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Defense Transformation: Background and Oversight Issues for Congress

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Ronald O'Rourke
Specialist in National Defense
Foreign Affairs, Defense, and Trade Division

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Summary

The Bush Administration identified transformation as a major goal for the Department of Defense (DOD) soon after taking office and emphasized the concept during the period 2001-2004. Defense transformation can be defined as large-scale, discontinuous, and possibly disruptive changes in military weapons, concepts of operations (i.e., approaches to warfighting), and organization. The issue for the 2nd session of the 109th Congress is how to take the concept of defense transformation into account in assessing and acting on Administration proposals for DOD.

The Administration argues that new technologies make defense transformation possible and that new threats to U.S. security make defense transformation necessary. The Administration's vision for defense transformation calls for placing increased emphasis in U.S. defense planning on irregular warfare, including terrorism, insurgencies, and civil war; potential catastrophic security threats, such as the possession and possible use of weapons of mass destruction by terrorists and rogue states; and potential disruptive events, such as the emergence of new technologies that could undermine current U.S. military advantages. The Administration's vision for defense transformation calls for shifting U.S. military forces toward a greater reliance on joint operations, network-centric warfare, effects-based operations, speed and agility, and precision application of firepower. Transformation could affect the defense industrial base by transferring funding from "legacy" systems to transformational systems, and from traditional DOD contractors to firms that previously have not done much defense work.

Debate has arisen over several elements of the Administration's transformation plan, including its emphasis on network-centric warfare; the planned total size of the military; the balance between air and ground forces; the restructuring of the Army; the balance of tactical aircraft relative to unmanned air vehicles and bombers; its emphases on missile defense and special operations forces; and its plans regarding reserve forces and forces for stability operations. Potential areas of debate regarding the Administration's strategy for implementing transformation include overall leadership and management; the balance of funding for transformation vs. near-term priorities; the roles of DOD offices responsible for transformation; tests, exercises, and metrics for transformation; independent analysis of the Administration's plans; and actions for creating a culture of innovation.

Some observers are concerned that the Administration's regular (some might even say habitual) use of the term transformation has turned the concept of transformation into an empty slogan or buzz-phrase. Other observers are concerned that the Administration has invoked the term transformation as an all-purpose rhetorical tool for justifying its various proposals for DOD, whether they relate to transformation or not, and for encouraging minimal debate on those proposals by tying the concept of transformation to the urgent need to fight the war on terrorism. This report will be updated as events warrant.

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Introduction

Issue For Congress

The Bush Administration identified transformation as a major goal for the Department of Defense (DOD) soon after taking office. The Administration argues that new technologies make defense transformation possible, and that new threats to U.S. security make defense transformation necessary. The Administration has justified many of its proposals for DOD on the grounds that they are needed for defense transformation. The Administration's emphasis on transformation has altered the framework of debate for numerous issues relating to U.S. defense policy and programs.

The issue for the 2nd session of the 109th Congress is how to take the concept of defense transformation into account in assessing and acting on Administration proposals for DOD. Key oversight questions for Congress relating to this issue include the following:

- Is defense transformation necessary or desirable?

- If so, is the Administration's plan for defense transformation appropriate in terms of content and implementation strategy?

- What implications might the Administration's plan for defense transformation have for congressional oversight of DOD activities?

Congress's decisions on these issues could have significant implications for future U.S. military capabilities, DOD funding requirements, the defense industrial base, and future congressional oversight of DOD activities.

Related CRS Reports

This report addresses defense transformation from a DOD-wide perspective. For discussions of transformation as it relates to specific parts of DOD, see the following CRS reports:

- CRS Report RS20787, *Army Transformation and Modernization: Overview and Issues for Congress*, by Edward F. Bruner,

- CRS Report RL32476, *U.S. Army's Modular Redesign: Issues for Congress*, by Andrew Feickert,

- CRS Report RS20859, *Air Force Transformation*, by Christopher Bolkcom,

- CRS Report RS20851, *Naval Transformation: Background and Issues for Congress*, by Ronald O'Rourke,

- CRS Report RL32411, *Network Centric Warfare: Background and Oversight Issues for Congress*, by Clay Wilson,

- CRS Report RL31425, *Military Transformation: Intelligence, Surveillance, and Reconnaissance*, by Judy G. Chizek,

- CRS Report RL32151, *DOD Transformation Initiatives and the Military Personnel System: Proceedings of a CRS Seminar*, by Lawrence Kapp, and

- CRS Report RL33148, *U.S. Military Overseas Basing: New Developments and Oversight Issues for Congress*, by Robert D. Critchlow.

Organization of the Report

The next section of this report provides basic background information on defense transformation. The following section addresses key oversight questions for Congress.

Background

This section provides basic background information on the concept of defense transformation and the Administration's plans for defense transformation. Questions addressed in this section include the following:

- What is defense transformation?
- What are the Administration's plans for defense transformation?
- How much would defense transformation cost?
- What military weapons and systems are considered transformational?
- How might the Administration's transformation plans, if implemented, affect the U.S. defense industrial base?
- What implications might defense transformation have for the ability of U.S. military forces to participate in combined operations with the military forces of allied and friendly countries?

What Is Defense Transformation?

The term defense transformation came into common use in the late 1990s. It has been defined by military officials, military analysts, and other observers in various ways. In general, though, defense transformation can be thought of as large-scale, discontinuous, and possibly disruptive changes in military weapons, concepts of operations (i.e., approaches to warfighting), and organization that are prompted by significant changes in technology or the emergence of new and different international security challenges.[1]

Advocates of defense transformation stress that, in contrast to incremental or evolutionary military change brought about by normal modernization efforts, defense transformation is more likely to feature discontinuous or disruptive forms of change. They also stress that while much of the discussion over transformation centers on changes in military weapons and systems, changes in organization and concepts of operations can be as important, or even more important, than changes in weapons and systems in bringing about transformation. Changes in organization and concepts of operation, some have argued, can lead to transformation even without changes in weapons and systems, while even dramatic changes in weapons and systems might not lead to transformation if not accompanied by changes in organization and concepts of operation.

DOD has defined transformation in one document as a

> process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people and organizations that exploit our nation's advantages and protect against our asymmetric vulnerabilities to sustain our strategic position, which helps underpin peace and stability in the world.
>
> First and foremost, transformation is a continuing process. It does not have an end point. Transformation anticipates and creates the future and deals with the co-evolution of concepts, processes, organizations, and technology. Profound change in any one of these areas necessitates change in all. Transformation creates new competitive areas and competencies and identifies, leverages, or creates new underlying principles for the way things are done. Transformation also identifies and leverages new sources of power. The overall objective of these changes is to sustain U.S. competitive advantage in warfare.[2]

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[1] Some transformation advocates argue that transformation can and should be pursued during periods of military dominance and political stability. They argue that countries that are defeated in military conflicts learn much faster from their experience in war than do countries that are victorious. Victorious countries, they argue, can become complacent, making only incremental improvements to military forces and concepts of operations that appear dominant, and are then unpleasantly surprised in subsequent conflicts by adversaries that, in the meantime, have developed new and unforeseen military capabilities.

[2] U.S. Department of Defense, Office of the Secretary of Defense, Director, Force Transformation, *Military Transformation[:] A Strategic Approach*, fall 2003, p. 8.

The Administration's view of transformation has evolved somewhat since early 2001 to include more emphasis on transformation as a continuing process rather than one with an endpoint, and on making changes not just in combat forces and warfighting doctrine, but in supporting DOD activities such as training, personnel management, logistics, and worldwide basing arrangements. The Administration's definition of transformation also encompasses making changes in DOD business policies, practices, and procedures, particularly with an eye toward streamlining operations and achieving efficiencies so as to reduce costs and move new weapon technologies from the laboratory to the field more quickly. The Administration has also used the term transformation to refer to proposed changes in matters such as the budget process and environmental matters affecting military training.[3]

Some observers have equated transformation principally with the idea of making U.S. forces more mobile, agile, and lethal through greater reliance on things such as unmanned vehicles (UVs), advanced technologies for precision-strike operations, and special operations forces (SOF). Other observers have equated transformation principally with the concept of network-centric warfare (NCW)[4] and the C4ISR[5] technologies needed to implement NCW. Still others have equated transformation primarily with making U.S. military forces more expeditionary,[6] with making order-of-magnitude improvements in specific military capabilities, with making many smaller improvements that add up to larger improvements, or with the notion of weapon modernization in general.

Some of these alternative formulations are not so much definitions of transformation as prescriptions for how U.S. military forces should be transformed. Others can be viewed as reducing the threshold of what qualifies as transformation by including changes that, while perhaps dramatic, represent an elaboration of current practices and arrangements rather than something discontinuous with or disruptive of those practices and arrangements.

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[3] For additional discussion, see U.S. Department of Defense, *Elements of Defense Transformation*. Washington, 2004, 17 pp. Available on the Internet at [http://www.oft.osd.mil/library/library_files/document_383_ElementsOfTransformation_LR.pdf]

[4] NCW refers to using networking technology — computers, data links, and networking software — to link U.S. military personnel, ground vehicles, aircraft, and ships into a series of highly integrated local- and wide-area networks capable of sharing critical tactical information on a rapid and continuous basis. For more on NCW, see U.S. Department of Defense, Office of Force Transformation, *The Implementation of Network-Centric Warfare*. Washington, 2005, 76 pp. Available on the Internet at [http://www.oft.osd.mil/library/library_files/document_387_NCW_Book_LowRes.pdf]

[5] C4ISR stands for command, control, communications, computers, intelligence, surveillance, and reconnaissance.

[6] In general, this means making U.S. forces more capable of rapidly moving to distant operating areas and conducting operations in those areas with less reliance on pre-existing in-theater bases, infrastructure, or supplies.

Related to the concept of defense transformation is the somewhat earlier term Revolution in Military Affairs (RMA), which came into use in the early 1990s.[7] RMAs are periodic major changes — discontinuities — in the character of warfare. Depending on the source consulted, a few or several RMAs are deemed to have occurred in recent decades or centuries. Although the terms transformation and RMA have sometimes been used interchangeably, RMA can be used to refer to a major change in the character of warfare, while transformation can be used to refer to the process of changing military weapons, concepts of operation, and organization in reaction to (or anticipation of) an RMA.

What Are The Administration's Plans For Transformation?

DOD Publications. DOD has published a number of documents describing the Administration's plans for defense transformation. Among these are *Elements of Defense Transformation*, published in October 2004, *Military Transformation: A Strategic Approach*, published in the fall of 2003, *Transformation Planning Guidance*, published in April 2003, and separate transformation plans (called road maps) for each of the military services. These and other DOD publications on transformation can be found at the website for DOD's Office of Force Transformation [http://www.oft.osd.mil].

Overall Vision. In general, the Administration's vision for defense transformation calls for placing increased emphasis in U.S. defense planning on irregular warfare (including terrorism, insurgencies, and civil war), potential catastrophic security threats (such as the possession and possible use of weapons of mass destruction by terrorists and rogue states), and potential disruptive events (such as the emergence of new technologies that could undermine current U.S. military advantages).[8]

The Administration's vision for defense transformation calls for shifting the U.S. military away from a reliance on massed forces, sheer quantity of firepower, military services operating in isolation from one another, and attrition-style warfare,[9]

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[7] The term RMA was a reformulation of the even earlier term, Military Technical Revolution (MTR), which was coined by Soviet military analysts during the Cold War to refer to fundamental changes in warfare that are brought about by major new technologies, such as nuclear weapons. Western military analysts, concerned that the term MTR placed too exclusive an emphasis on changes in technology, created the term RMA so as to take into account changes in military organization and concepts of operations as well.

[8] For press articles discussing this shift in the focus of U.S. defense planning, see Jason Sherman, "US Revises Threat Scenarios," *DefenseNews.com*, November 22, 2004; Jason Sherman, "US War On Terror Looms For QDR," *Defense News*, October 25, 2004: 4; Jason Sherman, "U.S. Goals Sought On Battling The Unconventional," *Defense News*, September 20, 2004; and Thomas E. Ricks, "Shift From Traditional War Seen At Pentagon," *Washington Post*, September 3, 2004: 1.

[9] Attrition-style warfare refers to a traditional warfighting strategy that focuses on seeking out the enemy's military forces, wherever they might be, and then using firepower to destroy them piece by piece, through a process of gradual attrition, until the enemy is no longer

and toward a greater reliance on joint (i.e., integrated multi-service) operations, NCW, effects-based operations (EBO),[10] speed and agility, and precision application of firepower. Some transformation advocates characterize these changes as shifting from an industrial-age approach to war to an information-age approach. As mentioned earlier, the Administration's transformation vision also includes proposals for changing things like training practices, personnel management practices, logistics operations, and worldwide basing arrangements, and for changing DOD's business practices, particularly with an eye toward streamlining those practices so as to accelerate the fielding of new weapons and generate savings that can be used to invest in them.

DOD has stated that its transformation effort is focused on achieving six "critical operational goals" and consists of four essential "pillars:"

> Six critical operational goals identified by Secretary of Defense Donald H. Rumsfeld provide the focus for the Department's transformation efforts: (1) Protecting critical bases and defeating chemical, biological, radiological, and nuclear weapons; (2) Projecting and sustaining forces in anti-access environments; (3) Denying enemy sanctuary; (4) Leveraging information technology; (5) Assuring information systems and conducting information operations; and (6) Enhancing space capabilities. Over time, the continued focus of the Department's force transformation efforts on the development of the capabilities necessary to achieve these six critical operational goals will help shift the balance of U.S. forces and broaden our capabilities....

> The four military transformation pillars identified by the Secretary — strengthening joint operations, exploiting U.S. intelligence advantages, concept development and experimentation, and developing transformational capabilities — constitute the essential elements of the Department's force transformation strategy. The first pillar focuses on strengthening joint operations through the development of joint concepts and architectures and the pursuit of other important jointness initiatives and interoperability goals. The overarching *Joint Operations Concepts (JOpsC)* document provides the operational context for

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[9] (...continued)
capable of fighting effectively.

[10] Effects-based operations , also called effects-based warfare, refers to a warfighting strategy that has been proposed as an alternative to traditional attrition-style warfare. Rather than focusing on seeking out and destroying enemy forces wherever they might be, effects-based operations focuses on attacking selected key elements of the enemy's ability to fight in a coordinated manner. Under an effects-based strategy, U.S. forces might attack the enemy's military leadership, its military command-and-control systems, and the most politically and militarily significant elements of the enemy's fielded military forces while bypassing less significant enemy military forces. The goal of effects-based warfare is to create specific effects on the enemy that lead to a rapid collapse of the enemy's willingness and ability to fight, without having to go through a time-consuming and potentially costly effort to destroy the bulk of the enemy's military forces through a gradual process of attrition.

Some observers argue that the concept of effects-based operations is not new and has been employed in past conflicts. Observers also argue, however, that new technologies may significantly increase the effectiveness of effects-based operations.

military transformation by linking strategic guidance with the integrated application of Joint Force capabilities. The second pillar involves exploiting U.S. intelligence advantages through multiple intelligence collection assets, global surveillance and reconnaissance, and enhanced exploitation and dissemination. Our ability to defend America in the new security environment requires unprecedented intelligence capabilities to anticipate where, when, and how adversaries intend to harm us.

The third pillar, concept development and experimentation, involves experimentation with new approaches to warfare, operational concepts and capabilities, and organizational constructs through war gaming, simulations, and field exercises focused on emerging challenges and opportunities. Experiments designed to evaluate new concepts provide results that help refine those concepts in an iterative fashion. [Regarding the fourth pillar, the] Department requires strong mechanisms for implementing results from concept development and experimentation and, more immediately, for developing transformational capabilities needed to support the JOpsC and subordinate Joint Operating Concepts.[11]

In its report on the 2005 Quadrennial Defense Review, submitted to Congress on February 6, 2006, DOD stated:

If one were to attempt to characterize the nature of how the Department of Defense is transforming and how the senior leaders of this Department view that transformation, it is useful to view it as a shift of emphasis to meet the new strategic environment. In this era, characterized by uncertainty and surprise, examples of this shift in emphasis include:

- From a peacetime tempo — to a wartime sense of urgency.
- From a time of reasonable predictability — to an era of surprise and uncertainty.
- From single-focused threats — to multiple, complex challenges.
- From nation-state threats — to decentralized network threats from non-state enemies.
- From conducting war against nations — to conducting war in countries we are not at war with (safe havens).
- From "one size fi ts all" deterrence — to tailored deterrence for rogue powers, terrorist networks and near-term competitors.
- From responding after a crisis starts (reactive) — to preventive actions so problems do not become crises (proactive).
- From crisis response — to shaping the future.
- From threat-based planning — to capabilities-based planning.
- From peacetime planning — to rapid adaptive planning.
- From a focus on kinetics — to a focus on effects.
- From 20th century processes — to 21st century integrated approaches.
- From static defense, garrison forces — to mobile, expeditionary operations.
- From under-resourced, standby forces (hollow units) — to fully-equipped and fully-manned forces (combat ready units).
- From a battle-ready force (peace) — to battle-hardened forces (war).

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[11] *Military Transformation[:] A Strategic Approach*, op. cit., p. 3.

- From large institutional forces (tail) — to more powerful operational capabilities (teeth).
- From major conventional combat operations — to multiple irregular, asymmetric operations.
- From separate military Service concepts of operation — to joint and combined operations.
- From forces that need to deconflict — to integrated, interdependent forces.
- From exposed forces forward — to reaching back to CONUS [the continental United States] to support expeditionary forces.
- From an emphasis on ships, guns, tanks and planes — to focus on information, knowledge and timely, actionable intelligence.
- From massing forces — to massing effects.
- From set-piece maneuver and mass — to agility and precision.
- From single Service acquisition systems — to joint portfolio management.
- From broad-based industrial mobilization — to targeted commercial solutions.
- From Service and agency intelligence — to truly Joint Information Operations Centers.
- From vertical structures and processes (stovepipes) — to more transparent, horizontal integration (matrix).
- From moving the user to the data — to moving data to the user.
- From fragmented homeland assistance — to integrated homeland security.
- From static alliances — to dynamic partnerships.
- From predetermined force packages — to tailored, flexible forces.
- From the U.S. military performing tasks — to a focus on building partner capabilities.
- From static post-operations analysis — to dynamic diagnostics and real-time lessons learned.
- From focusing on inputs (eff ort) — to tracking outputs (results).
- From Department of Defense solutions — to interagency approaches.[12]

Service and Agency Transformation Plans. The military services and DOD agencies have developed transformation plans or road maps in support of DOD's overall transformation vision.

The Army's transformation plan centers on reorganizing the Army into modular, brigade-sized forces called Units of Action (UAs) that can be deployed to distant operating areas more easily and can be more easily tailored to meet the needs of each contingency.

Key elements of the Air Force's transformation plan include reorganizing the service to make it more expeditionary, and exploiting new technologies and operational concepts to dramatically improve its ability to rapidly deploy and sustain forces, to dominate air and space, and to rapidly identify and precisely attack targets on a global basis.

Key elements of naval transformation include a focus on operating in littoral (i.e., near shore) waters, new-design ships requiring much-smaller crews, directly

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[12] U.S. Department of Defense, *Quadrennial Defense Review Report*. Washington, 2006. (February 6, 2006) pp. vi-vii.

launching and supporting expeditionary operations ashore from sea bases, more flexible naval formations, and more flexible ship-deployment methods.

Elements common to the transformation plans of all the services include greater jointness, implementing NCW, and greater use of unmanned vehicles (UVs). As mentioned earlier, for more on the transformation plans of the Army in general, the Army plan for UAs, the Air Force, and the Navy, see CRS Report RS20787, CRS Report RL32476, CRS Report RS20859, and CRS Report RS20851, respectively.

Office of Force Transformation. To help implement transformation, DOD created the Office of Force Transformation (OFT), which resides within the Office of the Secretary of Defense (OSD). OFT is a small office with a staff of fewer than 30 people and an annual budget of roughly $30 million. It reports directly to the Secretary of Defense. Among other things, OFT issues guidance to the rest of DOD on transformation; reviews and approves transformation plans submitted by the military services and DOD agencies; acts as a generator, promoter, and clearinghouse of ideas for transformation; and generally evangelizes in support of transformation.

From October 29, 2001, until January 31, 2005, OFT was headed by retired Navy Vice Admiral Arthur K. Cebrowski.[13] Cebrowski was previously the President of the Naval War College, where he was a leading proponent of the then-emerging concept of NCW and initiated studies on radically new kinds of Navy warships. As of January 27, 2006, a permanent replacement for Cebrowski had not been named.

In April 2005, it was reported that in the wake of Cebrowski's departure from OFT, the Office of the Secretary of Defense had commissioned retired admiral James Ellis, who commanded the U.S. Strategic Command from 2001 to 2004, to prepare a set of options for OFT's future. These options reportedly include, but may not be limited to, keeping OFT as is, moving it to a new location within DOD (such as under DOD's acquisition office or under U.S. Joint Forces Command), or expanding OFT.[14] Ellis' study reportedly also recommended that a new director be found for OFT.[15]

In September 2005, it was reported that a study conducted by the Defense Science Board (DSB) — an advisory panel to the Secretary of Defense — suggested that, in light of the broad acceptance of transformation within DOD over the last few years, OFT may no longer be necessary. The DSB study reportedly refers to OFT as "an organizational applique" and criticizes OFT's role in overseeing and critiquing the services transformation plans.[16]

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[13] Vice Admiral Cebrowski died on November 12, 2005, after a long illness.

[14] Jason Sherman, "Retired Admiral Tapped To Recommend Options for DOD Transformation Office," *InsideDefense.com*, April 1, 2005.

[15] Jason Sherman, "DSB: Commanders Require New Tools For Transformation In Terror War," *Inside the Pentagon*, September 1, 2005.

[16] Ibid. See also Roxana Tiron, "Military-Transformation Agency At Crossroads, After Cebrowski," *The Hill*, September 15, 2005.

U.S. Joint Forces Command. As another measure to help implement transformation, DOD designated U.S. Joint Forces Command (USJFCOM), a unified military command with a staff of more than 800 headquartered in Norfolk, VA, as the military's premier "transformation laboratory." USJFCOM states:

> U. S. Joint Forces Command (USJFCOM) is one of nine combatant commands in the Department of Defense, and the only combatant command focused on the transformation of U.S. military capabilities.
>
> Among his duties, the commander of USJFCOM oversees the command's four primary roles in transformation — joint concept development and experimentation, joint training, joint interoperability and integration, and the primary conventional force provider as outlined in the Unified Command Plan approved by the president.
>
> The Unified Command Plan designates USJFCOM as the "transformation laboratory" of the United States military to enhance the combatant commanders' capabilities to implement the president's strategy. USJFCOM develops joint operational concepts, tests these concepts through rigorous experimentation, educates joint leaders, trains joint task force commanders and staffs, and recommends joint solutions to the Army, Navy, Air Force and Marines to better integrate their warfighting capabilities....
>
> As the joint force integrator, USJFCOM helps develop, evaluate, and prioritize the solutions to the interoperability problems plaguing the joint warfighter. At USJFCOM, joint interoperability and integration initiatives continue to deliver materiel and non-materiel solutions to interoperability challenges by working closely with combatant commanders, services and government agencies to identify and resolve joint warfighting deficiencies.
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> This work is one of the most important near-term factors required to transform the legacy forces and establish a "coherently integrated joint force."[17]

New Weapon Acquisition Regulations. As a fourth step to help implement transformation, the Administration has revised the regulations governing the acquisition of new weapons and systems with the aim of reducing costs and "acquisition cycle time" — the time needed to turn useful new technologies into fielded weapon systems. A key element of DOD's effort in this regard is evolutionary acquisition with spiral development (EA/SD), which DOD has identified is its new preferred acquisition strategy. EA/SD is an outgrowth of the defense acquisition reform movement of the 1990s and is intended to make its acquisition system more responsive to rapid changes in threats, technology, and warfighter needs. For more on EA/SD, see CRS Report RS21195.[18]

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[17] [http://www.jfcom.mil/about/about1.htm].

[18] CRS Report RS21195, *Evolutionary Acquisition and Spiral Development in DOD Programs: Policy Issues for Congress*, by Gary J. Pagliano and Ronald O'Rourke.

How Much Would Transformation Cost?

Calculating the potential cost of defense transformation is not an easy matter, for the following reasons:

- Opinions differ, often significantly, on what kinds of planned changes for DOD qualify as transformational, and which do not.

- Developing and acquiring new weapons and equipment that are deemed transformational can be very expensive, but the cost of this can be offset, perhaps substantially or even completely, by reducing or cancelling the development and procurement of non-transformational weapons and equipment that would no longer be needed.

- Implementing transformational changes in organization can also cost money, but these costs might similarly be offset by the reduced recurring cost of maintaining the new forms of organization.

- While exercises intended to explore new warfighting concepts of operation can be expensive, the cost of staging these exercises can be offset by curtailing other exercises that are intended to further develop older concepts of operations.

- If transformation is viewed as a continuing process rather than one with an endpoint, any calculations of its cost become snapshots rather than final figures.

Although some analysts who advocate defense transformation might personally support increased spending on defense, most appear to advocate transformation as a cost-neutral or cost-reducing proposition. Indeed, some advocates support their proposals for transformation on the grounds that they represent a less-expensive strategy for meeting future security challenges than the alternative of investing in programs for making more incremental or evolutionary changes to current military capabilities. Some analysts have gone even further, arguing that an increasing defense budget might actually impede transformation by permitting officials to believe that projected security challenges can be solved by investing larger amounts of funding in today's military forces, while a constrained or declining defense budget, conversely, might help encourage transformation by forcing officials to contemplate more seriously the idea of shifting to new and less expensive approaches for meeting these challenges.

The Administration has stressed that its interest in incorporating current best private-sector business practices in DOD operations, and in running DOD more "like a business," is driven in large part by a desire to run DOD more efficiently and thereby generate maximum savings that can be used for, among other things, investing in transformation.

What Weapons And Systems Are Transformational?

Although transformation involves (and might even depend more significantly on) changes in organization and concepts of operations, much of the debate over transformation has centered on which military weapons and systems should be deemed transformational, and which not. Experts disagree on this question, even when working from a common definition of transformation. As a result, lists of weapons and systems that qualify as transformational differ from one source to the next.

Supporters of various weapon procurement programs, keenly aware of the Administration's interest in transformation, have been eager to argue that their own favored weapon systems should be viewed transformational, or at least not as "legacy" — a label that for many has become synonymous with obsolescence and suitability for reduction or termination.[19] As a result, a wide variety of military weapons and systems have been presented at one point or another as transformational, while fewer have been spotlighted as non-transformational or legacy.

Weapons and systems that have frequently been identified as closely associated with the Administration's transformation vision include but are not necessarily limited to the following:

- C4ISR systems that link military units into highly integrated networks for conducting NCW,
- forces for countering terrorists and weapons of mass destruction,
- space systems,
- missile defense,
- unmanned vehicles,
- special operations forces,
- precision-guided air-delivered weapons,
- lighter and more mobile Army ground forces, and
- smaller and faster Navy surface ships.

Weapons and systems that have been identified by various observers, not necessarily by DOD, as non-transformational or legacy include the following:

- weapons and associated C4ISR systems that operate in an isolated, stand-alone manner rather than as part of a network,
- unguided weapons,
- heavy armored forces for the Army,
- manned tactical aircraft, and
- large, slower-moving Navy surface ships.

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[19] The term "legacy" was originally a policy-neutral term used to refer to existing or current-generation weapons that, while not transformational, could well be worth procuring or maintaining in inventory, at least for some number of years. Over time, however, the term "legacy" has come to be used in a more pejorative manner, to refer to systems that are not only not transformational, but obsolescent and ripe for immediate termination or elimination.

How Might It Affect the Defense Industrial Base?

A related matter of interest to Congress is how the Administration's transformation plans, if implemented, might affect the composition of U.S. defense spending and, as a consequence, revenues and employment levels of various firms in the defense industrial base. In assessing this issue, potential points to consider include the following:

- **Transformational vs. non-transformational/legacy programs.**
  To some degree, implementing the Administration's transformation vision could lead to increased DOD spending on the items listed above as transformational, and more restrained amounts of spending on the items listed above as non-transformational or legacy.

- **Large-scale systems integration work.** Implementing the Administration's transformation plan could lead to increased DOD spending for the large-scale systems integration work that is required to tie individual military weapons and systems together into smoothly functioning "systems of systems." Some defense firms, particularly some of the larger ones, have taken steps to strengthen and publicize their capacity for performing this kind of work.

- **Large, diversified contractors vs. specific units within them and smaller firms.** For larger defense firms that perform a wide range of work for DOD,[20] implementing the Administration's transformation plan might transfer revenues from one part of the company to another without necessarily having a major effect on the company's bottom line. The potential effect on individual units within those firms, however, may be greater, if those facilities specialize in producing only certain kinds of defense goods or services. These units — as well as smaller defense firms that perform a less-diverse array of work for DOD — may be more likely to experience either an increase or decrease in revenues and employment levels as a result of transformation.[21]

- **Traditional vs. non-traditional DOD contractors.** Some new technologies that may contribute to transformation, particularly certain information technologies, are found more in the civilian economy than in the world of defense-related research. As a result, implementing the Administration's transformation plan could shift some DOD spending away from traditional DOD contractors and

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[20] Examples of such firms would include Boeing, General Dynamics, Lockheed Martin, Northrop Grumman, and Raytheon — the 5 leading U.S. defense contractors that emerged from the consolidation of the defense sector that began in the early 1990s.

[21] For more on the potential effects of transformation on the industrial base, see Peter J. Dombrowski, Eugene Gholz, Andrew L. Ross, *Military Transformation and the Defense Industry after Next [:] The Defense Industrial Implications of Network-Centric Warfare, Final Report,* Newport Paper #18, (Newport: Naval War College, 2003).

toward firms that previously have done little or no business with DOD. Indeed, DOD is attempting to encourage firms that have not previously done business with DOD — so-called "non-traditional" contractors — to begin doing business with DOD, so that DOD may make maximum use of applicable technologies from the civilian sector.

How Might It Affect Operations With Allied Forces?

What implications might defense transformation have for the ability of U.S. military forces to participate in combined operations with the military forces of allied and friendly countries? DOD states that it is working toward a transformed force capable of conducting effective combined operations:

> As the U.S. military transforms, our interests are served by making arrangements for international military cooperation to ensure that rapidly transforming U.S. capabilities can be applied effectively with allied and coalition capabilities. U.S. transformation objectives should be used to shape and complement foreign military developments and priorities of likely partners, both in bilateral and multilateral contexts.[22]

In spite of this stated intention, however, other observers, including some in allied and friendly countries, have expressed concern that U.S. defense transformation could widen the current gap between U.S. and foreign military concepts and capabilities, which is already quite significant in some respects, and thereby make U.S. forces less compatible with allied and friendly forces. Reduced compatibility, they believe, could lead to reduced coalition warfighting effectiveness when the United States engages in combined operations with allied and friendly forces, increased risk of fratricide (i.e., friendly-fire) incidents involving U.S. and coalition forces, and increased risk of political friction between the United States and its coalition partners.

Whether transformation strengthens or weakens the ability of U.S. forces to participate in combined operations with foreign military forces will depend in part on decisions made by foreign governments. If these governments, for example, invest in networking technologies for NCW that are compatible with those used by U.S. forces, it could increase interoperability with U.S. military forces to a level that was not possible in pre-NCW times. Conversely, if those governments do not significantly invest in networking-related technologies for NCW, or invest in technologies that are not compatible with those of U.S. forces, it could reduce interoperability between U.S. forces and the forces of those countries below what it is today. Under this latter scenario, operations involving U.S. and foreign military forces might be combined operations in name only, with the foreign forces assigned to marginal or other functions that can be performed acceptably without being fully incorporated into the U.S. network or without creating complications.

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[22] *Military Transformation[:] A Strategic Approach*, op cit., p. 10.

Future interoperability with foreign military forces will also depend in part on decisions made together by U.S. and foreign leaders. Decisions that align emerging U.S. concepts of operations with those of foreign military forces, and to hold combined exercises employing these new concepts of operations, could improve the potential for conducting effective combined operations. Conversely, lack of coordination in emerging concepts of operations, or of exercises to practice them together, could impede interoperability and reduce the potential for effective combined operations.

What Transformational Changes Has Congress Initiated?

Congress in past years has instituted changes that can be viewed as examples of, or contributors to, defense transformation, including changes that were opposed (or at least not proposed or actively supported) by DOD leaders. Examples of such actions include the following:

- Congress played a leading role in promoting jointness within DOD by creating the landmark 1986 Goldwater-Nichols Act (P.L. 99-433), which, among other things, strengthened the institutional roles played by the Joint Chiefs of Staff and the commanders in charge of joint forces assigned to various regions around the world. Although the term defense transformation was not in common use in 1986, the Goldwater-Nichols Act today can be viewed, in retrospect, as a significant early example of defense transformation.[23]

- Congress in 1986 also expressed concern for the status of SOF within overall U.S. defense planning and passed legislation — Section 1311 of the FY1987 defense authorization act (P.L. 99-661) — to strengthen its position. Among other things, Section 1311 established the U.S. Special Operations Command (USSOCOM) as a new unified command. To the extent that enhancement of special operations forces is now considered a key element of defense transformation, this action also can be viewed, in retrospect, as an early example of transformation.

- In 2000, Congress passed legislation — Section 220 of the FY2001 defense authorization act (P.L. 106-398) — that established a transformation-related goal for unmanned vehicles. The provision stated that "It shall be a goal of the Armed Forces to achieve the fielding of unmanned, remotely controlled technology such that — (1) by 2010, one-third of the aircraft in the operational deep strike force aircraft fleet are unmanned; and (2) by 2015, one-third of the operational ground combat vehicles are unmanned."

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[23] For background information on the Goldwater-Nichols Act, see CRS Report RL30609, *Department of Defense Reorganization Act of 1986: Proposals for Reforming the Joint Officer Personnel Management Program*, by Katherine Lemay Brown.

Oversight Issues for Congress

This section addresses the following potential oversight issues for Congress:

- Is defense transformation necessary or desirable?

- If so, is the Administration's plan for defense transformation appropriate in terms of content and implementation strategy?

- What implications might the Administration's plan for defense transformation have for congressional oversight of DOD activities?

Is Defense Transformation Necessary or Desirable?

One potential oversight issue for Congress is whether transformation is necessary or desirable. Supporters of the notion that transformation is necessary or desirable make five general arguments:

- New technologies make possible the creation of new, transformational military capabilities.

- Transformation is required to meet emerging asymmetric security challenges.

- Transformation is also required to preserve U.S. superiority in conventional warfare over the long run.

- The current lack of a global or regional military peer competitor creates an opportunity — a window in time — to invest in transformation at acceptable risk.

- Transformation will be less expensive in the long run than attempting to meet emerging asymmetric threats or preserve U.S. conventional superiority through more routine modernization of current capabilities.[24]

New Technologies. Supporters of transformation argue that advanced information technologies, as well as new technologies for distributed sensors, unmanned vehicles, and precision-guided munitions, make possible the creation of new, transformational military capabilities in the form of agile, distributed forces armed with precision-guided weapons that can operate in a network-centric environment so as to conduct effects-based operations. Incorporating these new technologies into today's forces without undergoing transformational changes in organization and concepts of operation, they argue, would waste much of the potential warfighting benefit afforded by these technologies.

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[24] For lengthier versions of the arguments for transformation as articulated by DOD, see pages 12-16 of *Military Transformation[:] A Strategic Approach*, op cit, or pages 4-6 of *Transformation Planning Guidance*, op. cit.

Skeptics could argue that although new technologies make transformation possible, that doesn't necessarily mean that transformation is necessary or desirable right now. These technologies, they could argue, can be incorporated into U.S. forces through routine modernization of existing capabilities, without making transformational changes in organization and concept of operation. The notion that transformational change is needed to adequately capture the benefits of these new technologies, they could argue, is theoretical and unproven. Changes in organization and concepts of operation, they could argue, can always be made later, if practical experience shows that incorporating these technologies through routine modernization does not adequately exploit their warfighting potential.

Asymmetric Challenges. Supporters of transformation argue that transformation is needed to counter emerging asymmetric military challenges, in which adversaries avoid competing head-on against conventional U.S. military strengths. Emerging asymmetric challenges that transformation supporters cite include (but are not necessarily limited to) terrorism; nuclear, chemical, and biological weapons; long-range ballistic and cruise missiles; cyberwarfare; attacks on U.S. military satellites; and anti-access/area-denial (AA/AD) systems aimed at preventing U.S. forces from gaining access to ports, airfields, bases, staging areas, and littoral (near-shore) waters that U.S. forces now depend on to mount military operations in distant theaters.[25] Routine modernization of current U.S. military forces, they argue, will not provide forces well suited to countering these emerging asymmetric challenges.

Skeptics could argue that asymmetric military challenges may require certain enhancements to current U.S. military capabilities, but that these enhancements can be made by adding or expanding selected military capabilities, or through routine modernization of current capabilities. For example, they could argue, intelligence capabilities and special operations forces can be strengthened to counter terrorism, and ballistic missile defenses can be fielded, without requiring significant changes to other parts of the military. Asymmetric challenges, they could argue, are nothing new — the United States has long had to contend with thinking adversaries that could adapt and change — and DOD has successfully dealt with such challenges in the past without undertaking transformational changes.

Preserving Conventional Superiority. Supporters of transformation argue that transformation is also needed ensure that the current U.S. superiority in conventional warfare does not erode over time. Many of the key technologies that are involved in U.S. defense transformation, including information technologies, they argue, are widely available and will be similarly exploited by the military forces of potential U.S. adversaries. Consequently, they argue, routine modernization of current U.S. military forces that does not take full advantage of these new technologies will not be sufficient to preserve current U.S. superiority in conventional warfare.

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[25] Examples of AA/AD systems include shorter-ranged ballistic and cruise missiles, mines, and non-nuclear-powered submarines.

Skeptics could argue that transformation is not necessarily required to preserve U.S. conventional superiority over the long run. They could argue that, as demonstrated by recent major combat operations in Kosovo, Afghanistan, and Iraq, the current degree of U.S. superiority in conventional warfare is so large, and the potential cost for other countries to challenge that superiority (even with use of new technologies and concepts of operations) is so high, that challenges to U.S. conventional superiority are unlikely, and that any challenges that do occur would require many years to implement. Consequently, they could argue, routine modernization efforts will be sufficient to preserve U.S. conventional superiority for many years.

Opportunity And Risk. Transformation supporters argue that the current lack of a worldwide or major regional military peer competitor to the United States creates an opportunity — a window in time — that permits the United States, at acceptable risk, to shift some funds away from nearer-term routine modernization programs and toward longer-term efforts aimed at creating new, transformational military capabilities. Putting off transformation until the emergence of a military peer competitor, they argue, would not only make it more difficult for the United States to respond to that competitor, but could also make the emergence of such competitors more likely by encouraging potential competitors to believe that the United States was neglecting to maintain its superiority in conventional warfare.

Other transformation supporters argue that current U.S. operations in Iraq, Afghanistan, the Balkans, and other locations is accelerating transformation by prompting rapid, battle-induced changes in U.S. technology, organization, and concepts of operations. They also argue that U.S. operations in these locations promote transformation because the return of individual U.S. units from these locations at the ends of their periods of deployment provides a natural opportunity to "reset" those units to a new, transformed organization.[26]

Skeptics could argue that current operational demands on U.S. forces in Iraq, Afghanistan, the Balkans, and other locations, far from creating a window of opportunity for transformation, increase the risks of attempting transformation right now. Shifting funds away from near-term readiness and modernization and toward longer-term efforts aimed at transformation, and making changes in organization and concepts of operations, they could argue, could reduce readiness and disrupt institutional relationships in the military at a time when U.S. forces are maintaining a high tempo of operations and face lethal threats from insurgent forces. Attempting transformation now, they could argue, would be like trying to change horses in the middle of a river crossing. The risks of attempting transformation under current circumstances, they could argue, would be compounded by the uncertain effectiveness of the new and somewhat experimental capabilities being contemplated under transformation.

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[26] See, for example, Jefferson Morris, "Iraq Operations Accelerating Transformation, Cebrowski Says," *Aerospace Daily & Defense Report*, August 4, 2004; and Sandra Jontz, "Schoomaker: War Aids Transformation," *European Stars and Stripes*, July 28, 2004.

Comparative Costs. Transformation supporters argue that even if routine modernization of current capabilities can meet emerging asymmetric security challenges and preserve U.S. conventional superiority, transformation can achieve these goals at less expense over the long run, because it will more fully exploit the warfighting benefits of new technologies than routine modernization can, as well as facilitate the review and elimination of expensive but unneeded legacy forces.

Skeptics could argue that the costs of transformation, both in the near term and long term, are uncertain, and that transformation therefore might not necessarily be less expensive than routine modernization. They could also argue that transformation could turn out to be very expensive if the nature of the transformation undertaken turns out to be incorrect and another set of changes is needed to correct the mistake.

If So, Is The Administration's Plan Appropriate?

If transformation is judged to be necessary or desirable, a potential follow-on oversight question for Congress is whether the Administration's plan for defense transformation is appropriate in terms of the proposed direction of change and the proposed strategy for implementing changes. Each of these issues is discussed below.

Proposed Direction Of Change. Current U.S. military forces could be transformed in a number of ways. Is the Administration's plan for transformation appropriate in terms of how it would change the force? Discussion on this question has developed on a number of elements in the Administration's plan, including those presented below.

Network-Centric Warfare. Some observers argue that, as a concept, network-centric warfare "manifests important and pervasive flaws," that "there are serious questions regarding the status of the NCW thesis as a secure and reliable basis for making [military] capability development decisions," that "the conclusions the NCW thesis affords are deficient, for they are drawn from defective premises," and that there has been a "low level of skepticism towards [NCW's] claims displayed many in the defense community...."[27]

Other observers, while accepting the validity of NCW, argue that the Administration's transformation plan places too much emphasis on the concept. The Administration's plan, they argue, overestimates the potential benefits of NCW and underestimates its potential risks. The ability of NCW to overcome uncertainty and confusion on the battlefield — the fog of war — may not be as great as advocates of the Administration's plan make it out to be, they argue, particularly when operating in certain environments, such as urban areas. The Administration's planned emphasis on NCW, they also argue, could make U.S. forces excessively vulnerable to electronic jamming and cyberwar attacks aimed at disrupting the computers and data links that form the network. Such attacks, if successful, could degrade or even

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[27] Darryn J. Reid, Graham Goodman, Wayne Johnson, and Ralph E. Giffin, "All that Glisters [sic]: Is Network-Centric Warfare Really Scientific?" *Defense & Security Analysis*, December 2005: 335-367.

bring down the network, they argue, isolating individual U.S. military units and leaving them potentially vulnerable to destruction.[28]

Supporters of the Administration's plan argue that the concept of NCW has undergone significant and disciplined intellectual development over the past several years, and that recent military operations have demonstrated the value of networked operations. They also argue that DOD is aware that the benefits of NCW can vary depending on the type of operation in question and the environment in which it is being conducted. They also argue that the threat of jamming and cyberwar attacks is fully recognized and is being taken into account in designing and acquiring the C4ISR equipment associated with NCW.[29]

Total Size Of Force. Some observers believe that the Administration's transformation plan calls for a force that is too small to meet the various demands being placed on it, and that the size of the force, and particularly the Army, needs to be increased to reduce the strain being placed on individual soldiers.[30] The Administration argues that the planned size of the force is adequate, particularly since DOD, as part of its transformation effort, is undertaking numerous actions that will make more efficient use of unformed personnel.

Several Members of Congress and other observers have expressed support for increasing the size of the Army by 30,000 or more soldiers, and for increasing the size of the Air Force and Marine Corps as well. The proposed FY2007 defense budget and FY2007-FY2011 Future Years Defense Plan (FYDP) submitted to Congress in February 2006 calls for a total of 70 Army combat brigades (42 active and 28 in the National Guard) rather than the 77 (43 active and 34 in the National Guard) that DOD officials spoke of in 2005, for reducing active-duty Army forces from over the next five years from more than 500,000 to 482,000, and for maintaining the National Guard at 333,000 rather than increasing it to a congressionally approved level of 350,000. For further discussion of this issue, see

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[28] See, for example, Bejamin S. Lambeth, "The Downside Of Network-Centric Warfare," *Aviation Week & Space Technology*, January 2, 2006: 86; David Hughes, "New Orthodoxy' Under Fire," *Aviation Week & Space Technology*, Sept. 29, 2003, p. 57; Nick Jonson, "Exec: DOD Should Re-Examine Net-Centric Assumptions," *Aerospace Daily*, Nov. 21, 2003; David A. Fulghum and Douglas Barrie, "Cracks In The Net," *Aviation Week & Space Technology*, June 30, 2003, p. 52; David A. Fulghum, "Embracing The Foe," *Aviation Week & Space Technology*, June 30, 2003, p. 54; Loren B. Thompson, "The Hidden Dangers Of Networked Warfare," Lexington Institute, Issue Brief, June 17, 2003; Michael Schrage, *Perfect Information and Perverse Incentives: Costs and Consequences of Transformation and Transparency,* MIT Center for International Studies, Security Studies Program, SSP Working Paper, May 2003; Milan Vego, "Net-Centric Is Not Decisive, *U.S. Naval Institute Proceedings*, Jan. 2003, pp. 52-57; Loren B. Thompson, "The Limits Of Transformation," *Defense Week*, Apr. 22, 2002, p. 1; Thomas P. M. Barnett, "The Seven Deadly Sins of Network-Centric Warfare," *U.S. Naval Institute Proceedings*, Jan. 1999, pp. 36-39.

[29] For more on the debate on NCW, see CRS Report RL32411, *Network Centric Warfare: Background and Oversight Issues for Congress*, by Clay Wilson.

[30] See, for example, Frederick W. Kagan, "A Strategy For Heroes," *Weekly Standard*, February 20, 2006: 20.

CRS Report RS21754, *Military Forces: What is the Appropriate Size for the United States?*, by Edward F. Bruner.[31]

Air Power vs. Ground Forces. In a related debate, some observers argue that the Administration's transformation plan places too much emphasis on air power and not enough emphasis on ground forces. They argue that not all future wars will be amenable to campaigns built primarily around air power, and that the Administration's planned emphasis on air power could make U.S. operations vulnerable to failure should adversaries find a way to counter the targeting systems on which air-delivered weapons rely.[32] They also argue that skilled infantrymen are important for countering certain asymmetric challenges, such as insurgencies, and that reductions in infantry forces consequently should not be used to finance the procurement of aircraft and air-delivered weapons.

Supporters of the Administration's transformation plans argue that it fully recognizes the value of ground forces for certain operations, that the Army's plan to reorganize itself into a force built around brigade-sized units will increase the number of deployable units for meeting worldwide demands, and that transformation aims at exploiting NCW and precision weapons to achieve efficiencies where possible in the numbers of deployed ground troops needed to conduct certain operations. Supporters of the Administration's plan argue that it aims at producing military forces with a wide array of capabilities, of which attacking targets with air-delivered precision-guided weapons is only one, precisely so that the United States will be able to fight various kinds of conflicts in the future. Supporters also argue that operations in Afghanistan and Iraq show the ability of ground forces to rely on air power when the two are effectively integrated.

Army Transformation. Somewhat independent of the debate over the balance of air power and ground forces, some observers have objected to the Administration's plan to reorganize the Army into modular, brigade-sized Units of Action (UA) because the plan would de-emphasize heavily-armored UAs built around M1 tanks and M2 Bradley Fighting Vehicles in favor of newly created, more mobile "medium-weight" UAs built around the Stryker wheeled combat vehicle. They have argued that medium-weight units will be less lethal and less survivable than heavy formations, and that the greater mobility of these forces will simply permit them to be more easily deployed into situations where they will be defeated by enemy forces.

Supporters of the Administration's transformation plans argue that heavily armored units, though survivable and lethal, are not very mobile, and therefore are

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[31] CRS Report RS21754, *Military Forces: What is the Appropriate Size for the United States?*, by Edward F. Bruner.

[32] See, for example, "A Strategy For Heroes," op cit, Tom Donnelly and Vance Serchuk, "Preparing To Fight The Next War," *Weekly Standard*, Dec. 1, 2003; Frederick W. Kagan, "The Art of War," *New Criterion*, Nov. 2003 and Mackubin Thomas Owens, "Transforming Transformation," *NationalReviewOnline*, April 23, 2003, [http://www.nationalreview.com /owens/owens042303.asp]; Thomas Owens Mackubin, "Reshaping Tilted Against The Army?," *Washington Times*, Nov. 24, 2002, p. B3.

of little or no value in situations requiring the rapid deployment of meaningful ground combat capability. The planned medium-weight units, they argue, will exploit superior battlespace awareness to help achieve sufficient survivability, and will employ new weapon technologies to achieve sufficient lethality.[33]

Other observers, while supporting the idea of reorganizing the Army into brigade-sized units, have questioned the Army's approach for doing this. In January 2006, it was reported that a series of reports by the Institute for Defense Analyses (IDA) concluded that the Army's plan for including two (rather than three or four) battalions in each new brigade could reduce rather than increase the Army's net fighting capability. The Army, according to the press report, strongly contested IDA's findings.[34]

Tactical Aircraft vs. UAVs/UCAVs And Long-Range Bombers. Some observers argue that the Administration's transformation plan places too much emphasis on shorter-ranged tactical aircraft — the Air Force F-22 Raptor, the Navy F/A-18E/F Super Hornet, and the multiservice F-35 Joint Strike Fighter (JSF) — and not enough emphasis on unmanned air vehicles (UAVs), unmanned combat air vehicles (or UCAVs, which are UAVs armed with weapons), and long-range bombers. They argue that the Administration's plan — which proposes acquiring thousands of new tactical aircraft while envisaging relatively small numbers of UAVs and UCAVs and maintaining a relatively small bomber force — is inappropriate given uncertain future access to in-theater land bases needed for tactical aircraft (as demonstrated in Afghanistan), the capabilities of UAVs and UCAVs (as demonstrated in Afghanistan and Iraq), the age of the bomber force, the ability of bombers to operate without access to in-theater bases, and the ability of bombers to deliver large numbers of precision-guided weapons in a single sortie.

The Administration has generally argued that its proposed numbers of new tactical aircraft are needed to preserve conventional U.S. military superiority (even when supplemented by UAVs and UCAVs), and that UAVs and UCAVs will eventually be procured in significant numbers. The proposed FY2007 defense budget and FY2007-FY2011 Future Years Defense Plan (FYDP) submitted to Congress in February 2006 calls for substantial increases in procurement funding for UAVs and UCAVs and for accelerating by two decades the start of an acquisition program for a new long-range bomber-type aircraft.[35]

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[33] The deployment to Iraq of units equipped with the Stryker vehicle may provide a test case for arguments concerning the merits of medium-weight forces. Strykers deployed to Iraq were fitted with add-on armor to defeat rocket-propelled grenades being used by insurgent forces.

[34] Elaine M. Grossman, "Study Finds Army Transformation Plan Weakens Combat Capability," *Inside the Pentagon*, January 26, 2006.

[35] For general discussion on the tradeoff between tactical aircraft, UAVs/UCAVs, and long-range bombers, see CRS Report RL31872, *Unmanned Aerial Vehicles: Background and Issues for Congress*; and CRS Report RL31544, *Long-Range Bombers: Background and Issues for Congress*, both by Christopher Bolkcom.

Special Operations Forces. The proposed FY2007 defense budget and FY2007-FY2011 Future Years Defense Plan (FYDP) to be submitted to Congress in February 2006 calls for increasing U.S. special operations forces by 15%. Some observers, while acknowledging the effectiveness of special operations forces in Afghanistan and Iraq, and in counter-terrorism operations elsewhere, are concerned that the Administration's plan places too much emphasis on special operations forces as a perceived potential solution to a wide array of security problems. This, they argue, could lead to the use of special operations forces for addressing security problems that might be better addressed through other measures; to the overuse of special operations forces, which could fatigue them and prevent them from conducting adequate training; or to under-investment in alternative approaches for addressing certain security problems. The current high operational tempo of special operations forces, they argue, can be viewed as evidence that they are now being overused.

Supporters of the Administration's plan, while acknowledging that special operations forces are currently heavily committed around the world, argue that the Administration's planned expansion of special operations forces will eventually permit a reduction in operational tempo for individual units. They also argue that, prior to Afghanistan and Iraq, the capabilities of special operations forces, and their cost-effectiveness in terms of achieving disproportionately large effects on the conventional battlefield and in counterterrorism operations, was underappreciated. Current concerns about an excessive reliance on special operations forces, they argue, are simply reflections of this older and now outdated view.[36]

Forces for Stability Operations. Some observers, particularly since the onset of the U.S.-led stability operation in Iraq, have argued that the Administration's transformation plan pays too little attention to the demands that stability operations place on the military. Some of these observers have argued in favor of altering the Administration's plan to include the creation of units that are organized and trained specifically for conducting such operations. Other observers, while not advocating the creation of dedicated forces for stability operations, have argued in favor of giving U.S. combat forces more training in such operations, so that they can more easily shift into such operations when required.[37]

Reserve Forces. DOD officials have mentioned the idea of transferring to active-duty forces parts of certain functions that are now carried out by reserve forces. Supporters of this idea argue that this will permit DOD to deploy forces overseas for contingency operations with less disruption to the daily life of communities around the country where reservists live and work. Opponents argue that the current division of functions between the active and reserve forces, which dates to the years immediately following the Vietnam war, was designed precisely

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[36] For more on special operations forces, see CRS Report RS21048, *U.S. Special Operations Forces (SOF): Background and Issues for Congress*, by Andrew Feickert.

[37] For more discussion on forces for stability operations, see CRS Issue Brief IB94040, *Peacekeeping and Related Stability Operations: Issues of U.S. Military Involvement*; and CRS Report RL32321, *Policing in Peacekeeping and Related Stability Operations: Problems and Proposed Solutions*, both by Nina M. Serafino.

so that large-scale commitments of U.S. forces overseas would require the activation of significant numbers of reserve personnel. Shifting to the active forces functions now carried out by reserve units, these opponents argue, would undermine this arrangement, which is intended to encourage people in affected communities to contact their representatives in Congress and thereby help ensure that elected officials in Washington consider such commitments carefully before approving them.[38]

As mentioned earlier, the proposed FY2007 defense budget and FY2007-FY2011 Future Years Defense Plan (FYDP) calls for reducing the number of National Guard combat brigades from 34 to 28, offsetting this reduction by increasing the number of Guard support brigades, and maintaining the National Guard at 333,000 rather than increasing it to a congressionally approved level of 350,000. Numerous Members of Congress have expressed opposition to this proposal.

Missile Defense. Some observers criticize the Administration's transformation plan for placing too much emphasis on missile defense programs at the expense of other defense-spending priorities. They argue that the Administration has overstated the urgency of the ballistic missile threat at the expense of other potential threats, such as cruise missiles, that the Administration is rushing to deploy missile defenses without first adequately testing them, and that the Administration is wasting limited resources by unnecessarily rushing to deploy systems with limited capabilities that will soon be replaced by more capable versions.

Supporters of the Administration's plan argue that the Administration has correctly assessed the urgency of the ballistic missile threat, that adequate attention is being paid to other potential threats such as cruise missiles, that testing of missile defense systems will continue while early versions are fielded, and that the early versions fielded will have some capability to stop enemy ballistic missiles and will consequently help deter other countries from launching ballistic missile attacks by complicating their calculations regarding the potential for such attacks to succeed.[39]

Effects-Based Operations. Some observers, while acknowledging the potential value of effects-based operations, argue that the concept is currently not that well defined, and that until it is better defined and its potential value consequently better understood, it should not be featured as a key element in the Administration's transformation plan. Retired Lieutenant General Paul Van Riper, in an exchange of e-mails with active-duty generals in December 2005, strongly criticized the role of effects-based operations in current military planning and military education. One of his e-mails states in part:

> Let me turn now to what I perceive to be a lack of intellectual content in emerging joint concepts.

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[38] See, for example, Janine Davidson, "A Citizen Check On War," *Washington Post*, Nov. 16, 2003, p. B7.

[39] For more on missile defense, see CRS Report RL31111, *Missile Defense: The Current Debate*, coordinated by Steven A. Hildreth.

Assigning our best thinkers to infuse content into vacuous slogans such as "information superiority" and "dominant maneuver," is fruitless and wastes valuable resources. Even worse, such efforts are potentially dangerous when they produce an empty "concept" that is imposed upon our operating forces. I believe there is considerable evidence that the latter is happening.

Several cases come to mind, none more egregious than the idea of "effects-based operations."...

This targeting methodology is eminently sensible and proved its worth during Operation Desert Storm.....

Unfortunately, [one advocate] argued after Desert Storm that this "effects-based" approach offered a new way to plan for and conduct all military operations....

The effects-based operations concept, despite its title, is at most a concept for planning not an operating concept.... However, even as a planning concept its utility is limited since it does not deal with the interactively complex systems that make up most of the systems that military forces deal with....

If there is an advantage to effects-based operations as an approach to operational art, it must be explainable in simple English. Moreover, if the joint community desires to introduce this term into the existing planning lexicon its proponents should be able to explain how it improves upon current terms, especially *mission* with its inherent *task* and *purpose* or *intent*. They have not! Incredibly, some officers in the joint community are advocating for an entirely new definition of mission that would include *effects*....

Since retiring eight years ago I have spent considerable time teaching and mentoring field grade officers. Without a doubt, they are the most motivated and intellectually curious officers the American military has ever produced. Recently, however, I have found they lack a firm grasp of many proven doctrinal concepts and their speech and writing is filled increasingly with an unintelligible "effects-speak." A flawed force development process is producing a plethora of concepts that, from my observations, make it difficult to focus current force development efforts. In addition, it is eroding what until recently was a clear and concise professional lexicon.[40]

Other observers argue that the Administration's emphasis on effects-based operations overlooks the potential advantages of attrition-style warfare. Attrition warfare, they argue, leads to the assured destruction of enemy military forces in the field, while effects-based operations, by bypassing certain enemy forces, can permit those forces to blend back into the population at large and prepare for a post-war

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[40] "Van Riper's E-Mail To Pace, Hagee, and Schoomaker Regarding JCIDS," *Inside the Navy*, January 23, 2006 (emphases as in the original). See also Christopher J. Castelli, "Van Riper, Mattis Criticize Joint Staff's Force-Development Process," *Inside the Navy*, January 23, 2006; "Mattis' E-Mail To Hagee Supporting Van Riper's Criticism Of JCIDS," *Inside the Navy*, January 23, 2006; "Deptula's Reply To Van Riper's Concerns," *Inside the Navy*, January 23, 2006; Christopher J. Castelli, "Van Riper, Deptula Disagree Over Effects-Based Ops, Enemy 'Control,'" *Inside the Navy*, February 6, 2006; and "Van Riper's Reply To Deptula, Dec. 29, 2005," *Inside the Navy*, February 6, 2006.

insurgency campaign that U.S. forces might find more difficult and costly to counter. They further argue that effects-based operations may bring about the collapse of an enemy regime so quickly, and with so little effect on the country's population at large, that the population may not feel that it has been subdued or defeated, possibly making them defiant and more willing to support such an insurgency.[41]

Supporters of the Administration's plan argue that the concept of effects-based operations is well on its way to being defined, that it is undergoing further intensive development at U.S. Joint Forces Command and elsewhere, and that the value of effects-based operations has already been demonstrated in Kosovo, Afghanistan, and Iraq. They also argue that the potential consequences of attrition warfare (including those caused by large numbers of civilian deaths and large amounts of damage to non-military buildings and infrastructure) have become politically untenable, and that no attrition-style campaign could be so complete as to prevent the subsequent emergence of an insurgency conducted by a relatively small number of opponents who survived the period of major combat. Supporters of the Administration's plan can argue that even if effects-based operations might make post-conflict stability operations more challenging, this is not an argument against using effects-based operations to fight conflicts, but rather an argument for having better capabilities for conducting post-conflict stability operations.

Asymmetric Threats. Some observers are concerned that the Administration's transformation plan, by increasing current U.S. capabilities for conventional warfare, could paradoxically produce undesired results by encouraging potential adversaries to abandon conventional military competition — an area where the United States can compete effectively — and put more of their energies into developing asymmetric responses that will be more difficult for the United States to counter, such as terrorism, nuclear weapons, and cyberwar attacks against civilian computer systems important to the functioning of the U.S. and world economy.[42] Rather than working to discourage potential adversaries from competing against the United States in conventional capability, they argue, the United States should seek to maintain conventional forces that are superior to those of potential adversaries, but not so superior that they drive potential adversaries away from spending resources on conventional competition.

Other observers, conversely, are concerned that the Administration's transformation plan places too much emphasis on countering asymmetric threats such as terrorism, and not enough emphasis on preparing for future conventional military challenges 10 or 20 years from now from a potential major regional peer competitor, such as China.

Supporters of the Administration's plan could argue that potential adversaries are already pursuing asymmetric responses to U.S. military capabilities. Increasing

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[41] See, for example, "Collateral Damage," *Aviation Week & Space Technology*, Jan. 26, 2004, p. 21; "The Message," *Defense Daily*, January 26, 2004; and James Kitfield, "About-Face," *National Journal*, Jan. 31, 2004.

[42] For more on cyberwar attacks, see CRS Report RL32114, *Computer Attack and Cyber Terrorism: Vulnerabilities and Policy Issues for Congress*, by Clay Wilson.

the current U.S. superiority in conventional warfare, they could argue, will not change this, but it will permit U.S. forces to conduct successful conventional operations more quickly, with fewer lives lost, and at lower cost. Supporters also argue that the Administration's transformation plan pays adequate planning attention to the possibility of a conventional military challenge 10 or 20 years from now from a major regional peer competitor such as China.[43]

Afghanistan And Iraq War As Test Cases. Since the merits of the Administration's proposed direction of change under its transformation plan are the subject of debate, many observers have focused on recent U.S. military operations in Afghanistan and Iraq as potential test cases for validating or disproving various aspects of that plan. Operations in Afghanistan were viewed by many observers as highlighting the potential capabilities of special operations forces, particularly when operating in conjunction with aircraft armed with precision-guided weapons, and of UAVs and UCAVs. Operations in Iraq have been debated in terms of whether they validate the Administration's overall transformation vision, and in terms of specific issue areas such as NCW, Army forces, and special operations forces. For extended discussions on these topics, see CRS Report RL31946, *Iraq War: Defense Program Implications for Congress*, coordinated by Ronald O'Rourke.

Proposed Strategy For Implementing Transformation. Is the Administration's plan for transformation appropriate in terms of its proposed implementation strategy? Potential areas of discussion on this issue include those presented below.

Overall Leadership and Management of Transformation. A December 2004 report from the Government Accountability Office on DOD's transformation efforts states:

> DOD has taken positive steps to design and implement a complex strategy to transform U.S. military capabilities, but it has not established clear leadership and accountability or fully adopted results-oriented management tools to help guide and successfully implement this approach. The responsibility for transforming military capabilities is currently spread among various DOD organizations, with no one person or entity having the overarching and ongoing leadership responsibilities or the accountability for achieving transformation results. In addition, although DOD established an informal crosscutting group that meets occasionally to discuss transformation issues, this group has no charter, formal responsibilities, or authority to direct changes. GAO has previously reported that key practices for successful transformation include leadership that sets the direction of transformation and assigns accountability for results, and the use of crosscutting implementation teams, which can provide the day-to-day management needed for success. In recent testimony on DOD's business transformation, we underscored the importance of these elements and stated that DOD has not routinely assigned accountability for performance to specific organizations or individuals who have sufficient authority to accomplish

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[43] For a discussion of the potential implications of China's military modernization for required U.S. military capabilities, see CRS Report RL33153, *China Naval Modernization: Implications for U.S. Navy Capabilities — Background and Issues for Congress*, by Ronald O'Rourke.

goals. DOD officials believe that a single organization accountable for transformation results and a formal implementation team are not necessary because existing informal mechanisms involve key organizations that can individually implement needed changes, and an annual assessment of transformation roadmaps is prepared for the Secretary of Defense, who can direct the transformation efforts of each organization. However, in the absence of clear leadership, accountability, and a formal implementation mechanism, DOD may have difficulty resolving differences among competing priorities, directing resources to the highest priorities, and ensuring progress should changes in senior personnel occur. In addition, informal mechanisms are not sufficient to provide transparency to the process or assurance to Congress that DOD is allocating resources to address needed improvements rather than desired improvements.

While DOD's strategy to transform military capabilities is a good first step, DOD has not fully developed results-oriented management tools that can help managers effectively implement and manage major efforts, and focus on achieving results. Specifically, DOD has not revised its initial transformation goals, set in 2001, to reflect new joint concepts — thus, DOD lacks a foundation for developing other tools such as performance goals and measures and linking specific resources needed to achieve each goal. DOD faces challenges in developing these tools because the joint concepts are being developed concurrently with its plans to acquire new capabilities. But without these results-oriented tools, it will be difficult for DOD to determine the extent to which its transformation efforts are achieving desired results, to measure its overall progress, or to provide transparency for how billions of dollars in planned investments are being applied.[44]

Funding For Transformation vs. Near-Term Priorities. Some observers argue that the Administration's plan for implementing transformation provides too much funding for longer-term transformation goals and not enough funding for near-term needs. They have argued, for example, that the Administration's plan provides significant funding for development of next-generation Army combat vehicles, but inadequate funding for modernization of current Army M1 tanks and M2 Bradley fighting vehicles. They also argue that the Administration has not adequately funded certain near-term Army readiness needs, such as ceramic body armor, Humvees with improved armor, and helicopter survivability equipment.

Other observers argue, conversely, that the Administration's plan, though nominally supportive of transformation, provides too much funding for legacy systems and not enough funding for transformation-related programs. They argue, for example, that even if one agrees with the relative emphasis in the Administration's transformation plan on tactical aircraft vs. UAVs/UCAVs and long-range bombers, the Administration's plan includes excessive amounts of funding for procurement of tactical aircraft while underfunding development of UAVs and UCAVs.

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[44] U.S. Government Accountability Office. *Military Transformation[:] Clear Leadership, Accountability, and Management Tools Are Needed to Enhance DOD's Efforts to Transform Military Capabilities,* GAO-05-70, December 2004.

Supporters of the Administration's plan argue that it strikes the right balance between funding for legacy systems vs. transformation-related programs. They can argue that tactical aircraft like the F-22 and the STOVL (short takeoff, vertical landing) version of the JSF can be considered transformational, and that the Administration's plan includes actions aimed at ensuring that all tactical aircraft are procured in an economical fashion. Spending on UAVs and UCAVs, they argue, will increase substantially when UAVs and UCAVs now in development emerge from the development process and start to be procured in larger numbers. Legacy systems, supporters argue, should be modernized only if not doing so would create unacceptable operational risks, and that if instances are discovered where inadequate funding for modernization of legacy equipment creates unacceptable operational risks, additional funding can be moved into those areas to address the shortfall.

Office of Force Transformation. Particularly in light of the set of options for OFT's future that reportedly has been prepared to OSD's consideration (see Background section), as well as the suggestion in the DSB report that OFT might no longer be necessary, potential questions for Congress regarding the role of OFT in implementing transformation include the following:

- Is OFT still necessary? Should it remain in operation in some form, or should it be disestablished?

- Does OFT have too much, not enough, or about the right amount of authority, staffing, and funding to carry out its responsibilities in promoting transformation and overseeing the transformation efforts of the various services and DOD agencies?[45]

- Should OFT remain an office within OSD that reports directly to the Secretary of Defense, or should it be moved to another location within DOD, such as under DOD's acquisition office or under U.S. Joint Forces Command?

- What are the potential advantages and disadvantages of giving OFT authority to allocate larger amounts of funding for use in transformation-related research, development, and exercises?

- Is OFT exercising too much, not enough, or about the right amount of control over the content of the transformation road maps submitted by the individual services and agencies? Are OFT's efforts to ensure compatibility and commonality among the service's transformation road maps reducing the potential benefits that can come from allowing service-unique perspectives to be articulated?

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[45] For an earlier discussion of this issue, see Amy Svitak, "Clear Role Eludes U.S. Transformation Office," *Defense News*, September 23-29, 2002, p. 22.

- How good a job is OFT doing in explaining and garnering support for the general concept of transformation, and for specific transformation ideas?[46]

- To what degree have OFT's ideas on transformation been a product of the thinking of its first director, retired Navy vice admiral Arthur Cebrowski, and how might OFT's approach toward transformation change now under new leadership?

- In light of the responsibilities and potential influence of OFT, should the position of Director of OFT be made a Senate-confirmable position?

U.S. Joint Forces Command. Potential questions for Congress regarding the role of USJFCOM in implementing transformation are similar to those above regarding OFT:

- Does USJFCOM have too much, not enough, or about the right amount of authority, staffing, and funding to carry out its responsibilities in developing joint doctrine for transformation and in managing joint exercises for testing transformation ideas?

- How good a job is USJFCOM doing in developing joint doctrine to be used by the services in developing compatible transformation road maps?

- What are the potential advantages and disadvantages of giving USJFCOM authority to allocate larger amounts of funding not simply for transformation-related research, development, and exercises, but for procurement of transformation-related equipment to be used by operational forces?[47]

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[46] For discussions of this issue, see Thomas E. Ricks and Josh White, "Scope Of Change In Military Is Ambiguous," *Washington Post*, August 1, 2004: 6; and Keith J. Costa, "Cebrowski Cites Progress In Work To Transform The Pentagon," *Inside the Pentagon*, August 5, 2004.

[47] The FY2004 defense authorization bill provides authority for USJFCOM to spend up to $50 million dollars on procurement of equipment for battle management command, control, communications, and intelligence, or for equipment that facilitates the use of joint forces in military operations or enhances the interoperability of equipment used by elements of the joint force. For an article discussing this, see Anne Plummer, "Congress Gives JFCOM Limited Budget To Develop Joint C2 Systems," *Defense Information & Electronics Report*, November 21, 2003; See also David Hughes, "The Future Of Joint Warfighting," *Aviation Week & Space Technology*, May 26, 2003, p. 76; and Keith J. Costa, "Joint National Training Capability: The Next Wave In Transformation," *Inside the Pentagon*, February 20, 2003, p. 1.

- Is DOD requesting adequate funding for operating and expanding the Joint National Training Capability (JNTC) that is to be used by USJFCOM for conducting joint exercises?[48]

- Do USJFCOM's dual roles as a provider of joint forces and as DOD's premier transformation laboratory conflict with one another, and if so, what are the options for resolving the conflict?

- Are the transformation-related activities of OFT and USJFCOM sufficiently coordinated?

Experiments And Exercises. Some observers have expressed concern about whether experiments and exercises carried out nominally in support of transformation are sufficiently focused on exploring transformational warfighting ideas as opposed to demonstrating existing non-transformational capabilities. Observers have also expressed concerned about whether experiments and exercises are sufficiently challenging and realistic, and whether they are "scripted" to ensure the success of favored transformation ideas.[49] Potential questions for Congress regarding transformation-related tests and exercises include the following:

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[48] Using funds authorized in FY2004, DOD plans to open the JNTC in October 2004. For FY2005, DOD is requesting $191 million to continue and expand the JNTC in FY2005. For more on the JNTC, see "Joint National Training Capability: The Next Wave In Transformation," op cit; Kim Burger, "US Forces To Get More Realistic Joint Exercises," *Jane's Defense Weekly*, December 11, 2002; Marc Strass, "Giambastiani: Joint National Training Center Needed For Service Training," *Defense Daily*, July 29, 2002, p. 6.

[49] Some observers, for example, expressed concern that USJFCOM's large Millennium Challenge 2002 exercise may have been scripted to ensure the success of favored DOD transformation ideas. See Richard Hart Sinnreich, "Cooking The Books Won't Help The Military Transform," *Lawton (OK) Constitution*, August 18, 2002, p. 4; Dale Eisman, "Pentagon Leaders Defend War Game," *Norfolk Virginian-Pilot*, August 21, 2002; Michael Gilbert, "General: Stryker Unit's Performance Not At Issue," *Tacoma New Tribune*, August 22, 2002; Dennis O'Brien, "Controversial War Game Improved Warriors," *Norfolk Virginian-Pilot*, August 23, 2002; Sean D. Naylor, "Fixed War Game?," *Army Times*, August 26, 2002, p. 8; Jason Ma, "In Simulation, Navy Suffers Heavy Losses, Including Aircraft Carrier," *Inside the Navy*, August 26, 2002: 1; Mackubin Thomas Owens, "Let's Not Rig Our War Games," *Wall Street Journal*, August 29, 2002; William F. Kernan, "Joint War Games," *Army Times*, September 16, 2002, p. 52 (letter to the editor); Bradley Graham, "Criticism Of War Game Rejected," *Washington Post*, September 18, 2002, p. 27; Elaine M. Grossman, "Generals Take Stock Of U.S. Vulnerability To Common Technologies, "*Inside the Pentagon*, September 19, 2002; Michael Schrage, "Military Overkill Defeats Virtual War," *Washington Post*, September 22, 2002, p. B5; Lionel Van Deerlin, "Taking Their Warships And Going Home," *San Diego Union-Tribune*, November 6, 2002; and Jeff Huber, "Invasion of the Transformers," *U.S. Naval Institute Proceedings*, October 2003, pp. 74-76, particularly the section entitled "New Dogs, Old Tricks."

See also Loren B. Thompson, "Revolution Gone Awry[:] How Transformation May Undermine Military Preparedness," Remarks Before the Council on Foreign Relations Security Roundtable, November 18, 2002 and Keith J. Costa, "Konetzni: Transformation In Need Of 'Solid Intellectual Analysis,'" *Inside the Pentagon*, May 22, 2003.

- Does the Administration's plan include too many, not enough, or about the right amount of transformation-related experiments and exercises?

- Are these experiments and exercises adequately funded to fulfill their stated objectives?

- Are they oriented toward examining transformational ideas, or are they oriented toward demonstrating existing or incrementally improved capabilities?

- Are they sufficiently challenging and realistic? Do they allow for failures from which lessons can be learned, or are they scripted to ensure the success of transformation ideas that are already believed to be true?

- How, if at all, have lessons from these experiments and exercises to date affected DOD's transformation plan?

Metrics for Transformation. Advocates of transformation argue that new metrics (i.e., methods of measurement or measures of effectiveness) will be needed to accurately measure the capabilities of transformed military forces and the effectiveness of transformational military systems, organizational changes, and concepts of operation. Traditional methods for measuring military power, such as the total number of divisions, air wings, and ships, they argue, will need to be replaced by more sophisticated measures that take into account not only the raw numbers of platforms or units in a military force, but also the effect of NCW, EBO, and other new technologies and ideas in increasing the overall effectiveness of a force that includes a certain number of such platforms. Similarly, they argue that in assessing the effectiveness of proposed transformational weapon systems, traditional performance measures, such as platform speed and range, will need to be supplemented or replaced by new measures that take into account factors such as the system's ability to operate in a network environment so as to contribute to, and take advantage of, targeting and other information distributed over the network. Potential questions for Congress include the following:

- To what degree has DOD developed new metrics for measuring the capabilities of transformed military forces and the effectiveness of transformational military systems? To what degree is DOD using these new metrics in making decisions about programs and resources? When will the process of developing and applying new metrics be complete?

- Who is involved in developing the new metrics, and what process is being used to develop them?

- Are DOD's emerging new metrics unduly biased against legacy forces? Are they unduly biased in favor of its own transformation proposals vs. transformation proposals offered by others?

Independent Analysis. Some observers have expressed concern that there has been relatively little formal analysis or review by specialists independent of DOD of the merits of the Administration's proposals for transformation. One article, for example, states:

> There's at least one potential drawback to all of this "transformation": It has been subjected to remarkably little outside scrutiny or independent analysis....
>
> Indeed, without rigorous congressional oversight or a thorough analysis of the risks-versus-rewards trade-offs of transformation, experts worry that the rapid and profound changes now under way could lead to unpleasant and unintended surprises. As Pentagon officials have rewritten U.S. strategic war plans, they have touted the success of the three-week Iraqi Freedom campaign. But relatively little analysis has been conducted of the difficult aftermath in Iraq and whether the war-fighting model actually contributed to many of the post-conflict difficulties. Many military experts also caution that the Iraqi army was too weak an opponent on which to base such fundamental reforms....
>
> Even some transformation advocates question whether Rumsfeld's plans have enough checks and balances in place. The transformation umbrella is casting an ever-greater shadow over a growing host of initiatives, for instance, that have not seen the light of independent scrutiny. "Without independent analysis, we may never know the true lessons of the Iraq war," Krepinevich said. Clear troubles that arose with that campaign, such as problems with logistics and supply, have not been studied adequately, he says. "Basically, the Pentagon and U.S. military are grading their own homework."[50]

Culture of Innovation. DOD officials and other observers note that instilling a culture of innovation among DOD personnel will be critical to implementing transformation.[51] Instilling such a culture could involve things such as actions to create an institutional and workplace receptiveness to new ideas, procedures for protecting people who generate new ideas, and avoidance of the so-called "zero-defect" approach for assessing performance and selecting people for advancement.[52] Potential challenges to creating a culture of innovation include a widespread familiarity and comfort with the status quo, the so-called "not-invented-here"

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[50] James Kitfield, "About-Face," *National Journal*, Jan. 31, 2004. See also Loren B. Thompson, "Revolution Gone Awry[:] How "Transformation May Undermine Military Preparedness," Remarks Before the Council on Foreign Relations Security Roundtable, November 18, 2002; Michael Schrage, "Military Overkill Defeats Virtual War," *Washington Post*, September 22, 2002, p. B5; and Keith J. Costa, "Konetzni: Transformation In Need Of 'Solid Intellectual Analysis,'" *Inside the Pentagon*, May 22, 2003.)

[51] See, for example, Geoff Fein, "Intellectual, Cultural Change Needed For Transformation, Official Says," *Defense Daily*, January 24, 2006.

[52] Under the "zero-defect" approach, only applicants who have made zero mistakes are selected for promotion, while applicants who have one or more mistakes on their record are ruled out for promotion. Critics of this approach argue that people who have made no mistakes in their careers are also likely to have never tried to accomplish anything that, if successful, would have qualified as a useful innovation.

syndrome,[53] a cadre of senior officers who were taught, and have spent their entire careers abiding by, traditional ideas and practices, and the difficulty of quantifying or explaining the potential advantages of proposed innovations.

A 2002 survey of more than 2,500 U.S. military officers provided mixed evidence on whether those officers believed such a culture was being created.[54] Potential questions for Congress include the following:

- What steps have been taken, or are planned, to promote a culture of innovation among DOD personnel to support transformation?

- What incentives are in place, or will be in place, to reward the generation of innovative ideas? What additional incentives are required?

- What actions have been taken, or will be taken, to ensure that personnel who propose innovative ideas will not be penalized when those ideas are rejected or are disproved in experiments and exercises?

- What provisions does the Administration's approach to transformation have for maintaining and protecting in-house contrarian thinkers — what might be called "members of the loyal opposition" — whose transformation ideas, though rejected or disproved in experiments and exercises, might one day, under different circumstances, prove useful?

- What changes, if any, to officer education and officer career paths are needed to promote a culture of innovation? How many of these changes have been made? Of those that haven't, how many would require legislation to implement?

- What evidence is there that a culture of innovation is taking root? In what ways has the Administration's transformation plan been altered by innovative ideas generated by officers who are not in offices, such as OFT, that are directly responsible for guiding or administering transformation efforts?[55]

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[53] This refers to an inclination to be uninterested, or hostile to, in ideas that come from outside one's own organization.

[54] Thomas G. Mahnken and James R. FitzSimonds, *The Limits of Transformation: Officer Attitudes Toward the Revolution in Military Affairs,* Newport Paper #17, (Newport: Naval War College, 2003). See also Gordon Lubold, "Survey Shows Many Officers Skeptical Of Transformation," *Marine Corps Times*, November 24, 2003, p. 22.) See also Thomas E. Ricks, "A Test Case For Bush's Military Reform Pledge?" *Washington Post*, February 20, 2002, p. 13.

[55] For additional discussion, see Johnson, Edgar M. *Workshop Introducing Innovation and Risk: Implications of Transforming the Culture of DOD*. Washington, 2004, 35 pp.

Potential Implications for Congressional Oversight of DOD

A third potential issue for Congress concerns the implications of defense transformation for congressional oversight of DOD activities. Potential areas of focus include organizational issues, sufficiency of information and metrics for assessment, oversight of weapons acquisition, the Administration's use of the concept of transformation in justifying its proposals to Congress, and potential Congressional initiatives on transformation.

Committee Organization. The concept of transformation can lead to new ways of examining defense issues. It can, for example, lead to a greater focus on examining issues from a joint rather than service-specific perspective, a greater focus on asymmetric as opposed to conventional military threats, or a greater focus on networks, sensors, and C4ISR equipment rather than individual military platforms such as aircraft, ships, and ground vehicles.

The defense oversight committees in recent years have responded to this situation by making certain changes in organization and activities. The Senate Armed Services Committee, for example, created a new subcommittee on emerging threats and capabilities, while the House Armed Services Committee created a new subcommittee on terrorism, unconventional threats and capabilities. The committees have shifted staff assignments and hired new staff to increase their ability to conduct oversight of transformation-related topics such as C4ISR programs. And the committees have held a number of hearings on transformation and transformation-related topics. A potential question for Congress at this point is whether any further organizational changes are needed to improve the ability of the defense-oversight committees to incorporate the concept of transformation into congressional oversight of DOD activities.

Adequacy of Information and Metrics for Assessment. Transformation is a broad topic with many elements subject to frequent change and development. In addition, measuring progress in attaining transformation can be a complex undertaking. Transformation thus raises a potential issue as to whether Congress has adequate information and tools for assessing DOD's progress in implementing transformation. Potential questions for Congress on this issue include the following:

- Are the defense budget and related budget-justification documents that are submitted to Congress adequately organized and presented to support the incorporation of the concept of transformation into Congress's review of the budget? If not, in what ways should the organization and content of the budget and the budget-justification documents be changed?

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[55] (...continued)
(Institute for Defense Analyses, March 2004)

- Does DOD provide Congress with sufficiently detailed and periodic information about the status of DOD transformation efforts to support congressional oversight of these efforts? Should Congress, for example, require DOD to submit periodic reports on the status of transformation in general, or of specific aspects of transformation?

- Does Congress have adequate metrics for measuring military capability in light of transformation-related changes, such as NCW, or for assessing DOD's success in implementing transformation?

Oversight of Weapons Acquisition. As mentioned earlier, the administration, as part of its efforts in support of transformation, has revised the regulations governing the acquisition of new weapons and systems with the aim of saving money and reducing acquisition cycle time. Key among the changes implemented by DOD is evolutionary acquisition with spiral development (EA/SD), which DOD has identified as its new preferred acquisition strategy.

Although the overall goal of EA/SD — to make the acquisition system more responsive to rapid changes in threats, technology, and warfighter needs — is widely supported (as discussed in more detail in CRS Report RS21195, *Evolutionary Acquisition and Spiral Development in DOD Programs: Policy Issues for Congress*, by Gary J. Pagliano and Ronald O'Rourke), EA/SD poses potentially significant issues for congressional oversight, particularly for newly initiated weapon acquisition programs, in three areas:

- **Ambiguous initial program description.** Programs initiated under EA/SD may not be well defined at the outset in terms of system design, quantities to be procured, development and procurement costs, and program schedule. These are key program characteristics that Congress in the past has wanted to understand in some detail before deciding whether to approve the start of a new weapon acquisition program. EA/SD can thus put Congress in the position of deciding whether to approve the start of a new a program with less information than it has had in the past.

- **Lack of well-defined benchmarks.** A corollary to the above is that Congress may not, years later, have well-defined initial program benchmarks against which to measure the performance of the military service managing the program or the contractor.

- **Funding projections potentially more volatile.** Although projections of future funding requirements for weapons acquisition programs are subject to change for various reasons, funding projections for EA/SD programs may be subject to even greater volatility due to each program's inherent potential for repeated refinements in performance requirements or technical approaches. As a result, any long-range projections of future funding requirements for EA/SD programs may be even less reliable than projections for systems pursued under the traditional DOD acquisition approach.

Supporters of EA/SD argue that it can improve congressional oversight of DOD weapon acquisition programs because the information that DOD provides for a given program will focus on the specific part of the program that is proposed for development over the next few years. This information, they argue, will be more reliable — and thus better for Congress to use in conducting its oversight role — than the kind of long-range information that used to be provided under the traditional DOD acquisition approach. Skeptics of EA/SD, however, could argue that it has the potential for drawing Congress into programs to a point where extrication becomes difficult if not impossible, and without a clear idea of a program's ultimate objectives. Skeptics could also argue that a lack of long-term cost and performance projections makes it more difficult to assess potential long-term affordability and cost effectiveness.

Potential questions for Congress and DOD regarding congressional oversight of EA/SD programs include the following:

- What might be the impact on both congressional approval of new weapon acquisition programs and subsequent congressional oversight of those programs, of having limited initial detail in terms of system design, quantities to be procured, procurement schedules, and total costs?

- How might congressional oversight of weapon development programs be affected if program information with longer time horizons but potentially less reliability is exchanged for program information with potentially greater short-term reliability — but without previously available, if imperfect, estimates of full program costs?

- To what extent might DOD's new preference for EA/SD be influenced, as some critics contend, by the knowledge that it might relieve DOD of the responsibility for providing specific answers to congressional questions regarding system architecture, effectiveness, time lines, long-term strategic implications and cost?

Transformation As All-Purpose Justification Tool. Some observers are concerned that the Administration's regular (some might even say habitual) use of the term transformation in discussing its proposals for DOD during the period 2001-2004 turned the concept of transformation into an empty slogan or buzz-phrase. Other observers are concerned that the Administration has invoked the term transformation as an all-purpose rhetorical tool for justifying its various proposals for DOD, whether they relate to transformation or not, and for encouraging minimal debate on those proposals by tying the concept of transformation to the urgent need to fight the war on terrorism.

Concerns along these lines were heightened by the "Defense Transformation for the 21st Century Act of 2003," a 205-page legislative proposal that the Administration submitted to Congress on April 10, 2003, that would, among other things, permit DOD to establish its own policies for hiring, firing, and compensating its civil service

employees; change the terms in office for certain senior generals and admirals; give DOD increased authority to transfer funds between DOD budget accounts; alter laws relating to the protection of marine mammals; and eliminate many DOD reporting requirements that were instituted to assist Congress in conducting oversight of DOD activities.[56]

Potential oversight questions for Congress relating to the Administration's use of transformation in justifying its proposals for DOD include the following:

- Has the Administration debased the concept of transformation through overuse?

- Has the Administration, in justifying its proposals for DOD, drawn adequate distinctions between proposals that are transformational and proposals that are not transformational but might nevertheless be worthwhile for other reasons?

- Has the Administration used the term transformation in part to cloud potential issues pertaining to its proposals for DOD or to minimize congressional debate on those proposals?

- Has the Administration used the large, complex, and somewhat abstract topic of transformation in part to occupy Congress's attention and thereby distract Congress from conducting detailed oversight on DOD's proposed budgets, or to keep Congress off balance as it attempts to conduct oversight of DOD activities?

Congressional Transformation Initiatives. In addition to responding to DOD proposals for transformation, Congress may consider the option of instituting its transformation initiatives not proposed by DOD. As mentioned in the background section, Congress in the past has initiated changes that can be viewed as transformational that were not originally proposed by DOD. Potential questions for Congress in connection with potential new congressional transformation initiatives include the following:

- Are there any potentially worthy areas of transformation, or ideas or proposals for transformation, that DOD has overlooked or paid too little attention to in its transformation planning?

- Are there any DOD goals for transformation that Congress should consider expanding or accelerating?

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[56] See, for example, John M. Donnelly, "Hill Rebuffing Rumsfeld Plan To Kill Reports To Congress," *Defense Week Daily Update*, May 15, 2003; John Liang, "House Democrats Object To DoD Transformation Legislation," *InsideDefense.com*, May 14, 2003; William Matthews and Gopal Ratnam, "Transformation Act Draws U.S. Lawmakers' Fire," *DefenseNews*, May 5, 2003, p. 1; and Lawrence Korb, "Pentagon Independence," *DefenseNews*, June 2, 2003, p. 29. For more on this proposed leguislative package, see CRS Report RL31916, *Defense Department Original Transformation Proposal: Compared to Existing Law*, by Robert L. Goldich, et al.