an export license. Additionally, administration of export and disclosure cases is not always consistent within the military departments. Confusion exists over when an export license from ODTC is required for technology approved for disclosure to a foreign government as part of a formal government-to-government agreement (e.g. international co-development or co-production program). Moreover, the Militarily Critical Technologies List (MCTL), a comprehensive compendium of technologies considered to have significant value to defense programs, is not widely used particularly due to its breadth and level of detail which tends to overpower the average user. Unfortunately this tends to be the case in both the disclosure and acquisition communities where the need to determine the criticality of specific technologies and their potential for disclosure as part of international programs is essential.[47]

DoD acquisition programs pose a further challenge to the protection of advanced military technologies. Also, the recipient of Congressional reviews investigating the loss or illegal transfer of lead technology to foreign competitors, DoD acquisition programs and supporting research & development centers suffer from a lack of specific guidance for identifying critical technologies. When critical technology is not identified early in the life of a program, the ability to protect the technology throughout the program's lifecycle is placed at increased risk. The Deputy Secretary of Defense, Dr. John Hamre, concerned that DoD research and development centers might also be laden with serious foreign intelligence collection vulnerabilities, requested that each of the military services perform internal security and counterintelligence audits of their respective research centers. The results of this survey indicated that initiatives to develop a DoD Research and Technology Protection Program to improve security and counterintelligence coordination within acquisition programs had mixed results and that much more could be done to achieve consistent implementation throughout DoD. Concerns by program managers of delays upon schedule and performance brought on by perceived burdensome security measures remain a major obstacle towards protecting critical technology within acquisition programs.[48]

In sum, the DoD, along with its Executive Branch counterparts, faces challenges to establishing a consistent technology control program. Amy Sviak of *Defense News*, in a 16 December 02 article entitled, "Rumsfeld At Two Years," criticizes Secretary of Defense Donald Rumsfeld for allowing early export reform initiatives to be overcome by the war on terrorism. However, she does give credit to the global project license granted the Joint Strike Fighter

program and the comprehensive review of conventional arms transfer policy ordered by President Bush in November 2002. Svitak concludes with a comment from a Congressional staff member stating that "the true measure of Rumsfeld's accomplishments may not be clear for a decade, I suspect there has been more change we do not see than change we have...We may be better able to assess his effectiveness in 2012 than in 2002." While waiting 10 years for the outcome of export control reforms may satisfy some, the continued proliferation of advanced weapons technology in the meantime may have serious implications for U.S. military dominance.

> Rogue states and terrorist do not seek to attack us using conventional means. They know such attacks will fail. Instead, they rely on acts of terror and,…weapons that can be easily concealed, delivered covertly, and used without warning.
>
> –President George Bush
> The National Security Strategy of the United States
> September 2002

IMPLICATIONS UPON U.S. MILTARY DOMINANCE

The new range of threats our nation faces extends beyond the traditional rivalries of nation states. New entities that include non-state, transnational, and other adversaries have gained the capability to present significant threats to U.S. national interests. The proliferation of advanced weapons systems, terrorism, and technologies has decreased the traditional time between warning and attack that formed many of our operational plans. The United States now faces a world in which adversaries will attack with little or no warning. Changes in both the geopolitical situation and advancing technology are driving the changes taking place in the international security environment. Defending the nation and its vital interests in the future will involve more of an emphasis on asymmetrical threats, the conduct of operations other than war and operations with coalition partners. In spite of our significant technological, economic, and military edge, the commercial availability of certain technologies gives a number of regional powers, transnational coalitions, and other potential adversaries the ability to place our national interests at risk.[49]

It will become harder to limit the acquisition and integration of advanced weapon systems and technologies by a variety of hostile and often irresponsible state and non-state actors. Exploiting their newfound access to advanced technology, adversaries can achieve at minimum cost and within a very short time frame, a level of military capability that could exploit the current limitations of U.S. forces.[50] In 1995, the Defense Science Board estimated that potential U.S. regional adversaries spending $15-20 billion in the global marketplace over a ten year period

could develop significant theater anti-access and power projection denial capabilities.[51] With the wide range of military technologies and capabilities available, competitors will likely procure weapons systems that take advantage of their geographic location to maximize effects upon an aggressor.

Given the relative dominance of U.S. military forces, competitors are channeling their limited resources into widely-available asymmetric capabilities that could allow them to exploit a fundamental weakness of American power projection strategy; the great distances U.S. forces must travel to engage them and the heavy reliance on unrestricted access to in-theater ports, bases, and littoral waterways.[52] In the Draft National Military Strategy, the Joint Chiefs of Staff highlight that potential adversaries, exploiting a truly global military technical revolution, will likely not attempt to defeat our forces in symmetric confrontation, but rather will attempt to defeat our will through asymmetric attacks using conventional and unconventional "counter-precision, counter-access and counter mobility" capabilities to disrupt U.S. military employment and draw us into prolonged inconclusive operations. During a crisis our ability to deploy major forces will be constrained by multi-lateral politics, geography, and adversary employment of anti-access weapon systems that could include anti-ship missiles, diesel submarines, sea mines, electronic warfare and weapons of mass effects. [53]

A discussion of the effects of globalization and the proliferation of advanced technologies would be incomplete without addressing the emerging impact of information warfare. Future U.S. competitors will leverage the commercial communications spectrum to access advanced information collection systems that enhance their anti-access capability. Space-based communications, surveillance, navigation services and equipment will become increasingly available on the open market. Such access to advanced information collection systems will allow adversaries to monitor and anticipate U.S. military intentions at decisive points throughout the theater of operations.[54]

Finally, Vision 2020 is based on information superiority and the pervasive use of information technology in all US military systems and operations. While this is necessary to maintain dominance, it introduces new vulnerabilities and failure modes, many of which are not foreseeable. A fully networked force enables shared awareness and situational understanding that support decision superiority. The inherent vulnerabilities associated with the use and increasing dependence upon information systems will always be a factor. Global interconnectivity can enable adversaries to penetrate U.S. information systems, corrupt systems integrity, deny service or ultimately compromise national security information. The World Wide Web provides those with hostile intent unlimited means to "data mine" and exploit open source information that,

when compiled, can yield information on U.S. capabilities, plans and operations. Undoubtedly, while networked systems and connectivity expands, the risk to vital systems equally rises.[55]

While U.S. forces retain overwhelming capability for conventional conflict against a state military competitor, legacy war fighting concepts, and to some extent the forces created to support them are in many ways ill suited to dominate in this new security environment. Such limitations have only just recently come to light as a result of the Global War on Terrorism. The stateless adversary, like al Qaeda, although no match against U.S. forces (e.g. 2002 war in Afghanistan), can cause considerable social and political disorder through dispersed information warfare campaigns directed against the U.S. and its allies. Moreover, these asymmetric tactics insert disinformation, create ambiguity and deny information which complicates the political/military decision making process and are all the more difficult to detect and counter based on the globally "networked" organization of non-state actors and the very ephemeral nature of the world wide web.

The combination of globalization, the proliferation of advanced weapons technology and the ensuing effects of technological leveling pose a significant threat to the success of the U.S. National Military Strategy. Inherently linked to the emerging "anti-access" threat, and if left unchecked, technological leveling may lead to a decline in the U.S. ability to shape the international agenda, project power abroad or otherwise promote peace resulting in an unacceptable erosion of military dominance.

> The United States will not use force in all cases to preempt emerging threats, nor should nations use preemption as a pretext for aggression. Yet in an age where the enemies of civilization openly and actively seek the world's most destructive technologies, the United States cannot remain idle while dangers gather.
>
> –President George Bush
> The National Security Strategy of the United States
> September 2002

GLOBALIZATION AND U.S. EXPORT CONTROL POLICY; FINDING A BALANCE

A nation's capacity to maintain a qualitative lead in advanced technology is inherently linked to the success achieved by its military forces on the battlefield. Protecting U.S. military superiority poses a significant challenge in a global environment where the leveling effect of commercially available technology is facilitating the rapid proliferation of advanced conventional and unconventional military capabilities. The strategic second and third order effects attributed to the leveling of the military-technologies cannot be ignored without serious consequences. This trend

presents a direct challenge to the United States by attacking the cornerstone of our global military leadership: that the success of United States foreign policy and leadership role in the global community is underwritten by its greater access to advanced technology than that of its adversaries.[56]

The Unites States government includes many vested interests in export control each with varying degrees of competing or conflicting views. Given the emerging threats facing our nation today, the United States cannot ignore the need to evolve national export control policy to adapt to the changing global environment. A thorough analysis of U.S. export control policy is in order. The review should result is a restructuring of export control responsibilities with a comprehensive policy that recognizes the interdependence of economic interests, foreign policy, and national interests to maintain its relevance into the future. The following discussion outlines some of the major debates surrounding U.S. export control policy and offers recommendations to improve the process. While past writers and studies have presented many of the same recommendations, I have limited myself to those recommendations that, in light of the challenges facing the nation at this point in our history, are well within the immediate capability of the DoD and other agencies to pursue:

RECOMMENDATIONS

While it is important to recognize that the responsibility of government is to reach a balance between national security and economic free trade, there are sound reasons to exercise caution in revising U.S. export control policies. In light of the Global War on Terrorism, the United States must be cautious about what technologies we share. With international responsibilities and military forces forward deployed around the world, U.S. decisions on technology transfer and foreign co-development programs should be measured against a clear standard. It is well known that U.S. industry goes to great lengths to protect their intellectual property and trade secrets when making business decisions. The same caution must be exercised by the U.S. and its allies when decisions are made on the sale or export of advanced military or dual-use technologies.

The Wassenaar Arrangement, the current international multi-lateral export control regime, does not enjoy the success of its predecessor COCOM. Operating under proliferation limits that are strictly voluntary for member nations, the Wassenaar Arrangement is no substitute for a detailed analysis of pending exports by nations sharing mutual interests. Consequently, many advanced technologies with military and dual-use application have bypassed the regime and are available on the open market. Exemplified by the hard lessons of liberal exports to countries like

China and Iraq, the erosion of restrictions on acquiring advanced militarily-technology will ultimately challenge the U.S. technical advantage.[57]

- The renewed focus by our allies in individual national interests following the end of the Cold War is understandable. The point is to recognize it as a natural consequence of a departed common threat. In the absence of an agreed-upon export policy regime similar to COCOM, decisions of U.S. strategic trade and exports policy must focus on the national security interests of the United States particularly during periods when U.S. forces are employed and at risk where allied forces are not. American security and the safety of U.S. forces should not be traded for future promises of economic gain.[58]

Given the bureaucracy surrounding the interagency process, building an export control system adaptable to the 21st century will not be easy. The consequences of failing to reform, however, may come at a high price. Congress has an oversight responsibility in this process that must be recognized. The interagency system does not work as smoothly or efficiently as it should. Jurisdictional disputes continue without resolution and the licensing process suffers delays due to inconsistent policy interpretation and implementation between agencies. Consequently, the development of uniform export control policy remains beyond reach. Reform will demand that the White House and Congress make hard choices to eliminate cumbersome and inflexible restrictions that fail to keep pace with the global marketplace and the reality of technology lifecycles.[59]

- The White House needs to renew efforts to implement export control reforms announced as part of the Defense Trade Security Initiative begun in May, 2000. Beginning with clearly defining the criteria within the ITAR and CCL for designating critical information or technologies as having military or duel-use application, these reforms are intended to apply prudent measures that will improve U.S. export controls, interoperability with allies, and facilitate international defense cooperation. Any new export licensing system should likewise include revised congressional oversight policy to provide final reviews of major technology transfer decisions. More importantly, the United States needs to ask if the current system of multiple agencies with overlapping responsibilities for export control (e.g. Department of State and Department of Commerce) serves the national interest or if significant benefit would be gained by consolidating export administration into a single agency.[60]

- The practice of offsets related to DCS is an accepted norm of the international export and arms trade process. The post Cold War drop in defense spending among western nations has fueled unprecedented growth in the global arms export market. Arguments can be made that while DCS offsets promote interoperability with our allies, expand foreign relations, and support the viability of the U.S. industrial base, the transfer of advanced military technology as a common practice of offset is growing. Offsets thereby advance proliferation and increase risks of future inadvertent or illegal transfer to potential adversaries.[61] Although legitimate concerns over the negative impact upon U.S. labor have reached Congress forcing annual reports of offset activity to be made, the complexity of the economic and political factors surrounding the issue will continue to hinder opportunity for real change.

DoD's ability to mitigate the military technological leveraging brought on by globalization is hampered by similar inconsistencies in interagency coordination of export policy between DoD policy makers, separate agencies and the acquisition community. DoD should establish control schemes for only those military and dual-use technologies for which the United States has a proprietary interest. Continuing export restrictions on technologies that are readily available on the open market is wasteful of taxpayer money and places U.S. industry at a disadvantage with foreign competitors for legitimate business. Where the availability of export controlled technology on the open market is determined, release criteria should be limited to a foreign policy review by the Department of State.[62]

- There should be a single DoD office reporting directly to the Secretary or Under Secretary of Defense responsible for establishing export control and technology transfer policy and consolidating decisions on technology transfer under FMS, DCS, as well as international cooperative development programs.[63]
- Foreign availability is one of several criteria that DoD acquisition program managers must consider early in the acquisition cycle of every new program. Foreign availability of military and dual-use technologies as a factor in export control and technology transfer decisions must likewise become a uniform standard for export decisions throughout the interagency process.[64]
- The best opportunity for the long term protection of DoD advanced technology rests within the acquisition process. Information and technology critical to the ultimate success of a program must be identified early in the lifecycle of every major program.

Program managers designate these technologies as Critical Program Information (CPI) using risk management methodologies to ensure the most important technology is protected throughout the program's lifecycle. These formal lists of CPI should form the basis for an interagency "short list" of technologies essential to preserving the U.S. military technological advantage. It should replace the cumbersome MCTL as a more accurate means to assess what lead technology is or is not eligible for export.

CONCLUSION

Globalization, economic interaction and national security are more intertwined than ever before. National security is no longer limited to national defense and military capability. A DoD strategy to maintain U.S. military dominance must encompass a risk management philosophy. Roles and division of labor among agencies charged with export control responsibilities must be clarified and endorsed through interagency vetting to enhance coordination. To hedge against the effects of globalization, DoD's strategy for achieving and maintaining military dominance must be founded on clear policy and a reasonable balance of effective agency oversight and risk management technology controls.[65] The strategy must preserve critical technology and military capabilities essential to success on the battlefield and remain responsive to the dynamics of the 21st century. The lessons revealed in the Global War on Terrorism demonstrate the relevance of viable export control policy not only to the preservation of the U.S. military technological advantage, but also to the long term success of our national security. Our challenge is to manage this issue in a way that allows the United States to reap the maximum economic benefits of globalization while protecting as a national treasure the hard earned benefits of our technical advantage.

WORD COUNT = 8,940

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