

April 1998

**DEFENSE INDUSTRY**  
**Consolidation and**  
**Options for Preserving**  
**Competition**



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National Security and  
International Affairs Division

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April 1, 1998

Congressional Committees

Section 804 of the National Defense Authorization Act for Fiscal Year 1998 (P.L. 105-85) directed us to report to the congressional defense committees information identifying major defense market areas that have been affected by contractor business combinations since January 1, 1990, and describing the changes in the numbers of businesses competing in those market areas. This report responds to that direction and comments on approaches the Department of Defense (DOD) can take to preserve and monitor competition in the defense industry. It summarizes our March 4, 1998, testimony on defense industry consolidation before the Subcommittee on Acquisition and Technology, Senate Committee on Armed Services, and incorporates DOD's comments where appropriate.

## Background

The end of the Cold War dramatically affected the size and structure of the U.S. defense industry. Decreased defense spending, declining sales, and excess capacity prompted many defense companies to consolidate to remain competitive and financially viable. While DOD has encouraged consolidation, it has also attempted to ensure that capabilities to produce defense unique products continue to exist and that innovation and competition do not suffer.

## Results in Brief

The sharp decline in spending by DOD since 1985 has resulted in a dramatic consolidation of the defense industry, which is now more concentrated than at any time in more than half a century. As the single customer for many products of the defense industry, DOD must have the ability to identify and address potential harmful effects of mergers and acquisitions.

Questions have been raised about whether the consolidation has gone too far—adversely affecting competition in the industry. Many defense industry mergers and acquisitions are recent, so there is little evidence that the increased consolidation has adversely affected current DOD programs. Antitrust reviews have identified some problems, and remedies have been implemented. However, the consolidation could pose future problems unless DOD improves its ability to identify problem areas and devises alternative ways to maintain competition in defense acquisition programs. DOD can take several approaches to maintain competition. For example, it can design acquisition strategies to compete missions rather

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than products and provide funding to develop alternative suppliers or technologies. However, DOD cannot know what action to take unless it has adequate visibility into the industrial base—especially at the lower tiers. Progress has been slow in gaining that visibility.

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## Consolidation in the Defense Industry Has Occurred in Most Market Areas

Since 1990, there has been a dramatic reduction in the number of prime contractors in 10 of the 12 markets DOD identified as important to national security. The largest number of reductions have been in the tactical missile, fixed-wing aircraft, and expendable launch vehicle markets. For example, the number of contractors producing tactical missiles has dropped from 13 to 4. Only two contractors now compete in such key defense markets as expendable launch vehicles, tracked combat vehicles, strategic missiles, and torpedoes. Appendix I shows changes, as of March 1, 1998, in the number of contractors in defense markets identified by DOD as important.

This concentration was not unexpected. DOD has encouraged the defense industry to consolidate facilities and eliminate excess capacity to remain competitive and financially viable. DOD expects that significant cost savings will result from the consolidation.

Three large firms—Boeing, Lockheed Martin, and Raytheon—have emerged from recent mergers and acquisitions. Together, the three firms receive a substantial portion of what DOD spends annually to acquire its weapons and other products.

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## Approaches to Preserving Competition During Defense Industry Consolidation

DOD can take several approaches, acting alone or in cooperation with the government's antitrust enforcement agencies, to ensure competition in today's more concentrated defense industry. The government's antitrust review process has identified and remedied potentially adverse effects of several proposed mergers or acquisitions. Responsibility for conducting antitrust reviews and approving mergers and acquisitions lies with the Department of Justice and the Federal Trade Commission. In recent years, DOD has become more involved in antitrust reviews by sharing information and working more closely with the antitrust enforcement agencies.

Through collective efforts, the Department of Justice, the Federal Trade Commission, and DOD have identified a number of situations where

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proposed mergers or acquisitions could adversely affect DOD programs. In such cases, they used consent decrees<sup>1</sup> to address potential problems.

A major concern addressed by these consent decrees was the potential compromise of a company's financial, business, or technical information. The usual remedy in these situations has been to require "firewalls"<sup>2</sup> to prevent the disclosure of such information. Consent decrees have also addressed concerns about exclusive teaming arrangements and organizational conflicts of interest that could be anticompetitive. In these cases, the merging or acquiring companies were required to not enforce the exclusive arrangement or to divest certain assets.

In the long term, DOD's ability to address the potential adverse effects of consolidation will depend upon its ability to identify problem areas and devise alternative ways to maintain competitive pressures in its acquisition programs. DOD can do so in several ways. For example, DOD can encourage new companies to enter the defense market through the use of science and technology investment funds. DOD can also

- fund alternative technologies to meet the warfighters' needs;
- devise strategies to compete various approaches and missions, for example, using a missile rather than an aircraft;
- require major defense contractors to use open-system architectures<sup>3</sup> in designing weapon programs;
- make subtier competition a specific source-selection criterion and contract requirement; and
- explore opportunities to meet military needs through greater cooperative efforts with international partners.

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## Initiatives to Monitor Competition

In May 1996, DOD tasked the Defense Science Board to determine whether problems were being created as a result of vertical integration, that is, mergers or acquisitions that add supplier product lines to a firm that also makes products at a higher tier. The Board reported that it could not measure the extent of vertical integration because industry analysts and

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<sup>1</sup>Consent decrees are agreements by the parties to a proposed transaction to take specific steps to alleviate antitrust concerns.

<sup>2</sup>The term "firewalls" refers to arrangements created by a company to limit or prevent the exchange of competition-sensitive information among parts of the company.

<sup>3</sup>Open-system architecture refers to a design approach where the contractor defines system interfaces to a set of standards that a number of suppliers agree to meet. This makes supplier products more interchangeable in the design and allows a wider range of suppliers to participate in producing defense systems.

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antitrust agencies neither measured it nor had a mechanism for measuring it. The Board concluded, however, that DOD was not in a position to recognize emerging problems because it lacked visibility at the lower levels of the industry. Consequently, the Board made a number of recommendations to improve DOD's visibility over the industrial base.

DOD agreed with the Board's recommendations and initiated plans to (1) increase acquisition program managers' scrutiny of prime contractor teaming and supplier choices, (2) devise acquisition strategies to promote alternative concepts and new supplier entry, (3) improve the amount and quality of industry knowledge and experience of DOD acquisition managers, and (4) monitor a select group of technological areas to determine the impact of vertical integration. DOD also agreed with a Board recommendation that it continue to carefully scrutinize ongoing antitrust reviews for potential harm from vertical integration. Most of the recommendations have not been fully implemented because of the need to review several recent and complex mergers and acquisitions.

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## Agency Comments

We asked DOD to review and comment on a draft of this report. In oral comments, DOD concurred with this report's findings and contents. DOD provided separate technical comments, which we have incorporated into the report, as appropriate.

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## Scope and Methodology

To identify major market areas affected by business combinations of defense contractors, we interviewed DOD and antitrust agency officials and reviewed pertinent agency and corporate documents. To understand the broad antitrust review process and the various agencies' perspectives, we interviewed officials from the Federal Trade Commission, the Department of Justice, and DOD, including the Offices of Industrial Affairs and Installations and General Counsel. We also interviewed various acquisition and weapon system program officials and reviewed documents from the Departments of the Army, the Navy, and the Air Force, as well as from legal counsels for firms involved in the several mergers and acquisitions.

In addition, to understand DOD's role in the antitrust review process, we examined documents provided to DOD by companies involved in several mergers and acquisitions and DOD's support for advice it provided to the antitrust agencies. We also examined consent decrees related to defense industry mergers and acquisitions.

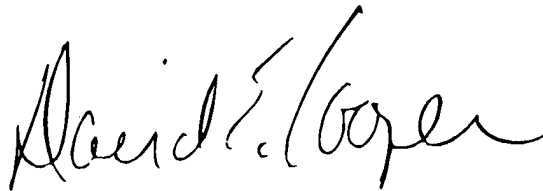
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We conducted our work between August 1997 and March 1998 in accordance with generally accepted government auditing standards. We had limited access to the information related to the mergers and acquisitions selected for this review. We excluded from our review ongoing transactions.

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We are sending copies of this report to the Director, Office of Management and Budget; the Attorney General; the Secretaries of Defense, the Army, the Navy, and the Air Force; the Chairman of the Federal Trade Commission; and to others upon request.

If you or your staff have any questions, please contact me at (202) 512-4841. Major contributors to this report are listed in appendix II.

A handwritten signature in black ink that reads "David E. Cooper". The signature is written in a cursive style with a large, prominent initial "D".

David E. Cooper  
Associate Director, Defense Acquisitions Issues

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List of Congressional Committees

The Honorable Strom Thurmond  
Chairman  
The Honorable Carl Levin  
Ranking Minority Member  
Committee on Armed Services  
United States Senate

The Honorable Ted Stevens  
Chairman  
The Honorable Daniel K. Inouye  
Ranking Minority Member  
Subcommittee on Defense  
Committee on Appropriations  
United States Senate

The Honorable Floyd D. Spence  
Chairman  
The Honorable Ike Skelton  
Ranking Minority Member  
Committee on National Security  
House of Representatives

The Honorable C.W. Bill Young  
Chairman  
The Honorable John P. Murtha  
Ranking Minority Member  
Subcommittee on National Security  
Committee on Appropriations  
House of Representatives





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## Abbreviations

DOD      Department of Defense



# Defense Market Sectors

As part of its effort to ensure that certain capabilities to produce defense unique products continue to exist, the Department of Defense (DOD) has identified industrial market sectors comprised of types of products or weapon systems important to U.S. national security interests. These products or weapon systems range from tactical missiles to tracked combat vehicles. Table I.1 lists the defense sectors that have experienced reductions in the number of companies competing or under contract between 1990 and 1998. Submarines and ammunition are not included since these sectors did not experience any changes.

**Table I.1: Prime Contractors in Defense Market Sectors (1990-98)**

Sector	Reduction in contractors	1990 contractors	1998 contractors
Tactical missiles	13 to 4	Boeing Ford Aerospace General Dynamics Hughes Lockheed Loral LTV Martin Marietta McDonnell Douglas Northrop Raytheon Rockwell Texas Instruments	Boeing Lockheed Martin Northrop Grumman Raytheon
Fixed-wing aircraft	8 to 3	Boeing General Dynamics Grumman Lockheed LTV-Aircraft McDonnell Douglas Northrop Rockwell	Boeing Lockheed Martin Northrop Grumman
Expendable launch vehicles	6 to 2	Boeing General Dynamics Lockheed Martin Marietta McDonnell Douglas Rockwell	Boeing Lockheed Martin
Satellites	8 to 5	Boeing General Electric Hughes Lockheed Loral Martin Marietta TRW Rockwell	Boeing Lockheed Martin Hughes Loral Space Systems TRW

(continued)

**Appendix I  
Defense Market Sectors**

<b>Sector</b>	<b>Reduction in contractors</b>	<b>1990 contractors</b>	<b>1998 contractors</b>
Surface ships	8 to 5	Avondale Industries Bath Iron Works Bethlehem Steel Ingalls Shipbuilding NASSCO Newport News Shipbuilding Tacoma Tampa	Avondale Industries General Dynamics (Bath Iron Works) Ingalls Shipbuilding NASSCO Newport News Shipbuilding
Tactical wheeled vehicles	6 to 4	AM General Harsco (BMY) GM Canada Oskosh Stewart & Stevenson Teledyne Cont. Motors	AM General GM Canada Oskosh Stewart & Stevenson
Tracked combat vehicles	3 to 2	FMC General Dynamics Harsco (BMY)	General Dynamics United Defense LP
Strategic missiles	3 to 2	Boeing Lockheed Martin Marietta	Boeing Lockheed Martin
Torpedoes	3 to 2	Alliant Tech Systems Hughes Westinghouse	Northrop Grumman Raytheon
Rotary wing aircraft	4 to 3	Bell Helicopters Boeing McDonnell Douglas Sikorsky	Bell Helicopters Boeing Sikorsky

Notes: In July 1997, Lockheed Martin announced that it planned to combine with Northrop Grumman. On March 23, 1998, the Department of Justice filed suit to block the acquisition of Northrop Grumman by Lockheed Martin.

Defense electronics is not included as a market sector.

Source: Our analysis of DOD data.

# Major Contributors to This Report

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