

NWC
ESSAY
91-21

U.S. Defense Industrial Base
Threats from Globalization

Raoul C. Cordeaux
Committee VI

NATIONAL DEFENSE UNIVERSITY
LIBRARY
SPECIAL COLLECTIONS

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 1991		2. REPORT TYPE		3. DATES COVERED -	
4. TITLE AND SUBTITLE U.S. Defense Industrial Base Threats from Globalization				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) National War College, 300 5th Avenue, Fort Lesley J McNair, Washington, DC, 20319-6000				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	18. NUMBER OF PAGES 17	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

The Strategic Context.

The international security setting is undergoing the most consequential changes since the end of World War II. Forty years of Cold War confrontation has given way to a new world order. Characterized first and foremost by a fundamental shift in relations between the United States and the Soviet Union, this new order has permitted the increased democratization of Eastern Europe and has resulted in turmoil of uncertain outcome in the the Soviet republics. In the wake of this remarkable reality, a host of other security concerns have followed or intensified: regional disputes across a wide spectrum of conflict, drug trafficking, terrorism, and the proliferation of weapons of great destructiveness. Taken as a whole, this extraordinary period of transition in international affairs has triggered a fundamental refinement of the United State's national security concerns and defense policy priorities.¹

Domestically, the receding Soviet threat is also coupled with rising U.S. budget and trade deficits. The economic implications engendered by these trends are every bit as consequential as the external forces reshaping U.S. policy. The new global realities and the compelling requirement to bring government spending and revenues into balance has produced significant pressures to reduce the level of spending on the nation's defense.²

The United State's approach to a new defense strategy was first unveiled by President Bush during his speech in Aspen, Colorado, in August 1990. The President articulated the context for the emerging defense strategy and its four major elements when he said: "Our new strategy must provide the framework to guide our deliberate

reductions to no more than the forces we need to exercise forward presence in key areas, to respond effectively to crises, to retain the national capacity to rebuild our forces should this be needed",³ and to "maintain an effective deterrent."

Implications to U.S. Defense Policy.

Changes in the strategic environment have several important policy and strategy implications. The most important grows out of changes in the Soviet Union and the reduced threat of a Europe centered global war. This allows a new focus of U.S. military strategy and permits reduced force levels without jeopardizing U.S. and allied security. Concomitantly, changing world dynamics also permit reductions in U.S. forward presence in Asia and elsewhere.

At the same time that the Soviet threat is declining, the potential for major regional threats to U.S. interests is growing. Today such crises are made more dangerous because of the proliferation of advanced weaponry and the willingness of regimes to use it.

The U.S. will need to maintain its capability to respond to major regional crises as well as the capability to reconstitute the additional force structure required to confront a resurgent Soviet Union, or other long term threat, should this potential arise. The capacity to maintain technological superiority, and a viable industrial base are key security concerns which will shape U.S. defense and other domestic policies in the post cold war era.⁴

Complicating the United State's ability to maintain a

viable defense industrial capability is the emerging global nature of the defense industrial base. While industrial cooperation can improve overall U.S. and allied defenses and provides stability in production through sales, cooperative development, and technology exchange, the proliferation of sophisticated weapons industries promotes regional instability, complicates arms control policies, and potentially erodes the competitiveness of the U.S. industrial base.

The Strategic Mission of the Department of Defense.

The mission of the Department of Defense (DOD) is to provide for the common defense. Political and strategic realities require this to be accomplished through a world wide military command structure. At the heart of the deterrent power of the United States military presence is an inventory of sophisticated military equipment and the human resources to manage and operate it. These resources are drawn and replenished, in large part, from the same pool of resources that⁵ fuel the general industrial economy.

In the future, two fundamental problems threaten DOD's ability to maintain a modern inventory of qualitatively superior military equipment. The first is the environment in which the Department of Defense and industry conduct business. The high and rising costs of our weapons systems appear to be driven by an acquisition system that encourages long acquisition cycles, high development and production costs and sometimes produces obsolete technology. While beyond the purview of this paper, these deficiencies are being addressed through legislation arising from the Packard Commission Blue Ribbon Panel

on Defense Contracting and the Goldwater-Nichols Defense Reorganization Act.

Second, many of the strategic industrial sectors that support the production of modern weapon systems are being threatened by intense, long term competitive pressures from foreign producers. These include: semiconductor equipment, shipbuilding, automobiles, construction equipment, machine tools, flexible manufacturing systems, ball and roller bearings, castings, forging, steel, and
6
ceramics.

The United State's capacity to replace or build force structure independently of the economic and political decisions of other sovereign powers is essential to its security. The Department of Defense (DOD) must make sure that its actions and policies in the acquisition arena, as well as those of other government agencies, do not weaken the manufacturing sector and thereby degrade defense posture.

On the other hand, DOD actions must be sensitive to the general economic health of the nation. DOD concern for the health of the manufacturing sector and for individual industries within that sector should not be construed as an endorsement of sectorial policies for the economy as a whole. Neither the nation nor DOD can afford policies which do nothing but protect ailing industries or firms. Protectionism would not only aggravate weapon systems cost growth problems, but in the absence of counteracting incentives, such protection would undermine the competitiveness which drives
7
technological improvements and affordability.

Americas Changing Position in the Global Economy.

An industry may be described as strategic to the extent that nations are better off when they have a strong global position in that industry. The impetus for considering a strategic perspective on U.S. industry is the problematic nature of the American techno-economy in comparison with those of its competitors. With the worlds best universities and most vital scientific establishment, America remains preeminent in giving birth to technological concepts. But it is falling behind in developing and applying them. Products used to be invented in Britain, for example radar and penicillin, but commercialized in the United States. Today's new products are more likely to be invented in the U.S., such as VCRs and composites, and⁸ brought to market by Japan.

American defense industries, like the rest of the American economy are undergoing a process of globalization. The Defense Science Board, the Undersecretary of Defense for Acquisition, the Office of Technology Assessment, and a variety of Congressional Committees join in warning that the Department of Defense increasingly utilizes foreign technologies, foreign sourced products, or American subsidiaries of foreign corporations to supply the U.S.⁹ military.

What Makes Industries Strategic To Defense?

What kind of defense industries does a country need to have in order to have a national defense? The answer is context dependent. If in war, products from other countries are unavailable, then all

industries that support defense may be considered strategic. Should DOD then consider protection for every industry? Not necessarily. Most of Americas industrial competition comes from its allies, and only under extreme conditions would their output be unavailable. Moreover, while foreign dependence in defense procurement has its risks, such risks can be lessened by stockpiling current imports. For instance, a recent National Defense University study of precision-guided munitions calculated that a \$15 million inventory of piece parts would allow current delivery schedules (\$6 billion a year) to be met regardless of overseas disruptions.¹⁰

A better question might be how DOD's ability to buy defense goods is complicated if key industries that supply them are dominated by imports. Does the process of globalization undermine the the defense industrial base of the United States, or give it renewed strength? When should the trend toward globalization be worrisome, when should it be embraced, and when can it be ignored?

The dialog between economists and national security analysts on these questions tends to be limited, unproductive, and highly unsatisfactory to both sides. Economists with few exceptions studiously ignore the nationality of producers, and ridicule ideas that governments should preserve certain industries simply on the basis of the citizenship of their owners or workers if their owners or workers are unable to compete as cheaply or imaginatively as others can. When defense analysts recommend that the United States "stop the loss of production capabilities", "reverse the trend toward globalization" and "secure" the industrial base, economists instinctively identify their pleas as nothing more than new instances

of old attempts at protectionism and the preservation of inefficiency. The result will be high prices, sluggish innovation, and lower levels of defense output for any given amount of revenues¹¹ spent.

Vulnerabilities Resulting from Globalization.

As Theodore Moran states: "Most current studies of the defense industrial base warn that a lack of attention to the security dimensions of globalization is unacceptable for the United States. However, the examination of alternatives within the context of the American experience is sketchy and incomplete" [due to the dominance¹² of U.S. technology and production capability heretofore.]

In an effort to evaluate prospective policy implications for the future, Moran analyzed the European defense industrial experience over the past 25 years: the French hydrogen bomb program; Soviet gas line production; British Airborne Early Warning Nimrod; the Tornado fighter-bomber; the Harrier vertical take-off jet; the Ariane space rocket; and the Airbus. His examination of Europe's struggle to deal with dependency on foreign companies and foreign technologies provides three conclusions of use to defense industrial strategists in the United States:

- 1) "There are dangers hidden in the global nature of industries crucial for the functioning of modern nation states that do pose unacceptable risks to those states, even in peacetime among allies. It is not prudent to dismiss the problem of industrial dependency as the liberal economic tradition is

went to do, by advocating that governments simply allow markets to work.

- 2) "The threat of foreign control is a function of the degree of external concentration in the industries upon which the defense effort depends, not the nationality of the firms per-se. This threat cannot be remedied merely by establishing national companies or insisting on local production by foreign companies so long as a structure of quasi-monopoly in the international industry remains. Diversification and multiplication of the companies and the locales upon which a nation can draw offers the most dependable method for minimizing the threat of foreign control."
- 3) "The impulse to self sufficient autarchy, while appealing, carries its own perils not only in terms of higher cost, fewer units, and delayed deployment, but also being locked into unacceptable performance from a national security point of view."

13

If the conceptual nature of the threat can be clarified to foreign control arising from concentration in key industries, the threat can be analyzed and understood on a common basis by defense analysts and economists alike. Policy objectives can be further defined since the potential for foreign control decreases in proportion to the proliferation of suppliers.

But the issue has further complications which go beyond the potential number of suppliers of critical technologies.

Martin Libicki, from the Institute for National Strategic Studies, investigated DOD's ability to perform its mission, if in the future, the best semiconductor technology could only be found abroad.

According to Libicki the security implications have three aspects:

First, "Foreign firms are generally less willing than domestic firms to adapt their technology to American defense requirements.

Overseas chipmakers have other criteria to guide their research. For instance, Japan's orientation toward high volume commercial applications creates a reluctance to invest in low volume equipment, production technology, or product accounting systems. Technology not produced by a domestic source is apt to be developed in ways that the military cannot use.

With technology's leading edge offshore, DOD would also have a harder time predicting the availability of technological improvements, and thus what military requirements should be in specified systems."

Second, "Even where defense systems can use off-the-shelf components, there still may be a long delay in getting the best technology from abroad. Domestic customers of U.S. firms are often allowed to sample domestic chips before they hit the market. By contrast Japan's electronics houses, which account for the bulk of its chip production, may prefer to keep chips off the market so that their value can be leveraged into a competitive edge for downstream products. Only after the technology matured would they be released for market."

Third, "Overseas producers pose substantial security risks. DOD has many programs that it would hesitate to expose to foreign firms.

With chips, the problem is exacerbated whenever system technologies can be read from the microcircuit designs. Even with less sensitive programs, classified devices made overseas could fall into Soviet hands. America's allies have a good record of guarding military technology themselves. Many of their firms such as Toshiba, Imhausen,¹⁴ and Kongsberg, do not."

In summary, if technology continues to develop at accelerated rates; if close interaction between commercial and military sectors is necessary for application development; and if leading edge technology continues to drift across national borders slowly, then DOD stands to lose more when it has to depend on overseas sources for its best technology.

Bolstering Defense Industrial Competitiveness.

As a nation and as a continent, we no longer are totally self-sufficient in all the essential materials or industries required to maintain a strong national defense. The United States could not build fortress America even, if it were desirable. Nor can the Department of Defense (DOD) reverse the worldwide economic trends, such as the internationalization of manufacturing. In addition, DOD's investment in the industrial base must also encourage the research and development for advanced technologies that are key to the next generation of weapon systems. Consequently, to maximize domestic industry's potential, cooperative relationships must be encouraged between Department of Defense, large corporations, and lower tier¹⁵ manufacturing industries.

What policies are most appropriate to strengthen the defense industrial base of the United States in an era of globalization?

Although there is broad agreement about the need for improvement in generic macro policies to enhance American competitiveness; there is relative disagreement about the need for sector specific micro policies to apply to individual industries.

Generic policies include measures to reduce the budget deficit, increase savings, stimulate investment, improve education and strengthen productivity. From the point of the defense industrial strategist, a more competitive America would shrink the areas in which foreign control and foreign manipulation might be possible.

But where should DOD stand in the debate about sector industrial policy?

Because of declining defense budgets, the erosion of the relative industrial base available to defense, and the lack of access to state of the art technology, DOD needs to foster policies that will achieve sustained minimum capability in defense unique areas, through direct intervention if necessary.

DOD can negate the objections of both the neo-mercantilists and free market advocates by promoting world class commercial sector interests for dual use technologies (satisfying both military and civil operational needs).

DOD policies should:

- ** Encourage a mix of private and public operations in defense unique sectors through matching fund investment in critical technology areas.

- ** Use major R&D and procurement awards to efficiently downsize, yet maintain minimum competitive engineering and production structure.
- ** Shift from defense unique requirements to greater reliance on commercial products and processes through use of "industrial standards" instead of "mil spec".¹⁸
- *** Implement procurement policies that encourages multiple suppliers for important, but not critical technologies from overseas.

Conclusion.

Traditionally, DOD believed that weapons requirements should be established independent of costs; that it had to maximize new technology in each new generation of weapon, even if it stretched out the development cycle; and that market forces would be sufficient to maintain a healthy, innovative, competitive, and responsive industrial base. In the face of increased global competition in critical technological areas, these cultural biases no longer maintain validity or affordability.

The post 1990 defense environment will be characterized by smaller quantity procurements; cost and quality focus; a technology based research and development cycle; focus on light, information based "smart" equipment and the need for selective, rather than universal surge mobilization requirements. These characteristics are already a primary industrial driver in the commercial sector.

In view of the substantial national resources DOD wields, it should recognize its intrinsic responsibility for, and integral linkage to healthy domestic industrial base, especially in critical technologies. The development of specific sector "defense industrial policies" can yield a totally restructured defense industrial base. Although DOD will draw on a few critical, defense unique sectors, remaining defense material will come from a strong base of commercial sources. "Dual Use" operations will ensure continuous technological improvement for both military and civilian applications. And the United State's mobilization reconstitution needs can be affordably met by ensuring a broad based domestic industrial infrastructure.

Bibliography

1. Auerbach, Stuart., US Relied on Foreign Made Parts for Weapons, Washington Post, March 25, 1991.
2. Budiansky, Stephen., Back to the Arms Bazaar, US News, April 1, 1991.
4. Costello, Robert B., Bolstering Defense Industrial Competitiveness, Report to the Secretary of Defense, 1988.
5. Gansler, Jacques S., A Vision for the Future U.S. Defense Industrial Base, Analytic Sciences Corporation, February 20, 1991.
6. Haglund, David G., The Defense Industrial Base and the West, Routledge, 1989.
7. Libicki, Martin C., What Makes Industries Strategic, Mc Nair Papers Number Five, Institute For Strategic Studies, 1989.
8. Linke, Steven R., Managing Crises in Defense Industry: The Peppcon and Avitex Cases, Mc Nair Papers, Number Nine, NDU Press 1990.
9. Moran, Theodore H., The Globalization of American Defense Industries, School of Foreign Service, Gerogetown University, unpublished, 19894.
10. Roberts, Phillip A., Technology Transfer, A Policy Model, NDU Press, 1988.
11. Prestowitz, Clyde, Business Week, 18 September, 1986.
12. Sanders, Ralph., Arms Industries: New Suppliers and Regional Security. NDU Press, 1990.
13. Vawter, Roderick L., Industrial Mobilization: The Relevant History, NDU Press, 1983.

Notes

1. Department of Defense, Joint Military Net Assessment, 1990. p. 1-1.
2. Ibid, p. 1-2.
3. Cheney, Dick., Annual Report to the President and the Congress. January 1991., p. 1.
4. Ibid, pp. 3-4
5. Costello. Robert B., Bolstering Defense Industrial Competitiveness, Report to the Secretary of Defense, 1988. p. 26.
6. Ibid. p.27
7. Libicki, Martin C., What Makes Industries Strategic, Mc Nair Papers Number Five, Institute For Strategic Studies, 1989. p. 2
8. Ibid. p. 2-4
9. Moran, Theodore H., The Globalization of American Defense Industries, School of Foreign Service, Gerogetown University, unpublished, 1989. p. 2
10. Libicki, 1989., pp. 37-50
11. Moran, 1989., p. 3.
12. Ibid., p. 17
13. Ibid., pp. 18-20
14. Libicki, 1989., pp. 12-16
15. Costello.,1988
16. Libicki., 1989, 1-8
17. Gansler, Jacques S., A Vision for the Future U.S. Defense Industrial Base, Analytic Sciences Corporation, February 20, 1991.

