

CRS Issue Brief for Congress

Received through the CRS Web

Defense Research: DOD's Research, Development, Test and Evaluation Program

Updated November 8, 2001

John D. Moteff
Resources, Science, and Industry Division

CONTENTS

SUMMARY

MOST RECENT DEVELOPMENTS

BACKGROUND AND ANALYSIS

Total RDT&E Budget

Science and Technology Funding

Ballistic Missile Defense

Other Issues

Transformation:

Transitioning Technology:

Air Force S&T:

Funding Tables

LEGISLATION

FOR ADDITIONAL READING

Defense Research: DOD's Research, Development, Test and Evaluation Program

SUMMARY

On June 27, the Bush Administration released an amended FY2002 budget for the Department of Defense (DOD). The amended budget requests a total of \$328.9 billion for DOD, an additional \$18.4 billion above the Administration's "Blueprint" budget released in April. The amended budget included an additional \$5.6 billion for DOD's Research, Development, Test and Evaluation (RDT&E) program. This raises the FY2002 RDT&E request to \$47.4 billion, \$6.3 billion above the total obligational authority available for RDT&E in FY2001.

Much of the additional RDT&E funding in the amended budget was directed toward ballistic missile defense. The request for ballistic missile defense RDT&E rose to \$7.6 billion. Total obligational authority available for ballistic missile defense RDT&E in FY2001 is \$4.3 billion.

While the amended budget raised the request for total RDT&E, it lowered the request for the Science and Technology (S&T) portion of the budget to \$8.8 billion. The "Blueprint" budget requested \$9.1 billion. The amended request is below the \$9.0 billion in total obligational authority available for S&T in FY2001, but is about \$800 million above the target (2 percent real growth) set by Congress in the FY1999 defense authorization bill.

The House and Senate have approved their respective defense authorization bills (H.R. 2586/H.Rept. 107-194 and S. 1438/S.Rept. 107-62, respectively). The House Armed Services Committee had recommended \$47.7 billion for RDT&E (\$9.1 billion for S&T). The House voted to reallocate \$400 million to anti-terrorism activities, with \$265 million in offsets coming from ballistic missile defense RDT&E. The Senate Armed Services Committee had recommended \$46.6 billion for RDT&E (\$9.0 billion for S&T), including a reduction in the ballistic missile defense request of \$1.3 billion. The Senate, however, voted to restore the \$1.3 billion for ballistic missile defense and/or anti-terrorism activities.

RDT&E is unlikely to receive much if any of the \$40 billion emergency supplemental (H.R. 2888/P.L.107-38) passed and signed into law following the September 11 terrorist attacks. The Administration may still come back with another amended FY2002 budget request or Congress may try to pass another emergency supplemental.

The House Appropriations Committee approved its defense appropriations bill on October 24. The bill is awaiting a number and its report has not yet been filed. The committee approved \$48.6 billion for RDT&E, with S&T receiving \$9.7 billion.

MOST RECENT DEVELOPMENTS

The House Appropriations Committee approved its defense appropriations bill on October 24. The bill awaits a number and the report has not yet been filed.

BACKGROUND AND ANALYSIS

Congress supports the research and development efforts of the Department of Defense (DOD) with a Research, Development, Test and Evaluation (RDT&E) appropriation. The appropriation primarily supports the development of the nation's future military hardware and software and the technology base upon which those products rely. It is the federal government's single largest research and development account. Besides supporting the nation's military needs, some of the technology developed with RDT&E funds spills over into the commercial sector. For these reasons, RDT&E funding draws a considerable amount of attention within Congress each year.

During the Clinton Administration's tenure, Congress appropriated between \$34 billion and \$41 billion a year in RDT&E funding. Almost 80% of the RDT&E funding goes toward the development and demonstration of operational military hardware, software, and products. The rest, between \$7 billion and \$8 billion (almost \$9 billion in FY2001), goes toward basic research and more fundamental technology development and demonstration, referred to as the Science and Technology (S&T) program.

Most of the RDT&E appropriation is provided for in Title IV of the defense appropriations bills. However, over the last couple years, Congress has also provided RDT&E funds separately in two other accounts: the Defense Health Program and the Army's Chemical Agents and Munitions Destruction Program. The Defense Health Program supports a wide range of activities, including research in areas such as breast and prostate cancer. While this issue brief will track RDT&E funding for these two activities, most of the focus of the issue brief will be on those RDT&E funds provided in Title IV. This year, the House Appropriations Committee has recommended transferring some RDT&E programs from Title IV to a new Title IX called Counter-Terrorism and Defense Against Weapons of Mass Destruction. The issue brief will track this development as well.

Every year, Congress must review and approve or revise how much money the Administration requests in RDT&E funding and how that money is allocated. This issue brief tracks the evolution of the RDT&E budget from the Administration's budget request through Congress's final authorization and appropriation (see **Table 2**), and discusses key issues that arise.

Funding data presented in this issue brief are expressed as total obligational authority (TOA), except where noted otherwise. Total obligational authority is a budget concept used by DOD that represents the value of the direct Defense program for a fiscal year. It is equivalent to the sum of all budget authority granted by Congress, plus amounts from other sources authorized to be credited to certain accounts, plus unobligated balances of funds from prior years which remain available for obligation. Rescissions, transfers and other budget modifications affect TOA and budget authority (BA) differently. Therefore, TOA and BA

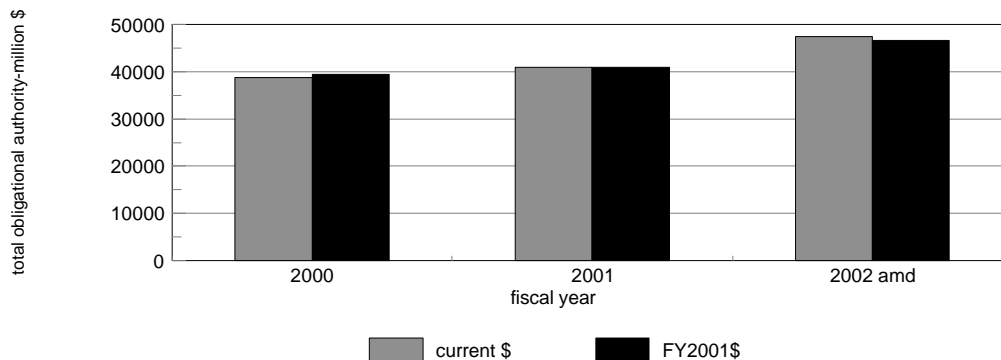
differ by a few tens of millions of dollars when examining past year funding levels. Budget requests are in terms of budget authority. Congress authorizes and appropriates budget authority. However, funding data for individual program elements and cumulative RDT&E budget activities in DOD’s R-1 document (used by this issue brief as the primary source of budget data in **Tables 1 and 2**) are reported as TOA. To remain consistent, all data in this brief are expressed as TOA, except where noted. It should be noted that in the current year (in this case FY2002) BA and TOA are the same. Differences occur only when considering past year activities.

For a general discussion of the fundamental principles and concepts of the RDT&E account, as well as long term budget trends and recurring issues, the reader is referred to CRS Report 97-316 SPR, *The Department of Defense’s Research, Development, Test and Evaluation Program: A Primer*. For a general discussion of the basics of the overall defense budget, the reader is referred to CRS Report RL30002, *A Defense Budget Primer*. For a discussion of the defense appropriations bills in their entirety as they progress through the House, Senate, and conference, the reader is referred to CRS Appropriations Report RL31005, *Appropriations and Authorization for FY2002: Defense*.

Total RDT&E Budget

The Bush Administration’s amended FY2002 budget for the Department of Defense (DOD) requested \$47.4 billion in Title IV RDT&E funding for FY2002. This is \$5.6 billion more than the Administration’s earlier “Blueprint” request (released in April) and is \$6.4 billion more than the total obligational authority available for RDT&E in FY2001 and about \$8.7 billion more than the funding available for RDT&E in FY2000. See **Figure 1**. The Bush Administration will wait until next year to produce a multi-year budget plan for the Department of Defense. However, it has stated that it would like to spend \$20 billion more on research and development over the next 5 years than what the Clinton Administration had budgeted.

Figure 1. RDT&E (Title IV) Funding

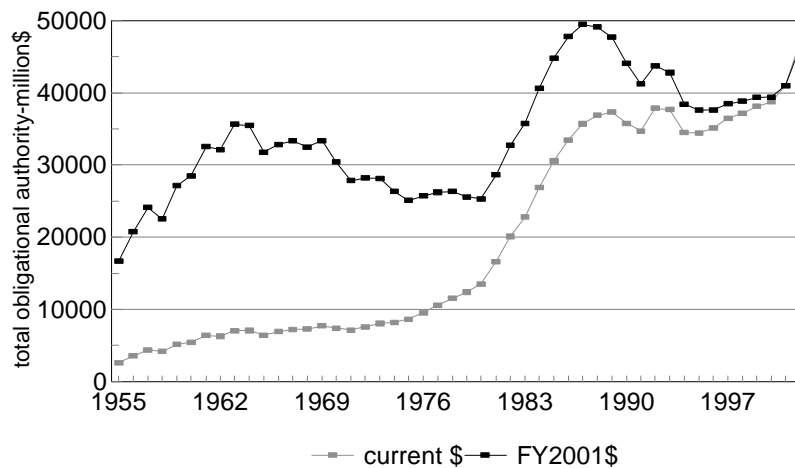


In addition to the \$47.4 billion in Title IV RDT&E funding, the Bush Administration also requested RDT&E funds for the Defense Health Program (\$65.3 million) and the Army’s Chemical Agents and Munitions Destruction Program (\$157 million). In FY2001, these

programs received \$412 million and \$274 million, respectively. The Defense Health Program supports a wide range of medical activities and services. The program expends Operational and Maintenance, Procurement, and RDT&E funds. The separate RDT&E account within the Defense Health Program was initiated by Congress in the FY1999 Defense Appropriation Act to help centralize medical research of relevance to DOD. Funds support research in areas such as breast cancer and prostate cancer, but Congress has suggested that a broad range of research should be considered from smoking cessation to eye injuries due to lasers. The Clinton Administration had requested \$66 million for the program in FY2001. The first Bush budget requested \$421 million, reflecting a “current services” approach at that time. The amended budget request reduced that to \$65.3 million, much of which is focused on information and management technology.

Historically, RDT&E funding peaked in constant dollars in FY1987, declining over the next 8 years. Funding leveled off in FY1995 and FY1996 before beginning to rise again, due primarily to Congress appropriating more than what the Clinton Administration had requested (**Figure 2**). The amended FY2002 request approaches the highest levels of funding achieved in FY1987.

Figure 2. RDT&E Funding Trend



In the past, the ability of Congress to increase RDT&E funding was constrained by the 1997 budget agreement which had set caps on defense spending. Increases in RDT&E had to come at the expense of other Department of Defense programs, or be declared as emergency spending. FY2000 was the first year Congress could increase defense spending above the agreement’s caps by offsetting those increases with decreases in other non-defense discretionary programs. The constraint of budget caps subsided with the prospect of future budget surpluses and DOD’s budget, including RDT&E, has grown without the need to offset the increases. The Bush Administration has indicated its intention to provide even larger increases in defense spending and RDT&E. Prior to the September 11, terrorist attacks at the World Trade Center and the Pentagon, and faced with declining surpluses in the future, the ability to sustain the growth in RDT&E was a matter of some debate. Declining surpluses now do not appear to be an issue as Members have expressed a willingness to provide the necessary funding to meet the terrorist challenge. Even so, RDT&E must always compete

with other priorities within the DOD budget, including quality of life, readiness, and now even more so than before, operations.

The House Armed Services Committee recommended (H.Rept. 107-194) increasing RDT&E to \$47.7 billion. The full House, however, voted to reallocate \$265 million from national missile defense RDT&E to support additional activities to combat terrorism (H. Amdt 318, approved Sept., 25).

The Senate passed its defense authorization (S.Rept. 107-62) on October 2, increasing RDT&E funding to \$46.6 billion. This is approximately \$800 million below the Administration's request, primarily due to large recommended cuts (\$1.3 billion) in the Administration's ballistic missile defense RDT&E request. However, on the floor, the Senate voted to reinstate the \$1.3 billion and allow the President to designate it for ballistic missile defense and/or anti-terrorism activities. Other floor action resulted in some minor shifts in funding into and out of the RDT&E account.

The House Appropriations Committee approved its defense appropriations bill on October 24. The bill is awaiting a number and its report is not yet filed. The Committee recommended \$48.6 billion for RDT&E. This includes RDT&E in Title IV and RDT&E in a newly established Title IX. For more discussion of the establishment of this new Title, see **Other Issues**. The Committee also recommended increasing the RDT&E portion of the Defense Health Program by \$357 million; \$295 million of that would go to the Congressionally mandated programs in breast cancer, prostate cancer, and HIV/Aids research. The Committee recommended \$200 million for Chemical Agents and Munitions Destruction RDT&E.

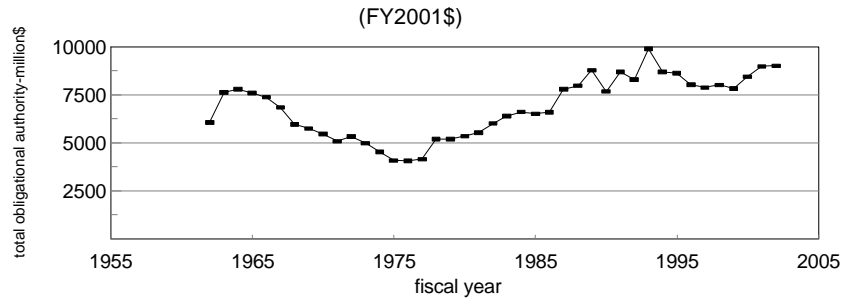
Science and Technology Funding

DOD's RDT&E budget supports a wide range of activities, from basic research (e.g., atmospheric sciences) to the full scale development of large military systems (e.g., the F-22 fighter). The RDT&E budget is accordingly divided into seven budget activities: basic research, applied research, advanced technology development, demonstration and validation, engineering and manufacturing development, management support, and operational systems development. DOD has designated these activities as 6.1 through 6.7, respectively (see **Tables 1 and 2** at the end of this issue brief).

Basic research (6.1), applied research (6.2), and advanced technology development (6.3) together are referred to as DOD's Science and Technology (S&T) program. S&T projects seek new ways of accomplishing tasks of military value and the underlying scientific and engineering principles involved. S&T projects are not directed at developing specific operational weapon systems, although they may support such development by solving specific problems. Many of the weapon systems used with such effectiveness in the Gulf War can trace their origins to earlier S&T projects. Besides developing the technology base upon which future weapons systems rely, S&T programs (primarily 6.1 projects) support the future manpower expertise the DOD relies upon. A large share of university research in certain scientific and engineering disciplines (e.g. materials engineering and math) is supported by the S&T program (especially 6.1 programs).

S&T funding has followed a slightly different trend than overall RDT&E funding (see **Figure 3**). As total defense (and total RDT&E) spending started to decline in the late 1980s, efforts were made to maintain S&T spending levels, especially 6.1 and 6.2 activities. And, in fact, funding for S&T oscillated but generally increased over the next 6 years. FY1993 S&T funding, impacted by the Gulf War, saw a sharp increase. After FY1993, S&T funding began to decline over the next 6 years, roughly back to FY1987 levels in constant FY2001

Figure 3. S&T Funding Trend



dollars. The downward trend after FY1993 raised some concern within the S&T community (including universities), especially since the Clinton Administration's multi-year budgets continued to estimate declining funds for S&T in the out-years.

In the last two years, Congressional action has essentially reversed the downward trend. In FY2000, Congress appropriated about \$1 billion more for S&T than what the Clinton Administration had requested and in FY2001 appropriated \$1.5 billion more than was requested (appropriating \$9.0 billion). The Bush Administration's amended budget is requesting \$8.8 billion for FY2002 (it had requested \$9.1 billion for S&T for FY2002 in its early budget).

Both the House and Senate Armed Services Committees recommended authorizing more S&T funding than requested by the Administration. The House Committee recommended \$9.1 billion for S&T, the Senate Committee recommended \$9.0 billion. While the Administration's request would reduce basic research \$13 million below FY2001 levels, both Committees recommended increasing basic research by \$2 million above FY2001 levels.

The House Appropriations Committee recommended \$9.7 billion for S&T, including \$54 million more for basic research than what the Administration requested. However, this figure does not take into account a number general reductions (see **Table 2**, footnote "d"), which the Committee also recommended.

Assuring adequate support for S&T activities is seen by some in the defense community as imperative to maintaining U.S. military superiority. But, because the time between specific S&T projects and successful new operational systems is long and unpredictable, and because it is difficult to calculate a return on investment for the S&T program as a whole, it is difficult to determine what is a sufficient investment. There is concern in the S&T community that support within Congress and within DOD's own acquisition community may wane when

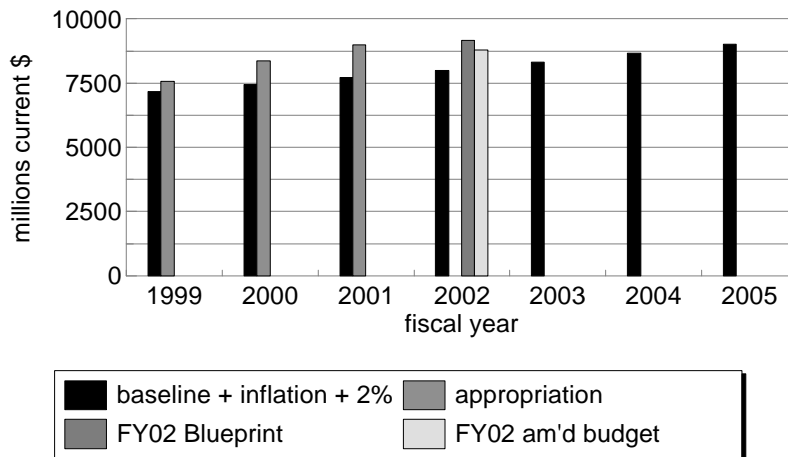
faced with competing budgetary demands. They viewed the decline in S&T funding after FY1993 as a sign that DOD was under-investing in S&T.

The FY1999 defense authorization bill (P.L. 105-261, H.R. 3616, Section 214) expressed the sense of Congress that S&T funding between FY2000 and FY2008 should increase no less than 2% above inflation per year, using the FY1999 request as the baseline. The Clinton Administration’s subsequent budgets made an effort to meet these goals in the budgets’ current year, but were never able to sustain the commitment into the out-years.

The \$9.0 billion appropriated by Congress for FY2001 for S&T went well above the stated goal of 2% plus inflation. The Bush Administration’s amended FY2002 request for S&T, although less than what was appropriated last year, remained above the goal (see **Figure 4**).

How much should DOD spend on S&T? The 2% plus inflation goal established by

Figure 4. Inflation+2% vs. Appropriations/Budget



Congress is essentially an arbitrary target. In May 1998, the Defense Science Board (DSB) released a report that looked at how firms in several technologically sophisticated industries decide how much to spend on research. The Board found that firms do not typically go through an objective analytical process to determine how much to spend. Instead firms rely more on heuristic rules of thumb that consider other investment needs, competitive pressures, etc. The result of those deliberations is generally characterized in terms of investment as a percent of sales. Using the pharmaceutical industry, which boasts the highest commercial investment in research as percent of sales, as a guide and drawing an analogy between sales revenue in that industry and DOD’s total budget, the Board suggested that DOD spend at least \$8 billion on S&T (that would be about \$8.3 billion in FY2001 dollars). As discussed above, Congress appropriated \$9.0 billion in FY2001.

The DSB report argued that the pharmaceutical industry is an appropriate model for deciding how much DOD should spend on S&T because it is considered a high technology industry and that the competitiveness of firms depends on the ability to develop new products. But comparisons stopped there and the analogy may be inadequate. For example, the

pharmaceutical industry is primarily manufacturing oriented and revenues are generated on the sale of products. A large part of DOD's mission and budget could be considered service oriented. If the pharmaceutical industry were also involved in delivery of services, would its investment in research as a percentage of sales still be as high? Perhaps only that part of DOD's budget devoted to acquisition should be used as an analog to pharmaceutical revenues. Also, the DSB report chose not to consider as part of DOD's current investment the amount DOD reimburses private contractors for independent research and development (IR&D). In 1997 (the last year for which figures were kept), DOD allowed defense contractors to claim \$2.7 billion in IR&D expenses considered relevant to DOD's needs. The DSB report suggested that this should not be considered since the results of this research are not held solely by DOD. Nor did the DSB report make any allowance for the fact that the United States already significantly outspends its competitors (i.e. foreign governments) in defense research.

In testimony before the Senate Armed Services Committee (June 5), recently appointed Under Secretary of Defense for Acquisition, Technology, and Logistics Pete Aldridge suggested that S&T should receive between 2.5 percent and 3 percent of DOD's total budget; again, based loosely on what certain high technology sectors of private industry invests. Given this year's amended total DOD budget, the Under Secretary suggests S&T should fall between \$8.2 billion to \$9.8 billion. In June a bipartisan group of senators also wrote a letter to the Senate defense subcommittee chairman supporting an increase of S&T funding to \$10 billion. That is a similar amount endorsed by a group called the Coalition for National Security Research.

Ballistic Missile Defense

The Bush Administration has proposed major changes in the structure, funding, and acquisition strategy for ballistic missile defense. For a more thorough discussion of BMD policies and issues, see **For Additional Reading** for other CRS products on the topic.

The Administration has proposed reducing the number of program elements associated with the program as well as doing away with programmatic distinctions between theater and national missile defenses. RDT&E program elements are now divided into boost, midcourse, and terminal segments (along with system integration, etc.). The Administration also envisions that theater and national systems will be melded into an integrated global system. Also, rather than follow a tradition acquisition approach, where a program heads toward a definitive system architecture designed to meet specific performance criteria, the Administration is proposing a new evolutionary approach where the overall system architecture cannot be determined ahead of time but will evolve as new elements contributing to the global capabilities are brought on line. Finally, the Administration has promised to increase greatly the amount of funding devoted to ballistic missile defense RDT&E.

In its amended budget request, the Administration requested \$7.6 billion for ballistic missile defense RDT&E. That includes \$7.0 billion for RDT&E within BMDO, \$107 for continued Patriot PAC-3 RDT&E, \$74 million for MEADS RDT&E (both of which the Administration would like to transfer to the Army), and \$388 million for the Navy Area Defense program (which the Administration would like to transfer to the Navy).

Since 1984, the country has been spending an average of \$3.2 billion a year on BMD research and development. For FY 2001, Congress appropriated \$4.3 billion.

The House Armed Services Committee recommended authorizing \$7.5 billion for ballistic missile defense. However, this includes transferring back to BMDO the PAC-3, MEADS, and Navy Area Defense programs. The Committee trimmed funding from the BMDO's requests. In addition, the full House voted (September 25, H. Amdt. 318) to reallocate \$400 million toward anti-terrorism activities, offsetting \$265 million of this with additional cuts in ballistic missile defense RDT&E; \$145 million more from the mid-course segment of the program and \$120 million more from the boost phase segment. The other \$135 million in offsets were taken from contractor funds in the Defensewide Operations and Maintenance account.

The Senate Armed Services Committee recommended cutting the Administration's BMDO's ballistic missile defense RDT&E request by \$1.3 billion and reallocated those funds to other priorities. Most of the cuts were made in midcourse projects. However, the full Senate voted (September 25, S. Amdt. 1598) to restore the \$1.3 billion, which can be allocated either to ballistic missile defense or to anti-terrorism activities. Offsets are still to be determined. The Senate approved of the Administration's request for PAC-3, Meads, and Navy Area Defense and their transfer to the Services.

The House Appropriations Committee recommended \$7.1 billion for ballistic missile defense RDT&E. Like the House Armed Services Committee, this includes the funds for programs the Administration wanted to transfer to the Services (i.e. Patriot to the Army and Navy Area Wide to the Navy). In addition, the Committee expressed its concern regarding lumping all systems within just a few program elements. The Committee stated that any system reaching engineering and manufacturing development must have its own program element, be designated as an acquisition program, and follow the acquisition Milestone requirements. Also, the Committee stated that it wanted more information in the budget justification documents, including the type of information (architecture, schedules, etc.) the Administration is suggesting it would like to avoid committing to in its new evolutionary acquisition strategy.

Other Issues

Transformation: There has been some debate over the last few years about the need to balance investments (including RDT&E resources) between the development and acquisition of technologies needed to meet future non-traditional threats that the United States, according to many analysts, is likely to see and the continued development of more traditional "legacy" systems designed to meet more traditionally perceived threats. New threats include state and non-state actors using asymmetrical means (chemical, biological, nuclear, cyber attacks by small and highly mobile units) to attack U.S. forces and interests. Traditional threats include masses of armor, artillery, infantry, sea, and air forces arrayed against U.S. forces in a clearly defined battlespace. The Bush Administration has stated that it intends to accelerate the "transformation" of U.S. forces to meet the perceived new threats. Much of the additional investment in RDT&E to be sought by the Administration is to be directed to this goal. Following the September 11 terrorist attacks and the subsequent

anthrax attacks, the balance appears to be tipping toward what has been called “transformation” efforts.

The House Armed Services Committee sought to accelerate transformation investments more by recommending a reallocation of \$1.2 billion away from research in more traditional systems to more fundamental research into technologies associated with defending against non-traditional threats. Many of the proposed cuts were made to operational systems development (6.7) program elements. The Senate Armed Services did not make similar recommendations.

The House Appropriations Committee has recommended establishing a new Title (Title IX) within the appropriations bill to allow for greater visibility and oversight of DOD’s transformation efforts. The new Title IX, called Counter-terrorism and Defense Against Weapons of Mass Destruction, consolidates a number of high profile Defense-wide programs, which the Committee felt are relevant to the transformation. These programs include both procurement and RDT&E in the Ballistic Missile Defense Program, the Cooperative Threat Reduction Program, the Chemical and Biological Defense Program (including DARPA’s Biological Warfare Defense Program), and the Defense Threat Reduction Program.

In addition, the Committee recommended establishing a \$1.7 billion Counter-terrorism and Operational Response Transfer Fund in Title IX. The Fund represents additional DOD funding above the levels requested by the President. The Fund would act like the Overseas Contingency Operations Transfer Account, and allow the Secretary of Defense and the Director of Central Intelligence to accelerate investments in the war against terrorism. Activities include those that would enhance intelligence and military capabilities to infiltrate and deter terrorist groups and protect against terrorist attacks. Of the \$1.7 billion, \$749 million are to be allocated to a variety of programs in chemical and biological defense and information assurance programs, \$255 million of which goes to specific RDT&E programs (\$154 million to chemical and biological defense and \$101 million to information assurance RDT&E programs).

Transitioning Technology: Both the House and Senate Armed Services Committee talk about the continuing need to find ways to accelerate the transition of new technologies into the field. The House Committee, besides increasing the funding request for program elements that support this goal within each of the Services, also proposed the establishment of a “Challenge Program.” The Challenge Program would provide individuals or activities within or outside of DOD the opportunity to propose alternative products at the component, subsystem, and system level of an existing acquisition program that would improve the performance of the program. The Committee recommended authorizing \$40 million to start this program.

The Senate Committee recommended that the Secretary designate a senior advocate for technology transition (a Technology Transition Initiative Manager), to establish memoranda of understanding and other joint funding or cooperative agreements that facilitate technology transition, and to establish a technology transition fund similar to the Army’s Warfighter Rapid Acquisition Program.

Air Force S&T: Congress has been particularly concerned about the level of Air Force S&T over the last few years. In FY1989, the Air Force outspent the other Services on S&T.

In FY2000, it was outspent by the other Services. Both the House and the Senate have expressed concern about the relative decline in Air Force S&T budget requests and some of the program cuts the Air Force has had to make as a result. This year the House approved an amendment expressing the sense of Congress that the Air Force ensure that S&T is adequately represented at all steps of the budgetary process and to elevate the advocacy of S&T within the Service.

Funding Tables

Table 1. Department of Defense RDT&E

(\$ millions)

	FY1999	FY2000	FY2001 est. ^c	FY2002 amended request
Accounts				
Army	5,031	5,314	6,280	6,694
Navy	8,942	9,065	9,458	11,123
Air Force	13,732	14,527	13,993	14,344
Defense Agencies	10,093	9,551	11,053	15,051
(DARPA)	(1,888)	(1,850)	(2,010)	(2,281)
(BMDO ^a)	(3,910)	(3,457)	(4,204)	(7,036)
Dir. Test & Eval	258	265		
Dir. Op. Test/Eval	47	31	225	217
Total Ob. Auth.	\$38,103	\$38,753	\$41,009	\$47,429
Budget Activity				
Basic Research	1,063	1,139	1,317	1,304
Applied Res.	3,057	3,409	3,676	3,659
Advanced Dev.	3,453	3,789	4,000	3,815
Demonstr./Valid.	7,364	6,514	7,830	11,381
Engrg/Mftg. Dev.	7,646	8,879	8,735	10,249
Mgmt. Support ^b	2,553	3,076	2,634	3,003
Op. Systems Dev.	11,967	11,947	12,816	14,235
Total Ob. Auth.	\$38,103	\$38,753	\$41,008	\$47,429
Other Defense Programs				
Defense Health Program	38	295	412	65
Chemical Agents and Munitions Destruction	171	292	274	157

Source: FY2000 to FY2002 figures based on Department of Defense Amended Budget, Fiscal Year 2002 RDT&E Programs (R-1), June 2001 as modified July 2, 2001. FY1999 figures come from Department of Defense Budget for Fiscal Year 2000, RDT&E Programs (R-1), February 2000. Totals may not add due to rounding.

a. Includes only BMD RDT&E. Does not include procurement and military construction.

b. Includes funds for Developmental and Operational Test and Evaluation.

c. Does not include rescissions and supplemental funding associated with the 2001 Supplemental Appropriations Act (P.L.107-20).

Table 2. Department of Defense RDT&E
(\$ millions)

	FY2002 amended request	House Auth. (H.R. 2586) ^c	Senate Auth. (S. 1416)	House Apprn.	Senate Apprn.	Apprn. Conf.
Accounts						
Army	6,694	6,749	6,899	7,115	–	–
Navy	11,123	10,863	11,136	10,896	–	–
Air Force	14,344	14,456	14,481	14,884	–	–
Defense Agencies	15,051	15,375	13,878	15,438	–	–
(DARPA)	(2,281)	(2,157)	(2,308)	(2,206)	–	–
(BMDO ^a)	(7,036)	(7,471)	(5,741)	(7,054)	–	–
Dir. Test & Eval					–	–
Dir. Op. Test/Eval	217	217	221	245	–	–
Total Ob. Auth.	\$47,429	\$47,660	\$46,616^d	\$48,578	–	–
Budget Activity						
Basic Research (6.1)	1,304	1,319	1,319	1,358	–	–
Applied Res. (6.2)	3,659	3,655	3,775	3,948	–	–
Advanced Dev. (6.3)	3,815	4,093	3,889	4,383	–	–
Demonstr./Valid. (6.4)	11,381	11,767	10,192	11,341	–	–
Engrg/Mftg. Dev. (6.5)	10,249	9,870	10,042	10,030	–	–
Mgmt. Support ^b (6.6)	3,003	2,792	2,848	2,815	–	–
Op. Systems Dev. (6.7)	14,235	14,164	14,552	14,506	–	–
Total Ob. Auth.	\$47,429	\$47,660	\$46,616^d	\$48,383^e	–	–
Other Defense Programs						
Defense Health Program	65	65	–	423	–	–
Chemical Agents and Munitions Destruction	157	193	200	200	–	–

Source: Department of Defense Amended Budget Request, Fiscal Year 2002 R-1, June 2001, as modified July 2, 2001.

- a. Includes only BMD RDT&E. Does not include procurement and military construction.
- b. Includes funds for Developmental and Operational Test and Evaluation.
- c. Does not include floor action taken on Sept. 25, H. Amdt. 318, reducing ballistic missile defense RDT&E by \$265 million.
- d. Does not include Senate floor action on this bill, including the \$1.3 billion made available for ballistic missile defense and/or anti-terrorism activities.
- e. Does not include \$20 million in reductions to each account for joint DOE research, nor a \$39 million reduction for waiving SBIR-related legislation, P.L.102-564, nor the \$255 million increase in RDT&E associated with the Counter-terrorism and Operational Response Transfer Fund.

LEGISLATION

H.R. 2586 (Stump)

National Defense Authorization Act for Fiscal Year 2002. Introduced July, 23. Reported (H.Rept. 107-194) by the Armed Services Committee, September, 4. Approved by the House as amended, Sept. 25.

S. 14386 (Levin)

National Defense Authorization Act for Fiscal Year 2002. An original bill reported by the Senate Armed Service Committee, September, 12. Approved by the Senate, as amended, Oct. 2.

FOR ADDITIONAL READING

CRS Report 97-316 SPR, *The Department of Defense's Research, Development, Test, and Evaluation (RDT&E) Program: A Primer*, by John Moteff.

CRS Report RL30002, *A Defense Budget Primer*, by Mary Tyszkiewicz and Stephen Daggett.

CRS Report RL31005, *Appropriations and Authorizations for FY2002: Defense*, by Amy Belasco, Mary Tyszkiewicz and Stephen Daggett.

CRS Report RL31111, *Missile defense: the current debate*, coordinated by Steven A. Hildreth and Amy F. Woolf.

CRS Info Pack IP496B, *Ballistic Missile Defense*.