Annual Industrial Capabilities Report

to

Congress

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Executive Summary

Section 2504 of title 10, United States Code, requires that the Secretary of Defense submit an annual report to the Committee on Armed Services of the Senate and the Committee on Armed Services of the House of Representatives, by March 1st of each year. The report is to include:

"(1) A description of the departmental guidance prepared pursuant to section 2506 of this title.

(2) A description of the methods and analyses being undertaken by the Department of Defense alone or in cooperation with other Federal agencies, to identify and address concerns regarding technological and industrial capabilities of the national technology and industrial base.

(3) A description of the assessments prepared pursuant to section 2505 of this title and other analyses used in developing the budget submission of the Department of Defense for the next fiscal year.

(4) Identification of each program designed to sustain specific essential technological and industrial capabilities and processes of the national technology and industrial base."

This report contains the required information.

1. DoD Guidance

The Department of Defense (DoD) guides, evaluates, and assesses in several ways the capability of the defense industrial base to respond to the military requirements that will form the bridge from legacy to transformational systems. First, the Department's weapons system acquisition policies and decisions direct the programmatic focus of industry. Second, decisions made on mergers and acquisitions involving defense firms help shape the financial and competitive structure of the industry. Third, DoD's evaluations and assessments of sectors or specific defense industry issues help point to future budgetary and programmatic requirements. Finally, DoD incorporates industrial base policies into its acquisition regulations on an on-going basis.

Weapons System Acquisition Policies and Decisions

Legacy systems and new concepts deployed in Operation Enduring Freedom are a tribute to a strong defense industrial base. Against the backdrop of ongoing operations, this Administration has systematically planned for the future by making principled weapons system acquisition decisions. These decisions, and those made on mergers and acquisitions in the defense industry, will shape the defense industrial base for decades to come. The decisions reflect a commitment to full program funding; spiral development and price-based acquisition where appropriate; government-funded research and development; and the sharing of cost-savings from consolidation with contractors. DoD also is confident that companies are sufficiently motivated by their commitment to defense and their shareholder base to deliver innovation and cost-effectiveness without excessive government intervention. This philosophy extends to DoD's preference that prime contractors exercise full responsibility over their subcontractors -- except in cases where concerns over the supplier base or requirements to establish alternate sources necessitate intervention. DoD also must remain vigilant to ensure that low-cost, high performance subsystems from government laboratories, other research institutions, small businesses, and reliable foreign sources, can be incorporated effectively into its weapons systems.

In its first year in office, this Administration has reviewed many major weapons system programs. The F-22 was approved for low rate initial production using an innovative pricing strategy that challenges the contractor to produce more aircraft at lower prices by allowing procurement of the maximum number of aircraft the budget will allow. The winner-take-all acquisition strategy of the Joint Strike Fighter program reaffirmed DoD's confidence in the capability of the tactical fighter industry to provide affordable, high quality products for the nation's defense. Significant future aerospace industrial resources also will need to be focused on unmanned combat systems and other futuristic systems. The V-22 likely will be returned to flight test on an event-driven schedule in order to evaluate its performance relative to requirements. DoD's cancellation of the DD-21 class destroyers in favor of a restructured DDX program will result in a family of advanced technology surface combatants, not a single ship class. The Army's Fiscal Year 2003 budget submission made a firm commitment to transformation by prioritizing programs such as the Future Combatant System and the Interim Armored Vehicle over the Battlefield Combat Identification System and the Avenger modernization program.

The Financial and Competitive Structure of the Industry

The defense industry is in a late phase of a major consolidation. What were 51 separate U.S. defense business units in 1980 became 5 large defense-focused firms by 1997 -- and those 5 firms became 4 by 2001. Today, U.S. defense firms generally have worked through consolidation challenges and are well into streamlining operations, improving financial stability, focusing on core markets, shedding non-core assets, and stepping up every form of global market reach. There likely will be further consolidations in the defense industry -- U.S. and foreign -- as firms continue to right-size themselves and pursue strategies to emphasize growing market areas, such as network centric solutions and unmanned systems. DoD will continue to review these transactions on a case-by-case basis.

With regard to competition within specific acquisition programs, DoD consistently has taken a long view in its assessments as to appropriate levels of competition. For expendable items that are worldwide commodities with ample sources, DoD will continue to encourage procurement from the global market place. For the Joint Strike Fighter, DoD decided it was not necessary to make an award to both competitors in order to ensure future competition. However, for submarines, DoD opposed General Dynamics' proposed acquisition of Newport News Shipbuilding in order to ensure that there would continue to be future competition between two prime contractors.

DoD is reviewing its internal process for considering proposed mergers and acquisitions. This review comes simultaneously with similar initiatives being undertaken by the Department of Justice and the Federal Trade Commission.

Evaluations and Assessments

In addition to industrial capabilities studies completed in 2001 (section 3 contains descriptions of such DoD-wide and DoD Component assessments), the Department also has underway a study to survey the sources of less traditional defense solutions and the supplier base that will support these new technologies. Although the study is not complete, it is clear that financial incentives must be provided to attract high margin telecommunications and network-based suppliers. Institutional investors and aerospace firms must communicate the financial return potential of transformational technologies to the investment community to induce investments in less traditional suppliers and technologies. DoD also must attract new inventors to the world of defense applications. To continue fostering innovation DoD must lower entry barriers by increasing use of commercial practices and protecting the intellectual property of small firms. Finally, DoD must remain vigilant to ensure that low-cost, high performance subsystems developed by Government laboratories, other research institutions, small business -- and foreign sources -- can be incorporated effectively into DoD weapons systems.

Ultimately, DoD will be able to meet its national security responsibilities only with the support and active participation of industry. Cooperatively, DoD and its industry partners must ensure that the industrial base remains agile and capable of meeting warfighting requirements

quickly and effectively; rapidly fielding weapons systems to counter new and emerging asymmetric threats.

2. Methods and Analyses

The Department periodically conducts analyses/assessments to identify and evaluate those industrial and technological capabilities needed to meet current and future defense requirements. It then uses the results of these analyses/assessments to make informed budget, acquisition, and logistics decisions. Industrial capabilities studies completed in 2001 that have been provided to the Congress previously are listed as Appendix A.

"DoD-wide" industrial assessments evaluate and address changes in key system, subsystem, component, and/or material providers that supply many programs, and affect competition, innovation, and product availability. DoD Components conduct their own assessments when: (1) there is an indication that industrial or technological capabilities associated with an industrial sector, subsector, or commodity important to a single DoD Component could be lost; or (2) it is necessary to provide industrial capabilities information to help make specific programmatic decisions. These assessments generally are conducted, reviewed, and acted upon internally within the DoD Components. Additionally, the Defense Contract Management Agency supports DoD corporate and Component industrial assessments by utilizing its broad knowledge across industrial sectors and its on-site presence in many contractor industrial facilities.

3. Industrial and Technological Capabilities Assessments

3.1 DoD-Wide

Fixed-Wing Military Aircraft Industrial Base Assessment (December 2001)

This study analyzed data from ten large fixed-wing aircraft final assembly and fabrication facilities in the United States. The study concluded that the fixed-wing aircraft manufacturing industry is using only about 60 percent of its late 1980s capacity, implying that there may be opportunities to reduce the fixed costs the government pays for aircraft. The most substantial cost savings come from restructuring or closing plants, not by moving programs. However, the analysis of plant closing scenarios suggests a need for alternative business arrangements to motivate contractors.

Assessing Competitive Strategies for the Joint Strike Fighter (2001)

In July, 2001, the USD(AT&L) asked RAND to explore and identify opportunities and options to introduce competition during the production phase of the Joint Strike Fighter (JSF) in order to reduce the overall cost of JSF production. The RAND report concluded that cost savings from competition sufficient to outweigh competition introduction costs would be difficult, if not impossible, for the JSF program to achieve. The high front-end investments, together with increases in recurring costs, needed for producing such a sophisticated weapon system probably would not be recovered through price competitions that might result from

competitive forces. Additionally, the report concluded that having several companies funded to develop and potentially produce future innovative technology mission equipment packages may be prudent. DoD has retained this option.

3.2 Army

Electronic Warfare Sector Industrial Capability Assessment (January 2001)

The Army, with the support of the Defense Contract Management Agency's Industrial Analysis Center, conducted this assessment to determine if there are now, and will be, sufficient industrial and technological capabilities available to support current and projected Army electronic warfare equipment requirements. The study concluded that this industry sector remains competitive and has retained ample production capacity. Ongoing development and production of infrared and radar countermeasures systems for both DoD and partner militaries will sustain the industry's robust capabilities.

Rigid Wall Tactical Shelter Sector Analysis (February 2001)

The Army performed this assessment to identify risk areas associated with the continued availability of industrial and technological capabilities required to produce rigid wall tactical shelters for the Theatre High Altitude Area Defense (THAAD) system. The Army standardized rigid wall tactical shelter designs in order to eliminate proliferation of multiple types of shelters. As a result, the Army buys its shelters from selected companies that are dependent on DoD contracts; over 70 percent of their annual sales are to DoD. Despite depending on DoD business, the rigid wall tactical shelter industrial sector is stable and continues to have sufficient industrial and technological capabilities to support requirements.

Biological Detection System Technologies, Technology and Industrial Base Study (February 2001)

A U.S.-Canadian industrial base oversight group -- the North American Technology and Industrial Base Organization -- conducted this study to identify and address technical, business, and policy information issues related to biological detection technology research efforts and industrial production capabilities in the United States and Canada. The study report included recommendations addressing both technology and policy.

Joint Service Nuclear Biological and Chemical (NBC) Defense Logistics Support Plan (Updated June 2001)

In June 2001, the Joint Service Materiel Group (JSMG) updated an annual plan focused on DoD's readiness and sustainment capabilities for NBC defense. The updated plan provides a snapshot in time of NBC defense logistics status. It defines requirements based on two Major Theater Wars for each item of NBC defense equipment and includes the quantity of that item in the inventory. In this manner, the plan identifies shortages for each item and provides a ready reference for industrial base planning. It also assesses the capability of the industrial base to offset NBC defense equipment shortages.

Military Battery Industrial Capacity Review (September 2001)

The Army conducted this review to determine if the military battery industry has sufficient industrial capabilities to meet current and potential (including production surge) Army battery demand. The Army review concluded that the sector has little production expansion potential, mostly due to the limited manufacturing base for Lithium Sulfur Dioxide primary batteries. The Army is taking steps to utilize Lithium Manganese Dioxide batteries in primary battery applications. Additionally, Army efforts to expand the use of rechargeable batteries have reduced its reliance on the Lithium primary battery manufacturing base.

Camouflage Industrial Capability Review (September 2001)

The Army conducted this review to evaluate the industry's ability to support existing and projected requirements for camouflage netting. Two contractors manufacture most military camouflage netting. These manufacturers have similar capabilities and each could be qualified to manufacture either variant, in all colors. The review concluded that the camouflage netting industry is capable of meeting military needs.

Ammunition Production Readiness Assessment (September 2001)

The Army performed this assessment to evaluate conventional ammunition readiness. The assessment concluded that DoD may not be able to acquire, within desired time frames, sufficient quantities of some critical ammunition end items and components in an emergency. Without warning and advance planning, the ammunition industrial base can produce sufficient end items and components to meet only about 10 percent of DoD's "go-to-war" conventional ammunition inventory shortfall. The Army is evaluating conventional ammunition readiness risks, balancing these risks with other requirements, and considering what actions to take, if any.

Satellite Communications Industrial Capability Assessment (October 2001)

The Army conducted this assessment to determine if industry had sufficient capability to meet current and projected Army satellite communications equipment requirements. The Army found that military satellite communications requirements are relatively small in comparison to the requirements of the commercial television and telephone industries. Technology development in this industry is driven by commercial demand, not military requirements. The study concluded that DoD should use commercial-capable terminals whenever possible, employ commercial acquisition practices, and leverage commercial industry capabilities by opting for commercial components, wherever practical.

Tactical Wheeled Vehicle Sector Assessment (October 2001)

This study concluded that most of the tactical vehicle sector prime contractors are financially stable and not dependent on military vehicle production. However, as a result of cutbacks in tactical vehicle spending, manufacturers are shifting focus to the commercial market.

Unless tactical vehicle manufacturers increase their commercial business, the industrial base for certain tactical wheeled vehicles could weaken.

Watercraft Sector Assessment (October 2001)

The Army uses its watercraft to support and operate ports and conduct logistics, during military operations. The assessment concluded that the watercraft sector is stable and should remain stable. All prime contractors are commercial enterprises that adapt commercial watercraft for military applications, and are financially stable.

3.3 Navy

Disposal Options for Ships (April 2001)

RAND, for the Navy, examined four disposal options for the fleet of retired naval vessels and merchant ships now controlled by the Navy and the U.S. Maritime Administration. RAND evaluated: (1) long-term storage, (2) domestic recycling (ship dismantlement in U.S. naval or commercial shipyards), (3) overseas recycling, and (4) "reefing" (sinking ships to create an artificial reef for a marine habitat or as a site for recreational divers). The study concluded that available U.S. private and government industrial capabilities are adequate to staff and sustain a 20-year U.S. ship-recycling program.

3.4 Air Force

Foreign Use of Major Range and Test Facility Bases for Space Launch Vehicle Development, Industrial Base and Infrastructure Issues (February 2001)

This assessment was designed to identify potential industrial base issues should Arnold Engineering Development Center (AEDC), Arnold AFB, TN enter into an agreement with the French Centre National D'Etudes Spatiales (CNES) to provide facilities for qualification testing for a new Ariane V upper stage propulsion system. Work from such non-traditional customers would increase facility utilization and offset costs associated with maintaining workforce continuity and modernizing capital equipment. If such facilities were to be provided, it would be at an appropriate price and at a time that would not conflict with domestic testing. Based on the study, the Air Force is receptive to providing such facilities. However, CNES, citing changes in the launch market and delays in engine development, has postponed signing an agreement with AEDC. Additionally, CNES may be considering a strategy favoring European test facilities.

Collaborative Opportunities in the Management of Diminishing Manufacturing Sources and material Shortages (DMSMS) (May 2001)

Rapid changes in business climate and technology have accelerated the rate at which electronic components become obsolete and no longer are manufactured. In order to maintain operational readiness, the Air Force must improve its ability to identify and reduce the impact of DMSMS. During the past decade, organizations across the defense community, including Air Force Materiel Command, have developed a number of DMSMS management tools and

practices. This study examined those tools and practices; and identified collaborative opportunities among the Services and potential cross-border projects between DoD and the Department of National Defence (DND) Canada.

Communications - Industrial Base, Acquisition, and Sustainment Considerations (October 2001)

This assessment addressed technology planning considerations (commercial/military integration, cross program technology development, application and integration, and risk issues) regarding the industrial base supporting military communications requirements. The study concluded that, in the communications sector, commercial technologies are available and can solve many military requirements. Current obstacles to using commercial technologies include a lack of clearly stated requirements, integration issues with legacy systems (for example, challenges in combining digital and analog products), and integration of environmental specifications at the component level.

Military Airframe Acquisition Costs (The Effects of Lean Manufacturing) (2001)

Since the end of the Cold War, DoD has launched a number of initiatives whose common objective has been to reduce the costs of weapon systems that are planned, under development, or in production. Largely in response to these measures, U.S. defense firms have begun to embrace lean manufacturing -- a broad collection of principles and practices whose aim is to refashion the production process in a manner that includes the elimination of waste, the removal of inventory buffers, and a focus on quality. RAND conducted this study for the Air Force to determine to what extent, if any, the industry's adoption of such practices should be incorporated into government cost-estimating models. RAND concluded that, although anecdotal and pilot project evidence supported the contention that the implementation of lean manufacturing principles could reduce the cost of aircraft and improve industry competitiveness, limited implementation precluded generalizations regarding aircraft costs at both the factory-wide and enterprise levels. It is too early to quantify and document realized savings; and it is too early to make macro adjustments to historical cost-estimating methodologies to include such savings.

3.5 Defense Logistics Agency

Chemical Protective Gloves Follow-on (April 2001)

Chemical protective gloves are an integral part of the chemical protective ensemble used to protect troops from chemical and biological weapons attack. This assessment reevaluated issues previously addressed in Fiscal Years 1996 - 2000. It concluded that peacetime DoD procurements now are sufficient to sustain essential industrial capabilities until a new generation glove is certified and produced.

Nerve Agent Antidotes in Autoinjectors Follow-on (July 2001)

Nerve Agent Antidote Autoinjectors (NAAAs) are military-unique items designed for rapid self-administration through clothing upon exposure to a nerve agent. DLA's assessment

concluded that industry can satisfy the Services' wartime requirement for NAAAs only with DoD intervention. Quantities required to meet mobilization requirements greatly exceed peacetime needs. Therefore, since 1992, DLA has contracted with Meridian Medical Technologies -- the sole U.S. manufacturer of NAAAs -- to retain a capability to produce NAAAs in sufficient quantity to satisfy the Services' surge and sustainment shortfalls in wartime.

Patient Care Items (July 2001)

DLA assessed that the Services lack sufficient patient movement items (PMI) to move patients rapidly from Theater to the United States in accordance with current policy. Only limited PMI materiel is needed in peacetime; requirements rise dramatically in wartime. DLA contracted with a manufacturer to store and rotate subassemblies to support wartime requirements for suction apparatus. (A "suction apparatus" is a device that reduces air pressure in a wound, ensuring the wound drains properly. It accompanies a patient during evacuation until the patient reaches a permanent medical treatment facility.) This measure is the most cost-effective industrial action to shorten production lead-times to support the Services' requirements.

Pharmaceuticals (July 2001)

DLA conducted this assessment to determine if the pharmaceutical industry could meet DoD's surge and sustainment requirements for amoxicillin (used to fight battlefield infections), ciprofloxacin and doxycycline (for the anthrax treatment protocol), and analgesics for pain relief. To address shortcomings, DLA established a Corporate Exigency Contract with three major manufacturers. Under these contracts, the manufacturers will store and rotate government-owned pharmaceutical materiel and, where necessary, increase their safety stock levels to provide coverage. Among other pharmaceuticals, DLA now has coverage for hundreds of thousands of doses of ciprofloxacin and doxycycline.

Lamp Cartridges (September 2001)

DLA conducted an industrial assessment of lamp cartridges to determine if there were sufficient industrial capabilities to meet projected wartime requirements. Lamp cartridges are used in Air Force, Navy, and Marine aircraft electronic counter measure systems to defeat infrared missiles. The lamps operate at extreme temperatures and power levels and are made of exotic materials. DLA concluded that the sole source, BAE Systems, can meet DoD wartime demand only through the use of special measures to increase production rates. DLA awarded BAE Systems a contract to preposition and rotate long-lead materials and partially finished components; this reduces projected production lead-times by 270 days.

Medical Surgical Supplies (September 2001)

DoD uses medical/surgical supplies, such as sutures, wound care bandages, and surgical instruments to close cuts, incisions, and lacerations stemming from surgery or trauma. DoD's wartime requirements for these items, as well as for gloves, wraps, and gowns, present significant challenges. In time of conflict, initial Service requirements exceed the peacetime

base of supplies produced, stored, and sold today in the commercial market. To address the problem, DLA is forging partnerships with industry, linked to state-of-the-art commercial practices. The intent is to provide a combination of vendor-managed inventory, stock rotation, and commercial asset visibility solutions to support the warfighter in the most cost-effective manner.

Chemical Protective Suit Liner Fabric Follow-on (October 2001)

DLA reassessed production capabilities to determine if they are adequate to meet planned surge requirements. The Battle Dress Overgarment chemical-protective ensemble is out of production and is being replaced by the Joint Service Lightweight Integrated Suit Technology ensemble. North Atlantic Treaty Organization allies use the same suit liner technology for their chemical protective suits. DLA believes that the availability of a fully operational facility in the U.S. and a commitment to stock additional components optimizes the contractor's ability to meet emergency Service requirements. Unless projected DoD demand increases, DLA plans no new industrial capacity support measures for the JSLIST ensemble.

4. Programs and Actions to Sustain Capabilities

In 2001, as noted in section 3, DoD took action to sustain essential production capacities in some cases for which DoD peacetime requirements are limited and projected military contingency requirements are significantly larger. In such cases, DoD acquired and/or maintained facilities, equipment, or components needed to meet projected military contingency requirements. Specifically, DoD:

- For nerve agent antidotes in autoinjectors, continued an industrial base maintenance contract to maintain facilities and staffing sufficient to surge production and preposition long lead-time components and industrial equipment.

- For patient care items, contracted to store and rotate patient movement item subassemblies in order to shorten production lead-times.

- For pharmaceuticals (specifically the anthrax treatment protocol) contracted with manufacturers to store and rotate government-owned materiel and increase safety stock levels as necessary to mitigate supply availability risks.

- For lamp cartridges used in electronic countermeasures systems, contracted to preposition and rotate long lead-time materiel and partially finished components.

- For medical/surgical supplies, is forging partnerships with commercial industry to leverage commercial production capabilities and markets.

Additionally, to support Operation Enduring Freedom, DoD has taken specific measures to replenish depleted precision guided munition inventories by increasing sub-tier industry production capacities to more closely align such capacities with those of the prime contractor.

Appendix A

Related Reports Provided to Congress Separately

1. Nuclear Posture Review: Report to the Congress (Secretary of Defense, December 2001; required by Sections 1041 as amended and 1042 of the Floyd D. Spence National Defense Authorization Act of 2001 [Public Law 106-398]).

2. Study on Impact of Foreign Sourcing of Systems (Deputy Secretary of Defense, October 2001; required by Section 831 of the Floyd D. Spence National Defense Authorization Act of 2001 [Public Law 106-398 Appendix]).

3. Update on Ship Propulsion Shafts (Navy, April 2001; requested by Mr. Greenwalt, Senate Armed Services Committee professional staff, 21 March 2001).

4. Acquisition and Maintenance Plan for DD 21 Class Ships (Navy, June 2001; required by Section 215(d) of the Floyd D. Spence National Defense Authorization Act of 2001 [Public Law 106-398 Appendix).