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DEFENSE INDUSTRIAL BASE

An Overview of an Emerging Issue

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The Honorable Ronald V. Dellums
Chairman, Committee on Armed Services
House of Representatives

The Honorable Jeff Bingaman
Chairman, Subcommittee on Technology
and National Security
Joint Economic Committee
United States Senate

Over the past 3 years, we have reported on various issues relating to the U.S. defense industrial base. As requested by the former Chairman of the House Committee on Armed Services, this report provides an overview of findings to date regarding the Department of Defense's (DOD) efforts to ensure (1) the existence of a viable U.S. industrial base to meet future defense needs and (2) access to critical items and capabilities controlled by foreign-owned firms or produced in foreign countries.

Background

The defense technology and industrial base is the combination of people, institutions, technological know-how, and facilities used to design, develop, manufacture, and maintain the weapons and supporting defense equipment needed to meet U.S. national security objectives. This base has three broad components: research and development, production, and maintenance and repair, each of which includes public and private sector employees and facilities. It can also be divided into several tiers: prime contractors, major subcontractors, and lower tiers that include suppliers of parts and raw materials.[1]

The President's fiscal year 1993 budget called for a $50 billion reduction in U.S. defense budget authority over the next 5 years and deeper cuts are expected from the new administration. During this period of downsizing, DOD's requirements for new weapons and supporting equipment are expected to be reduced significantly, and the ongoing restructuring of the defense industrial base is expected to intensify. This restructuring comes at a time of increased global competition in the commercial marketplace.

[1]The Office of Technology Assessment used this definition of the defense industrial base in its report, Redesigning Defense: Planning the Transition to the Future U.S. Defense Industrial Base (July 1991).

Results in Brief

DOD has taken the position that free market forces generally will guide the restructuring of the defense industrial base. We believe that this is not a realistic strategy for ensuring that government decisions and industry adjustments will result in the industrial and technological capabilities needed to meet future national security requirements. A key reason for this is that defense company officials are understandably concerned with maximizing the returns for investors and are not specifically accountable for how the long-term changes in the defense industrial base affect national security.

In recent guidance, DOD reiterated its free market strategy but stated its intention to assess and monitor the defense industrial base and take action to preserve a needed critical capability in those "exceptional situations" where it may be lost and cannot be recovered in time to meet an emerging threat. Although an oversight process of assessing and monitoring the base is now being implemented based on this guidance, it remains to be seen how well it is working and whether needed follow-up actions will be carried out. The guidance suggests that DOD believes it will need to take action in only a few cases. In our view, rather than prejudging how often DOD's action will be required, DOD's approach needs to be open so that it will consider taking action, whenever necessary, to ensure the existence of the critical items and capabilities most likely to be needed in the future.

In addition, DOD has not taken a strong proactive role in assessing U.S. reliance on foreign sources and foreign investment relating to the defense industrial base. DOD has not performed broad, systematic reviews of these issues. Rather, most of the Department's reviews of these issues have been undertaken on an ad hoc and reactive basis. Specific areas of concern we identified are the following:

- DOD does not systematically maintain data on firms at lower production tiers that provide important specialized technology. Consequently, DOD generally does not know whether and to what extent it relies on foreign technology and products to meet its critical needs. Such information is necessary to assess national security risks.
- DOD and private institutions have sponsored several studies relating to foreign dependency issues, but DOD still lacks information and agreed-upon criteria for determining the acceptable levels of foreign dependence. This impairs DOD's ability to assess the risks posed by foreign dependencies and determine the actions it could or should take to reduce them.

- Through an interagency process, DOD and other U.S. government agencies review certain, formally proposed foreign acquisitions of U.S. firms on a case-by-case basis to determine whether they would have a detrimental effect on U.S. national security. This review process, however, does not address concerns about the broader issues of U.S. competitiveness in industry sectors essential to leadership in defense technology. Acquisition of U.S. firms sometimes gives foreign entities access to technology information and control over important industry decisions—for example, whether to close down a U.S. factory or change a product line or research direction. Such information and decisions could have an impact on the U.S. defense industrial base.

DOD Plans to Rely Mostly on Market Forces to Restructure the Defense Industrial Base

In its November 1991 Report to Congress on the Defense Industrial Base, DOD stated that, generally, free market forces will guide the restructuring of the industrial base. DOD also stated that the ability to meet future national security needs will depend largely on the ability of individual companies to shift from defense to commercial production, and then back again, as required.

During testimony in February 1992 before the Senate Committee on Governmental Affairs,[2] the Comptroller General questioned whether this is a realistic strategy for ensuring that government decisions and industry adjustments will result in the industrial and technological capabilities needed to meet national security requirements. DOD's plan to rely primarily on market forces does not adequately recognize that the federal government is often the only customer for the weapons it buys and that it regulates profits, product design, and other factors. Even with reduced budgets, DOD will continue to make budget and contract award decisions worth many billions of dollars annually to develop and acquire weapons and other military equipment. The DOD decisions will directly and indirectly affect the structure of the defense industrial base. More specifically, DOD's awards of major contracts for aircraft, ships, and other items can result in a restructuring of those industries; this includes influencing which lower tier suppliers will continue to do defense work.

Moreover, free market restructuring is not realistic because DOD, not the private sector, bears primary responsibility for developing and implementing defense policy and its industrial base requirements. It also has vastly superior expertise and information resources available for assessing factors affecting the industrial base, such as international

[2]Government Management: Major Issues Facing the Congress (GAO/T-AFMD-92-4, Feb. 6, 1992).

political developments, emerging military threats, and the likely future development of defense-related technology and military doctrine. In brief, DOD has the responsibility and the key resources required to plan for the defense of the United States; in the absence of DOD plans, there is no realistic way that free markets can fill the gap. It is unrealistic to suppose that private business firms generally will, on their own initiative, make expensive investments that amount to long-odds gambles on future DOD requirements and policies.

In addition, many defense companies may lack the experience and specialized knowledge to shift to commercial production and compete successfully in commercial markets. If companies critical to defense needs fail to make the transition, the United States could lose the portion of the defense industrial base they represent. We also question whether DOD's free market strategy will appropriately balance the national security risks of overreliance on foreign sources versus the benefits of foreign sourcing, including access to advanced technology in other countries.

In May 1992 guidance, the Under Secretary of Defense for Acquisition reaffirmed that DOD will primarily rely on the free market to restructure the defense industrial base during this period of reduced defense spending. The DOD guidance stated, however, that DOD will establish a process to identify critical manufacturing processes, products, and capabilities; monitor changes in the industrial base for potential loss of these critical items; and take actions to preserve a critical item in those few, exceptional cases where it may be lost and cannot be recovered to meet an emerging threat. The guidance indicates DOD's recognition that free market forces alone may not necessarily ensure the viability of critical aspects of the defense industrial base.

Recently enacted legislation will affect DOD's role in strengthening the defense industrial base. The National Defense Authorization Act for fiscal year 1993 requires the establishment of a comprehensive plan for addressing this area.[3] The act created the National Technology and Industrial Base Council to carry out this plan, with the Secretary of Defense serving as the chairman. The legislation requires the Council to conduct comprehensive assessments of the capabilities of the national technology and industrial base to attain designated national security objectives. The Secretary of Defense is required, in consultation with the

[3]This provision is contained in Division D of the DOD Authorization Act for fiscal year 1993 (P. L. No. 102-484), also called the Defense Conversion, Reinvestment, and Transition Assistance Act of 1992, sections 4001-4272.

Council, to establish a program for analysis of the national technology and industrial base.

DOD Has Not Taken a Proactive Role to Ensure Access to Critical Items and Capabilities

In recent years, industry executives, military strategists, and academic experts have questioned whether DOD is giving enough attention to the offshore migration of key technologies, including manufacturing capabilities. Areas of concern include (1) the lack of systematic information on and monitoring of foreign dependencies for critical products, processes, and capabilities; (2) the lack of agreed-upon criteria to assess the national security risks of such dependencies; and (3) the absence of tracking mechanisms for foreign investments and acquisitions that may endanger U.S. control of and access to key technologies and production capabilities. Without adequate information, criteria, and analytic resources, DOD cannot properly plan for and be in a position to take appropriate action regarding the industrial base. Such planning requires an analysis of the economic, trade, technology, and national security implications of these dependencies and investments.

Information on Foreign Sources and Dependencies Is Limited

Identifying foreign dependencies relating to critical defense industries, technologies, and products is a necessary step in determining whether such dependencies pose a risk to national security. DOD has sponsored several studies to determine the extent it relies on foreign sources.[4] Appendix I lists areas of dependency or potential dependency identified in these studies.

These studies represent an ad hoc, rather than comprehensive, approach to determining foreign dependencies for critical defense industries, technologies, and products. They address a limited number of weapon systems, industry sectors, technologies, and manufacturing processes. They also use differing definitions, criteria, and methodologies. For instance, there are no universally accepted definitions of "foreign source," "foreign dependency," or "foreign vulnerability."[5] A recent Department of

[4]In addition, our report, High Technology Competitiveness: Trends in U.S. and Foreign Performance (GAO/NSIAD-92-236, Sept. 16, 1992), identifies trends in various advanced technologies of importance to national security.

[5]However, the National Defense University report contains the most precise and generally accepted definitions. The report defines "foreign source" as a source of supply (either manufacturing or technology) that is located outside the United States or Canada. "Foreign dependency" refers to a source of supply for which there is no immediately available alternative in the United States or Canada. "Foreign vulnerability" is defined as a source of supply whose lack of availability jeopardizes national security by precluding the production of, or significantly reducing the capability of, a critical weapon system.

Commerce report defines "foreign source items" as materials, parts, components, and subassemblies that are manufactured, assembled, or otherwise processed outside the United States.[6] This definition considers Canada to be a foreign source, whereas other definitions have considered Canada to be part of the U.S. defense industrial base.

DOD's approach to identify foreign dependencies is also of limited effectiveness because it provides little information about foreign dependency at lower tiers of the supplier base—that is, beyond prime contractors and their immediate subcontractors. Our report, Industrial Base: Significance of DOD's Foreign Dependence (GAO/NSIAD-91-93, Jan. 10, 1991), stated that DOD had limited awareness of the extent of foreign sourcing or dependency in its weapon systems, particularly beyond the prime contractors and their immediate subcontractors.[7] Moreover, DOD had not established criteria for determining what levels of foreign dependency should be tolerated for various items and what actions the Department could or should take to reduce vulnerability. These conditions still exist. The lack of systematic data collection, especially at the lower tiers of production, and the lack of criteria limit DOD's ability to determine which domestic sources need to be maintained in order to minimize national security risks. In addition, the current emphasis on integration of the civilian and defense sectors—that is, employing the same technologies, personnel, and administrative procedures and research and production facilities for commercial and military customers—could increase foreign sources and dependencies, underscoring even more the need for information, criteria, and analysis.

In our January 1991 report, we stated that there is limited information about lower tier suppliers that provide important specialized technology for critical items. We recommended that the Secretary of Defense, after consulting with other agencies and private experts and considering existing studies regarding critical technologies, critical and strategic industries, and foreign dependencies, take the following actions: (1) determine the key issues and policy questions for which information is needed; (2) develop a plan for a viable management information system to

[6]National Security Assessment of the Domestic and Foreign Subcontractor Base: A Study of Three U.S. Navy Weapon Systems (Mar. 1992), Department of Commerce, Bureau of Export Administration.

[7]Also, in our report, Industrial Base: Adequacy of Information on the U.S. Defense Industrial Base (GAO/NSIAD-90-48, Nov. 15, 1989), we stated that U.S. policymakers had very limited information regarding the lower tiers of the defense industrial base. According to DOD, these tiers have been a major source of technology development but have faced a relative decline in industrial competitiveness.

provide visibility on foreign dependencies for weapon system components[8] throughout the lower production tiers; and (3) submit, within a reasonable time frame, a proposal to Congress for effectively addressing the key issues and policy questions. In September 1991, DOD responded that the recommended actions would not provide benefits commensurate with the costs involved.

Notwithstanding DOD's position, Congress approved section 831(a) of the National Defense Authorization Act for fiscal years 1992 and 1993 requiring the Secretary of Defense to submit, by March 15, 1992, a plan for the collection and assessment of information on the extent to which the defense industrial base (1) procures subsystems of weapon systems and components of subsystems from foreign sources and (2) is dependent upon these foreign sources. DOD has not submitted the plan. DOD's draft plan, according to DOD officials, was being coordinated with the Department of Commerce and the Office of the U.S. Trade Representative; however, DOD officials told us that since section 135 of the recently passed Defense Production Act Amendments of 1992 requires a report in December 1993 on DOD's strategic plan for a related comprehensive information system, they do not expect DOD to submit the section 831(a) plan. We found no provision in these amendments that repeals or otherwise amends the prior reporting requirement, and the legislative history does not give any such indication. We therefore believe that DOD remains accountable for a plan to be submitted to Congress as required by section 831(a).

National Security Risks Posed by Foreign Dependencies Have Not Been Assessed Systematically

Although a few individual studies sponsored by DOD have addressed the risks to national security of certain foreign dependencies, DOD has not systematically made such assessments because it lacks agreed-upon criteria and methodology for such risk assessments, as well as the needed information on foreign dependencies.

The studies we reviewed discuss (1) the benefits and disadvantages associated with foreign sources of supply; (2) the need for systematic collection and analysis of data relating to critical defense processes, products, and technologies to determine whether a dependency poses a

[8]This recommendation was intended to apply only to defense critical foreign dependencies.

risk to national security; and (3) proposals on how to measure risks. The proposals include various qualitative and quantitative measures.[9]

The traditional concern about foreign dependency is that the United States would not have access to the supplies it needs to rapidly increase the production of weapons and supporting equipment in wartime. This lack of access is primarily considered a short-term risk to national security.

During Operation Desert Shield/Storm, the Department of Commerce received 91 requests from U.S. companies for assistance in expediting the delivery of products to support military operations. Only five were requests for assistance in expediting the delivery of products from foreign suppliers to support military operations.[10]

The Department of Commerce contacted foreign governments to expedite orders in two of these cases involving parts of a radio and a computer.[11] Commerce contacted the British and Japanese embassies, and foreign suppliers appeared to provide full cooperation.

DOD would not speculate on the impact on operations if the parts for the radio or computer had not been obtained. However, according to one DOD official, the radio procurement was important because the radio's search and rescue signal was difficult for Iraq to intercept, and at that time, Iraq was attempting to capture downed pilots for propaganda value.

In our review of these five cases, we found no evidence that foreign companies or governments did not freely cooperate with the United States to expedite orders.[12] The remaining 86 cases were requests by U.S. companies for assistance in expediting deliveries by other U.S. companies and did not involve any foreign entities.

[9]At the request of the Chairman, Subcommittee on Technology and Security, Joint Economic Committee, we are attempting to develop a proposed analytical framework for assessing the national security risks posed by foreign dependence on critical products, processes, and technologies.

[10]Title I of the Defense Production Act of 1950, as amended (50 U.S.C. app. 2061, et seq.), authorizes the President to require priority performance of contracts and orders necessary or appropriate to promote national defense orders, including the authority to require that domestic suppliers prioritize national defense so that they are delivered ahead of commercial orders. The Defense Production Act expired on October 20, 1990, but was later renewed through March 1, 1992, and reauthorized again on October 28, 1992 (P.L. 102-558), effective retroactively to March 1, 1992.

[11]According to the Commerce Department, in the remaining three cases, the concerns were resolved without contacting foreign governments.

[12]Operation Desert Storm: No Evidence That Foreign Suppliers Refused to Support War Effort (GAO/NSIAD-92-234), Sept. 2, 1992.

A potentially more serious and long-term problem with foreign dependence is limited U.S. access to advanced technologies, in either war or peacetime, for the development and production of weapons and maintenance of the defense industrial base. Such limits could impair the U.S. capability to meet national security as well as economic goals. For instance, access to a healthy production equipment industry that is capable of meeting industry's needs for modern plant and equipment is fundamental to industry's continuing ability to develop and produce weapon systems using the most advanced technology. According to recent studies, a growing number of advanced product technologies will be impossible to pursue without the next generation of manufacturing equipment.

Experts in national security issues have stated that the technologies the United States will be using 20 to 40 years from now are a major foreign vulnerability concern, and these technologies are likely to be radically different from the technologies that are on DOD's critical technologies list. Examples given of such technologies for which the United States must maintain an active domestic presence include (1) electronics, (2) compact energy sources, such as batteries, (3) software, (4) nano-technologies, and (5) manufacturing technology.

Experts have also emphasized that the United States might be able to tolerate dependence on multiple, open foreign sources that possess multinational perspectives; however, dependence on a single, closed, and centralized foreign source that maintains a national perspective is dangerous.[13] For instance, a tight network of foreign industries and supporting institutions that dominate key technologies could exercise global power by setting the terms under which technology is traded.

Foreign Investment in U.S. Defense-Related Companies Is Not Tracked

The defense industrial base includes many companies whose business is primarily commercial but whose leading-edge technologies are important to U.S. leadership in defense technology. The implications of foreign ownership of these companies are difficult to assess. Neither the Committee on Foreign Investment in the United States[14] nor any U.S. government agency systematically tracks foreign investment in such

[13]A Strategy for Strengthening the Nation's Defense: The New Role of Its Industrial Base, a draft report by the Defense Manufacturing Board's Critical Industry Task Force. The Defense Manufacturing Board is now part of the Defense Science Board.

[14]This interagency Committee examines mergers and acquisitions involving foreign companies.

companies to determine whether and to what extent foreign acquisitions result in limits on U.S. access to advanced defense-related technologies.

Another key issue is whether the defense industrial base should be defined to include foreign-owned companies that maintain production in the United States. The attempt to acquire LTV's military missile division by Thomson-CSF of France, a major electronics company that is partly owned by the French government, was an example where the U.S. government had to weigh the benefits of foreign investment against the threat to national security posed not only by foreign acquisition, but foreign acquisition with significant foreign government involvement and in a globally concentrated industry. In this case, one concern was the loss of control of key missile technology.

In previous reports we have suggested that the members of the Committee on Foreign Investment in the United States take action to modify the interagency review process to

- analyze national security-related foreign investments and address concerns regarding the broader issues of U.S. competitiveness in industry sectors that are essential to leadership in defense technology and
- track foreign investment to determine whether and to what extent foreign acquisitions could limit U.S. access to advanced technologies.

DOD is currently reassessing certain aspects of the process for reviewing and approving foreign investment in defense-related companies primarily because of recent legislative requirements. The new legislation[15] restricts the acquisition of certain U.S. companies by firms controlled by foreign governments, provides for the collection of information on foreign-owned contractors, and requires DOD to submit a report to Congress on certain activities by foreign governments. We believe our recommendations are still valid and merit renewed consideration.

Recommendations

We recommend that the Secretary of Defense develop a realistic strategy concerning the restructuring of the defense industrial base that recognizes the need to take action, whenever necessary, to ensure the existence of the critical technological and industrial capabilities needed to meet future defense requirements.

[15]Section 835 of the DOD Authorization Act for fiscal year 1993.

Because the Secretary of Defense remains accountable for the plan that was required by section 831(a) of the National Defense Authorization Act for fiscal years 1992 and 1993, we recommend that the Secretary consult with the Senate and House Committees on Armed Services to determine whether the plan is still needed in light of more recent legislative requirements.

Scope and Methodology

In preparing this report, we used as building blocks information developed for reports and testimonies we have issued since 1989. These are listed at the end of this report. We also reviewed DOD's reports to Congress, such as the 1987 report, Bolstering Industrial Competitiveness, and the 1991 Report to Congress on the Defense Industrial Base, as well as several studies sponsored by DOD. We interviewed the authors of these studies and convened a panel to gain a better understanding of the data collection and foreign dependence issues addressed in this report. This panel included authors of the studies and other experts in military, economic, and foreign policy issues. In addition, we reviewed new legislative requirements in the National Defense Authorization Act for Fiscal Year 1993 and the Defense Production Act Amendments of 1992. We did not address in this report other programs that will also have an impact on DOD's efforts in these two areas. These include programs relating to international technology cooperation.

We performed our work between November 1991 and December 1992 in accordance with generally accepted government auditing standards. As requested, we did not obtain agency comments on this report. However, we discussed these matters with officials in the Office of the Secretary of Defense, who generally agreed with our findings and conclusions. We have included their views where appropriate.

Unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from its issue date. At that time, we will provide copies to the Secretaries of Defense and Commerce and to interested congressional committees. Copies of the report will also be made available to others upon request.

Please contact me at (202) 512-7683 if you or your staff have any questions concerning this report. Other major contributors to this report are listed in appendix II.

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Areas of Actual or Potential Foreign Dependency Identified by DOD Studies

Study (source)	Date	Areas of dependency or potential dependency
A Study of the Effect of Foreign Dependency (Joint Logistics Commanders)	Feb. 1986	Components of M-1 tank, F/A-18 aircraft, and other weapon systems
U.S. Industrial Base Dependence/Vulnerability (National Defense University)	1987	Precision-guided munitions
Foreign Vulnerability of Critical Industries (The Analytical Sciences Corporation)	Mar. 1990	Machine tool products numerically controlled machine centers and microprocessor controls for computer numerical control machines, semiconductor test equipment, and automatic test equipment
Dependence of U.S. Defense Systems on Foreign Technologies (Institute for Defense Analysis)	Dec. 1990	Microelectronics, certain advanced materials and production equipment, and flat panel displays

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Related GAO Products

Defense Industrial Security: Issues in the Proposed Acquisition of LTV Corporation Missiles Division by Thomson-CSF (GAO/T-NSIAD-92-45, June 25, 1992).

Foreign Investment: Analyzing National Security-Related Investments Under the Exon-Florio Provision (GAO/T-GGD-92-49, June 4, 1992).

Foreign Technology: Federal Processes for Collection and Dissemination (GAO/NSIAD-92-101, Mar. 23, 1992).

Foreign Investment: Issues Raised by Taiwan's Proposed Investment in McDonnell Douglas (GAO/NSIAD-92-120, Feb. 6, 1992).

International Trade: U.S. Business Access to Certain Foreign State-of-the-Art Technology (GAO/NSIAD-91-278, Sept. 12, 1991).

Significance of DOD's Foreign Dependence (GAO/T-NSIAD-91-20, Apr. 16, 1991).

National Security Reviews of Foreign Investment (GAO/T-NSIAD-91-08, Feb. 26, 1991).

Industrial Base: Significance of DOD's Foreign Dependence (GAO/NSIAD-91-93, Jan. 10, 1991).

National Security Review of Two Foreign Acquisitions in the Semiconductor Sector (GAO/T-NSIAD-90-47, June 13, 1990).

Foreign Investment: Analyzing National Security Concerns (GAO/NSIAD-90-94, Mar. 29, 1990).

Comments Relating to Reauthorization of the Defense Production Act (GAO/T-NSIAD-90-10, Mar. 1, 1990).

U.S.-Japan Codevelopment: Review of the FS-X Program (GAO/NSIAD-90-77BR, Feb. 6, 1990).

Industrial Base: Adequacy of Information on the U.S. Defense Industrial Base (GAO/NSIAD-90-48, Nov. 15, 1989).

Adequacy of Official Information on the U.S. Defense Industrial Base (GAO/T-NSIAD-89-40, July 18, 1989).