

Table I-1. R&D in the FY 2002 Budget by Agency

Table I-1. R&D in the FY 2002 Budget by Agency (REVISED July '01)

(budget authority in millions of dollars)

	FY 2000	FY 2001	FY 2002	Change FY 01-02	
	Actual	Estimate	Budget	Amount	Percent
TOTAL R&D (Conduct of R&D and R&D Facilities)					
Defense (military)	39,960	42,743	48,454	5,711	13.4%
<i>S&T (6.1-6.3 + medical)</i>	8,632	9,420	8,843	-577	-6.1%
<i>All Other DOD R&D</i>	31,328	33,324	39,611	6,287	18.9%
Health and Human Services	18,182	20,859	23,496	2,637	12.6%
<i>Nat'l Institutes of Health</i>	17,234	19,710	22,395	2,685	13.6%
NASA	9,494	9,925	9,967	41	0.4%
Energy	6,956	7,744	7,399	-346	-4.5%
Nat'l Science Foundation	2,931	3,279	3,226	-52	-1.6%
Agriculture	1,776	1,959	1,801	-158	-8.1%
Commerce	1,174	1,201	1,110	-91	-7.6%
<i>NOAA</i>	643	726	772	47	6.4%
<i>NIST</i>	471	421	313	-108	-25.7%
Interior	618	631	593	-39	-6.1%
Transportation	607	747	798	51	6.8%
Environ. Protection Agency	558	609	569	-40	-6.5%
Veterans Affairs	645	703	722	19	2.7%
Education	238	265	259	-6	-2.3%
Int'l Assistance Programs	200	216	206	-10	-4.6%
Smithsonian	114	118	118	0	0.0%
Labor	16	22	13	-9	-40.9%
Nuclear Reg. Comm.	53	50	67	17	34.0%
Corps of Engineers	48	60	46	-14	-23.3%
Housing and Urban Dev.	45	54	43	-11	-20.4%
Justice	73	90	74	-16	-17.8%
Social Security	25	42	42	0	0.0%
Postal Service	42	45	46	1	2.2%
Treasury	14	7	8	1	14.3%
Total R&D	83,769	91,371	99,057	7,686	8.4%
Defense R&D	43,161	46,243	51,996	5,753	12.4%
Nondefense R&D	40,608	45,128	47,061	1,933	4.3%

Source: AAAS, based on OMB data for R&D for FY 2002, agency budget justifications, and information from agency budget offices.

Note: The projected inflation rate between FY 2001 and FY 2002 is 2.1 percent.

Note: FY 2002 DOD figures revised to reflect amended FY 2002 budget request.

Table I-2. Distribution of the FY 2002 Budget

Table I-2. Distribution of the FY 2002 Budget
(outlays in billions of dollars)

	FY 2000	FY 2001	FY 2002	Change FY 01-02	
	Actual	Estimate	Budget	Amount	Percent
Discretionary					
Defense	295	300	319	20	6.5%
International	21	24	25	0	1.7%
Domestic	299	326	348	22	6.8%
Nondefense (Int'l + Dom.)	320	350	373	23	6.5%
TOTAL Discretionary	615	649	692	42	6.5%
Entitlements and Mandatory					
Social Security *	406	430	452	22	5.0%
Medicare *	194	216	226	10	4.8%
Medicaid	118	129	142	14	10.5%
Other Mandatory	275	273	310	37	13.4%
TOTAL Mandatory	993	1,048	1,130	82	7.8%
Net Interest	223	206	188	-18	-8.9%
Undistrib. Offsetting Receipts	-43	-48	-49	-2	3.6%
TOTAL Budget (Outlays)	1,789	1,856	1,961	104	5.6%
TOTAL Receipts	2,025	2,137	2,192	55	2.6%
Unified Surplus	237	281	231	-50	-17.6%
<i>On-budget surplus</i>	87	125	59	-65	-52.3%
<i>Off-budget surplus</i>	150	156	172	16	10.0%
Gross Domestic Product (GDP)	9,824	10,313	10,858	545	5.3%
Federal Budget as Percent of GDP	18.2%	18.0%	18.1%		

Source: Office of Management and Budget, *Budget of the U.S. Government FY 2002*.

Note: The projected inflation rate between FY 2001 and FY 2002 is 2.1 percent.

All figures are rounded to the nearest billion. Changes calculated from unrounded figures.

* Excludes administrative costs for these programs, which are classified as discretionary.

Table I-3. Historical Trends in R&D and Federal Outlays

**Table I-3. Historical Trends in R&D and Federal Outlays
(outlays in billions of dollars)**

	FY 1970 Actual	FY 1980 Actual	FY 1990 Actual	FY 2000 Actual	FY 2002 Budget
Composition of Federal Outlays (Current Dollars)					
Mandatory Programs *	61	262	568	951	1,081
Net Interest	14	53	184	223	188
Defense Discretionary	82	135	300	295	319
International Discretionary	4	13	19	21	25
Domestic Discretionary	34	129	181	299	348
TOTAL Federal Outlays	196	591	1,253	1,789	1,961
Federal R&D Outlays included:					
in Defense Discretionary	8	15	42	42	48
in International Discretionary	NA	0	0	0	0
in Domestic Discretionary	8	17	23	37	44
TOTAL R&D Outlays	16	32	65	79	92
Composition of Federal Outlays					
Mandatory Programs *	31.2%	44.4%	45.3%	53.1%	55.1%
Net Interest	7.4%	8.9%	14.7%	12.5%	9.6%
Defense Discretionary	41.8%	22.8%	23.9%	16.5%	16.3%
International Discretionary	2.0%	2.2%	1.5%	1.2%	1.2%
Domestic Discretionary	17.6%	21.8%	14.5%	16.7%	17.8%
TOTAL Federal Outlays	100.0%	100.0%	100.0%	100.0%	100.0%
Federal R&D Outlays as Percent of Discretionary Outlays ¹					
Defense	10.1%	11.1%	13.9%	14.1%	14.9%
International	NA	0.8%	2.1%	0.8%	0.7%
Domestic	21.8%	13.0%	12.8%	12.3%	12.7%
TOTAL R&D as % of total discr.	13.1%	11.5%	13.0%	12.8%	13.3%
Federal R&D Outlays as Percent of GDP					
Defense R&D	0.8%	0.5%	0.7%	0.4%	0.4%
Nondefense R&D ²	0.7%	0.6%	0.4%	0.4%	0.4%
TOTAL R&D	1.6%	1.2%	1.1%	0.8%	0.8%

Source: *Budget of the United States Government FY 2002, Historical Tables.*

NA = data not available. * - Net of offsetting receipts.

All figures are rounded to the nearest billion. Changes calculated from unrounded figures.

¹ R&D as a percent of its respective category (e.g., defense R&D as a percentage of defense discretionary).² Includes international and domestic R&D programs.

Table I-4. Major Functional Categories of R&D

Table I-4. Major Functional Categories of R&D (**REVISED July '01**)
(budget authority in millions of dollars)

	FY 2000 Actual	FY 2001 Estimate	FY 2002 Budget	Change FY 01-02 Amount	Percent	% of Total ('02)
Defense	43,161	46,243	51,996	5,753	12.4%	52.5%
Nondefense ²	40,608	45,128	47,061	1,933	4.3%	47.5%
Space	8,437	8,986	9,076	90	1.0%	9.2%
Health	18,758	21,506	24,173	2,667	12.4%	24.4%
Energy ³	1,146	1,340	994	-346	-25.8%	1.0%
General Science	5,593	6,234	6,156	-77	-1.2%	6.2%
Environment ⁴	2,082	2,272	2,230	-42	-1.9%	2.3%
Agriculture	1,561	1,713	1,551	-162	-9.4%	1.6%
Transportation	1,664	1,686	1,688	2	0.1%	1.7%
Commerce	530	475	337	-138	-29.1%	0.3%
International	200	216	206	-10	-4.6%	0.2%
All Other	637	700	649	-51	-7.3%	0.7%
Total R&D	83,769	91,371	99,057	7,686	8.4%	100.0%

Source: AAAS estimates based on data from OMB, agency budget justifications, and information from agency budget offices. Classifications generally follow the government's budget function categories except health (which here includes health R&D in HHS and VA).

² Includes all R&D not in defense.

³ Does not reflect actual or proposed deferrals of Clean Coal Technology BA.

⁴ Includes natural resources R&D.

**Revised July '01 to reflect amended FY 2002 DOD request and FY '01 supplemental
Please see Chapter 3 for a discussion of this table.**

Table I-5. R&D by Character of Work

Table I-5. R&D by Character of Work (REVISED July '01)

(budget authority in **billions** of dollars)

	FY 1980	FY 1990	FY 2000	FY 2002	% Share of Total		
	Actual	Actual	Actual	Budget	1980	1990	2002
Basic Research	4.7	11.3	22.0	23.3	14.2%	17.0%	23.5%
Applied Research	6.9	10.2	21.4	22.0	20.8%	15.3%	22.2%
Total Research	11.6	21.5	43.5	45.3	35.0%	32.3%	45.7%
Development	20.0	42.3	42.8	48.6	60.4%	63.7%	49.1%
Conduct of R&D	31.6	63.8	86.3	94.0	95.5%	96.0%	94.9%
R&D Facilities	1.5	2.6	5.1	5.1	4.5%	4.0%	5.1%
Total R&D	33.1	66.4	91.4	99.1	100.0%	100.0%	100.0%

Constant FY 2001 Dollars

Basic Research	9.2	14.3	22.5	22.8
Applied Research	13.5	12.9	21.9	21.6
Total Research	22.6	27.2	44.4	44.4
Development	39.0	53.7	43.8	47.6
Conduct of R&D	61.6	80.9	88.1	92.0
R&D Facilities	2.9	3.4	5.2	5.0
Total R&D	64.5	84.3	93.3	97.0

Source: OMB data for R&D for FY 2002, agency budget justifications, agency documents, *AAAS Report XVI* (1991), and *AAAS Report VI* (1981).

Constant dollar conversions based on OMB's GDP deflators.

Revised 7/01 to reflect amended FY 2002 DOD request and FY' 01 supplementals.

Please see Chapter 3 for a discussion of this table.

Table I-6. Defense and Nondefense R&D

Table I-6. Defense and Nondefense R&D by Character of Work
(budget authority in millions of dollars) (REVISED July '01)

	FY 2000 Actual	FY 2001 Estimate	FY 2002 Budget	% Change FY 01-02	Distribution % '02 Total
Basic Research					
Defense	1,184	1,369	1,355	-1.0%	1.4%
Nondefense	18,286	20,645	21,946	6.3%	22.2%
Total Basic	19,470	22,015	23,302	5.8%	23.5%
Applied Research					
Defense	5,105	5,737	5,460	-4.8%	5.5%
Nondefense	13,853	15,713	16,552	5.3%	16.7%
Total Applied	18,958	21,450	22,013	2.6%	22.2%
Development					
Defense	36,292	38,489	44,546	15.7%	45.0%
Nondefense	4,132	4,353	4,104	-5.7%	4.1%
Total Dev.	40,424	42,841	48,650	13.6%	49.1%
Total Conduct of R&D					
Defense	42,580	45,595	51,362	12.6%	51.9%
Nondefense	36,272	40,711	42,602	4.6%	43.0%
Total Conduct	78,852	86,306	93,964	8.9%	94.9%
R&D Facilities and Capital Equipment					
Defense	580	648	634	-2.1%	0.6%
Nondefense	4,337	4,417	4,458	0.9%	4.5%
Total R&D Facils.	4,917	5,065	5,093	0.5%	5.1%
Total R&D					
Defense	43,161	46,243	51,996	12.4%	52.5%
Nondefense	40,608	45,128	47,061	4.3%	47.5%
Total R&D	83,769	91,371	99,057	8.4%	100.0%

Source: OMB data for R&D and agency budget justifications.

See Appendix 2 for definitions of terms.

All figures rounded to the nearest million. Changes calculated from unrounded figures.

Defense includes Dept. of Defense and defense programs in the Dept. of Energy.

REVISED July '01 to reflect amended FY 2002 DOD request and FY '01 supplementals.

Table I-7. "Federal Science and Technology" Budget

Table I-7. "Federal Science and Technology" (FS&T) Budget by Agency (**REVISED July '01**)
(budget authority in millions of dollars)

	FY 2000	FY 2001	FY 2002	Change FY 01-02	
	Actual	Estimate	Budget	Amount	Percent
Health and Human Services	17,827	20,361	23,112	2,751	13.5%
<i>(National Institutes of Health)</i>	17,827	20,361	23,112	2,751	13.5%
National Science Foundation	3,897	4,416	4,472	56	1.3%
Department of Energy	4,353	4,910	4,682	-228	-4.6%
<i>(Science programs)</i>	2,788	3,179	3,160	-19	-0.6%
<i>(Energy programs)</i>	1,565	1,731	1,522	-209	-12.1%
NASA	6,389	6,957	7,038	81	1.2%
<i>(Space Science)</i>	2,524	2,658	2,786	128	4.8%
<i>(Earth Science)</i>	1,675	1,702	1,496	-206	-12.1%
<i>(Aero-Space Technology)</i>	1,834	2,205	2,376	171	7.8%
<i>(Biological and Physical Res.)</i>	356	393	380	-13	-3.3%
Department of Defense 1/	4,548	4,993	4,963	-30	-0.6%
<i>(Basic Research)</i>	1,139	1,317	1,304	-13	-1.0%
<i>(Applied Research)</i>	3,409	3,676	3,659	-17	-0.5%
Agriculture	1,739	1,831	1,759	-72	-3.9%
<i>(CSREES Res. And Edu.)</i>	487	513	416	-97	-18.9%
<i>(Economic Research Service)</i>	64	66	67	1	1.5%
<i>(Agricultural Res. Service)</i>	830	897	916	19	2.1%
<i>(Mandatory research grants)</i>	140	130	135	5	3.8%
<i>(Forest Service Research)</i>	218	225	225	0	0.0%
Commerce	819	809	711	-98	-12.1%
<i>(OAR in NOAA)</i>	285	315	330	15	4.8%
<i>(NIST minus MEP)</i>	534	494	381	-113	-22.9%
Interior (USGS)	813	883	813	-70	-7.9%
Environmental Protection Agency	683	732	679	-53	-7.2%
Veterans Affairs	321	350	360	10	2.9%
Education	317	363	368	5	1.4%
Transportation	646	621	631	10	1.6%
<i>(Highway Research)</i>	490	437	443	6	1.4%
<i>(Aviation Research)</i>	156	184	188	4	2.2%
Total "FS&T"	42,352	47,226	49,588	2,362	5.0%

OMB data from *Budget of the U.S. Government FY 2002: Analytical Perspectives* Chapter 7.

1/ FY 2002 DOD figures represent a projection from FY 2001 funding levels plus inflation.

A revised FY '02 request will be released upon completion of the Defense Strategy Review.

The programs in the Federal Science and Technology Budget do not correspond to definitions of R&D. The FS&T Budget contains selected R&D and non-R&D programs with an emphasis on basic and applied research and the creation of new knowledge or technologies. The programs in this table were selected by OMB, and differ from the original definitions of FS&T proposed by the National Academy of Sciences. **See Chapter 3.**

Table I-8. R&D Expenditures at Colleges and Universities

Table I-8. R&D Expenditures at Colleges and Universities
Fiscal Year 1999

	FY 1998	FY 1999	% Change FY 98-99	% of Total (FY 99)
(R&D expenditures in millions of dollars)				
- by funding source:				
Federal Government	15,131	16,047	6.1%	58.4%
State and Local Government	1,946	2,028	4.3%	7.4%
Industry	1,894	2,048	8.1%	7.4%
Institutional Funds	5,000	5,366	7.3%	19.5%
All Other Sources	1,868	2,000	7.1%	7.3%
Total	25,837	27,489	6.4%	100.0%
- by science and engineering field:				
Engineering	4,069	4,257	4.6%	15.5%
Physical Sciences	2,483	2,600	4.7%	9.5%
Environmental Sciences	1,623	1,690	4.1%	6.1%
Mathematical Sciences	310	313	0.8%	1.1%
Computer Sciences	746	860	15.3%	3.1%
Life Sciences	14,583	15,591	6.9%	56.7%
Psychology	445	465	4.4%	1.7%
Social Sciences	1,130	1,262	11.7%	4.6%
Other Sciences, n.e.c. *	448	452	0.9%	1.6%
Total	25,837	27,489	6.4%	100.0%
- by character of work:				
Basic Research	17,442	18,844	8.0%	68.6%
Applied Research and Development	8,395	8,645	3.0%	31.4%
Total	25,837	27,489	6.4%	100.0%

Source: National Science Foundation, *Survey of Research and Development Expenditures at Universities and Colleges, Fiscal Year 1999*, 2000.

The complete data, and definitions of science and engineering fields, are available at <http://www.nsf.gov/sbe/srs/stats.htm>.

* not elsewhere classified.

These data are based on performer surveys of expenditures, and thus differ from data presented elsewhere in this report.

Please see Chapter 3 for a discussion of this table.

Table I-9. R&D by Appropriations Subcommittee

Table I-9. R&D Funding by Congressional Appropriations Subcommittee (**Revised July '01**)
(budget authority in millions of dollars)

	FY 2000	FY 2001	FY 2002	Change FY 01-02	
	Actual	Estimate	Budget	Amount	Percent
Defense ¹	39,960	42,743	48,454	5,711	13.4%
VA, HUD, Independent Agencies	13,673	14,570	14,527	-43	-0.3%
Labor, HHS, Education	18,329	21,050	23,670	2,620	12.4%
Energy & Water	6,362	7,024	6,906	-118	-1.7%
Interior	1,642	1,827	1,567	-260	-14.2%
Agriculture	1,693	1,851	1,691	-160	-8.6%
Commerce, Justice, State	1,247	1,291	1,184	-107	-8.3%
Transportation	607	747	798	51	6.8%
Foreign Operations	200	216	206	-10	-4.6%
Treasury, Postal, Gen. Gov't.	56	52	54	2	3.8%
Total R&D	83,769	91,371	99,057	7,686	8.4%

Source: AAAS, based on estimates for R&D from OMB and agency data.

¹ A fraction of DOD R&D may be funded in Military Construction.

R&D as Percent of Discretionary Appropriations by Appropriations Subcommittee for FY 2002 (budget authority in **billions** of dollars)

	FY 2002 R&D	FY 2002 Discr. ²	R&D as % of Discr.
Defense ¹	48.5	301.0	16.1%
VA, HUD, Independent Agencies	14.5	83.1	17.5%
Labor, HHS, Education	23.7	116.4	20.3%
Energy & Water	6.9	22.5	30.7%
Interior	1.6	18.1	8.7%
Agriculture	1.7	15.4	11.0%
Commerce, Justice, State	1.2	37.9	3.1%
Transportation	0.8	16.2	4.9%
All Other	0.3	50.0	0.5%
Total	99.1	660.6	15.0%
Defense Discretionary	52.0	325.1	16.0%
Nondefense Discretionary	47.1	335.5	14.0%

Source: AAAS, based on estimates of R&D and *Budget of the U.S. Government FY 2002*.

¹ A fraction of DOD R&D may be funded in Military Construction (in "All Other").

² District of Columbia, Legislative Branch, and Military Construction.

NOTE: Discretionary budget authority does not include limitations on obligations from transportation trust funds. Discretionary totals are not reduced by offsets.

Revised to reflect amended FY 2002 DOD request and FY '01 supplementals.

Table I-10. Interagency S&T Initiatives

Table I-10. Interagency Science and Technology Initiatives
(budget authority in millions)

	FY 2000 Actual	FY 2001 Estimate	FY 2002 Budget	Change FY 01-02 Amount	Percent
Nanoscale Science, Engineering and Technology (see Chapter 23)					
National Science Foundation	97	150	174	24	16.1%
Defense ¹	70	110	133	23	20.9%
Energy	58	93	97	4	4.3%
NASA	5	20	46	26	130.0%
Commerce	8	10	18	8	75.0%
National Institutes of Health	32	39	45	6	15.4%
Other (EPA, Justice)	0	0	6	6	- -
Total Nanotechnology ²	270	422	519	97	23.0%
Networking and Information Technology R&D					
Commerce	36	39	41	2	5.1%
Defense ¹	285	349	356	7	2.0%
Energy	331	475	480	5	1.1%
Environ. Protection Agency	4	4	2	-2	-50.0%
Health and Human Services	214	244	266	22	9.0%
NASA	129	177	181	4	2.3%
National Science Foundation	496	641	643	2	0.3%
Total IT R&D	1,495	1,929	1,969	40	2.1%
U.S. Global Change Research Program (see Chapter 15)					
National Science Foundation	187	179	178	-1	-0.6%
Energy	113	119	121	2	1.7%
Commerce (NOAA)	67	80	93	13	16.3%
Agriculture	56	56	55	-1	-1.8%
Interior	27	27	25	-2	-7.4%
Environ. Protection Agency	21	23	22	-1	-4.3%
Health and Human Services	48	52	57	5	9.6%
Smithsonian	7	7	7	0	0.0%
NASA	1,161	1,162	1,072	-90	-7.7%
Total USGCRP	1,687	1,705	1,630	-75	-4.4%

Source: OMB supporting data for FY 2002 Budget.

¹ FY 2002 DOD figures represent a projection from FY 2001 funding levels plus inflation.

A revised FY 2002 request will be released upon completion of Defense Strategy Review.

² Does not include funding for Departments of State, Transportation, Treasury, and Agriculture. These agencies joined the initiative in January 2001.

Table I-11. Total U.S. R&D, 1998-2000

Table I-11. Total U.S. R&D, 1998-2000
(expenditures in millions of dollars)

(calendar years)	1998	1999	2000	% Change	% Share of
	Actual	Actual	Preliminary	1999-2000	Total ('00)
U.S. R&D by funding source:					
Federal Government	66,827	67,711	69,627	2.8%	26.3%
Industry	147,867	163,397	181,040	10.8%	68.4%
Universities and Colleges	5,183	5,562	5,969	7.3%	2.3%
Nonprofits	5,007	5,390	5,789	7.4%	2.2%
Nonfederal Government	1,987	2,083	2,197	5.5%	0.8%
Total U.S. R&D	226,872	244,143	264,622	8.4%	100.0%
U.S. R&D by performer:					
Federal Government	17,362	18,332	19,143	4.4%	7.2%
Industry	167,102	180,450	197,280	9.3%	74.6%
Universities and Colleges	26,664	28,363	30,154	6.3%	11.4%
FFRDCs *	8,510	8,980	9,294	3.5%	3.5%
Nonprofits	7,234	8,017	8,750	9.1%	3.3%
Total U.S. R&D	226,872	244,143	264,622	8.4%	100.0%
U.S. R&D by character of work:					
Basic Research	41,294	44,625	47,903	7.3%	18.1%
<i>(from federal sources)</i>	20,613	22,140	22,310	0.8%	8.4%
<i>(from industry sources)</i>	13,397	14,667	16,223	10.6%	6.1%
Applied Research	45,702	51,632	55,041	6.6%	20.8%
Development	139,875	147,886	161,679	9.3%	61.1%
Total U.S. R&D	226,872	244,143	264,622	8.4%	100.0%
U.S. GDP** (billions)	8,790	9,299	9,963	7.1%	
U.S. R&D / GDP	2.58%	2.63%	2.66%		

Source: National Science Foundation, *National Patterns of R&D Resources 2000*, 2001.The complete data are available at <http://www.nsf.gov/sbe/srs/stats.htm>.

* Federally Funded Research and Development Centers.

** Gross Domestic Product.

These data are based on performer surveys of expenditures for calendar years, and thus differ from data presented elsewhere in this report (agency budget authority data by fiscal year). These data also exclude R&D facilities.

Please see Chapters 1 and 4 for a discussion of the data in this table.

Table I-12. National Patterns of R&D 2000

Table I-12. National Patterns of R&D:
Intersectoral Transfers and Constant Dollar Changes, 2000
(expenditures in millions of dollars)

	Sources of Funds				Total
	Federal Gov't.	Industry	Colleges & Univs. ²	Non-profit Institutions	
Preliminary Expenditures, 2000					
Performers:					
Federal	19,143	--	--	--	19,143
Industry	19,635	177,645	--	--	197,280
Colleges & Univs.	17,475	2,310	8,166	2,203	30,154
FFRDCs ¹	9,294	--	--	--	9,294
Nonprofits	4,079	1,085	--	3,586	8,750
TOTAL	69,627	181,040	8,166	5,789	264,622
Percent Change in Constant Dollars (1999 to 2000)					
Performers:					
Federal	2.3%	--	--	--	2.3%
Industry	-4.6%	8.6%	--	--	7.1%
Colleges & Univs.	3.7%	6.1%	4.7%	4.5%	4.2%
FFRDCs ¹	1.4%	--	--	--	1.4%
Nonprofits	7.5%	8.9%	--	5.8%	7.0%
TOTAL	0.8%	8.6%	4.7%	5.3%	6.2%

Source: National Science Foundation / SRS, *National Patterns of R&D Resources 2000*, 2001. Amounts represent current operating costs based on data from performers of R&D and therefore do not correspond exactly to the figures for R&D elsewhere in this report. In particular, federal (DOD) funding of R&D performed by industry may be significantly understated. Capital expenditures for R&D are generally excluded. Data in calendar years.

Constant dollar conversions based on calendar-year GDP deflators from the NSF report.

¹ Federally funded research and development centers. Includes all FFRDCs (administered by industry, nonprofits, and universities).

² Includes an estimated \$2.2 billion in state and local government funds provided to university and college performers.

"--" - Unknown but assumed to be negligible.

Please see Chapters 1 and 4 for a discussion of the data in this table.

Table I-13. National Funds for R&D by Source of Funds

Table I-13. National Funds for R&D by Source of Funds
(expenditures in millions of dollars)

	1970	1980	1990	2000	Percent Share of Total		
	Actual	Actual	Actual	Prelim.	1970	1980	2000
Current Dollars							
Federal	14,984	30,035	61,669	69,627	57.0%	47.5%	26.3%
Industry	10,449	30,929	83,208	181,040	39.8%	48.9%	68.4%
Colleges and Univs.	259	920	3,187	5,969	1.0%	1.5%	2.3%
State/Local	237	519	1,399	2,197	0.9%	0.8%	0.9%
Nonprofits	343	871	2,589	5,789	1.3%	1.4%	2.2%
TOTAL	26,271	63,273	152,051	264,622	100.0%	100.0%	100.0%
Constant 2000 Dollars							
Federal	55,125	56,295	76,211	69,627			
Industry	38,441	57,970	102,829	181,040			
Colleges and Univs.	953	1,724	3,939	5,969			
State/Local	872	973	1,729	2,197			
Nonprofits	1,262	1,633	3,200	5,789			
TOTAL	96,649	118,593	187,906	264,622			
Total U.S. R&D as % of GDP	2.53%	2.26%	2.62%	2.66%			

Source: National Science Foundation / SRS, *National Patterns of R&D Resources 2000*, 2001. Amounts represent current operating costs based on data from performers of R&D and therefore do not correspond exactly to the figures for R&D elsewhere in this report. In particular, federal (DOD) funding of R&D performed by industry may be significantly understated. Capital expenditures for R&D are generally excluded. Data in calendar years.
Constant dollar conversions based on calendar-year GDP deflators from the NSF report.
Please see Chapters 1 and 4 for a discussion of the data in this table.

Table I-14. National Funds for R&D By Performers

Table I-14. National Funds for R&D by Performers
(expenditures in millions of dollars)

	1970	1980	1990	2000	Percent Share of Total		
	Actual	Actual	Actual	Prelim.	1970	1980	2000
Current Dollars							
Federal	4,154	7,831	15,671	19,143	15.8%	12.4%	7.2%
Industry	17,594	43,228	107,404	197,280	67.0%	68.3%	74.6%
Colleges and							
Univs.	2,418	6,455	16,936	30,154	9.2%	10.2%	11.4%
FFRDCs ¹	1,430	4,118	7,914	9,294	5.4%	6.5%	3.5%
Nonprofits	677	1,641	4,126	8,750	2.6%	2.6%	3.3%
TOTAL	26,271	63,273	152,051	264,622	100.0%	100.0%	100.0%
Constant 2000 Dollars							
Federal	15,282	14,678	19,366	19,143			
Industry	64,727	81,022	132,731	197,280			
Colleges and							
Univs.	8,896	12,099	20,930	30,154			
FFRDCs ¹	5,261	7,718	9,780	9,294			
Nonprofits	2,491	3,076	5,099	8,750			
TOTAL	96,649	118,593	187,906	264,622			

Source: National Science Foundation / SRS, *National Patterns of R&D Resources 2000, 2001*. Amounts represent current operating costs based on data from performers of R&D and therefore do not correspond exactly to the figures for R&D elsewhere in this report. In particular, federal (DOD) funding of R&D performed by industry may be significantly understated. Capital expenditures for R&D are generally excluded. Data in calendar years.

Constant dollar conversions based on calendar-year GDP deflators from the NSF report.

¹ Federally funded research and development centers. Includes all FFRDCs (administered by industry, nonprofits, and universities).

Please see Chapters 1 and 4 for a discussion of the data in this table.

Table I-15. AAAS Analysis of the Outyear Projections for R&D in the FY 2002 Budget, FY 2001-2006

(budget authority in millions of dollars)

	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	% Chg. FY '01-'06	
	Estimate	Budget	Projected	Projected	Projected	Projected	current \$	constant \$
Defense (military) *	--	--	--	--	--	--	--	--
Health and Human Services	20,859	23,496	27,503	28,013	28,632	29,265	40.3%	26.5%
<i>Nat'l Institutes of Health</i>	<i>19,710</i>	<i>22,395</i>	<i>26,383</i>	<i>26,873</i>	<i>27,472</i>	<i>28,084</i>	<i>42.5%</i>	<i>28.4%</i>
NASA	9,925	9,967	10,493	10,808	11,034	11,385	14.7%	3.4%
Energy (Nondefense only)	4,245	3,857	3,986	4,078	4,170	4,264	0.4%	-9.5%
Nat'l Science Foundation	3,279	3,226	3,298	3,371	3,447	3,524	7.5%	-3.1%
Agriculture	1,961	1,803	1,842	1,880	1,922	1,963	0.1%	-9.7%
Commerce	1,201	1,110	1,134	1,161	1,184	1,210	0.7%	-9.2%
Interior	631	593	606	620	633	647	2.5%	-7.6%
Transportation	747	798	765	784	804	824	10.3%	-0.6%
Environ. Protection Agency	609	569	582	595	608	621	2.1%	-8.0%
All Other	1,672	1,644	1,681	1,720	1,760	1,800	7.6%	-3.0%
Nondefense R&D *	45,130	47,062	51,890	53,030	54,195	55,503	23.0%	10.9%
<i>Nondef. R&D minus NIH</i>	<i>25,420</i>	<i>24,668</i>	<i>25,507</i>	<i>26,157</i>	<i>26,723</i>	<i>27,419</i>	<i>7.9%</i>	<i>-2.8%</i>

The two detailed analyses (one for defense R&D and one for nondefense R&D) containing agency details and methodology are available on the World Wide Web at <http://www.aaas.org/spp/R&D/>.

* DOD outyear projections will not be available until completion of the Defense Strategy Review (June).

All defense R&D (DOD + DOE defense) excluded from this table.

Please see Chapter 3 for a discussion of this table.

Table I-16. Historical Tables: Federal R&D by Agency, FY 1990-2002 (REVISED July '01)

(budget authority in millions of dollars)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001**	2002***
DOD	37,869	37,209	37,779	38,848	35,510	35,349	35,783	37,238	37,569	38,888	39,960	42,743	48,454
NASA	7,112	8,124	8,544	8,815	9,406	9,459	9,432	9,352	9,751	9,717	9,494	9,925	9,967
DOE	6,988	7,339	8,133	7,444	6,771	6,416	6,273	6,217	6,351	6,966	6,956	7,744	7,399
NIH *	8,107	8,977	9,624	9,891	10,474	10,762	11,425	12,217	13,110	14,995	17,234	19,710	22,395
NSF	1,729	1,893	1,972	2,014	2,243	2,396	2,391	2,424	2,501	2,670	2,931	3,279	3,226
USDA	1,223	1,391	1,519	1,467	1,528	1,487	1,488	1,556	1,561	1,645	1,776	1,959	1,801
Interior	531	620	643	649	708	668	571	591	536	499	618	631	593
DOT	354	411	621	621	641	666	601	612	590	607	607	747	798
EPA	424	459	493	497	588	554	482	595	637	669	558	609	569
Commerce	453	537	583	793	1,022	1,118	966	964	1,091	1,084	1,174	1,201	1,110
All Other *	1,656	1,787	2,029	1,890	2,185	2,073	1,794	2,166	2,247	2,431	2,461	2,821	2,745
Total R&D	66,446	68,747	71,941	72,928	71,074	70,948	71,206	73,934	75,942	80,171	83,769	91,371	99,057
Defense R&D	40,978	40,375	41,231	42,114	38,299	37,833	38,465	40,047	40,571	42,085	43,161	46,243	51,996
Nondef. R&D	25,467	28,372	30,709	30,815	32,775	33,115	32,741	33,886	35,371	38,086	40,608	45,128	47,061
Basic Res.	11,279	12,407	12,943	13,444	13,693	13,772	14,442	14,961	15,523	17,433	19,470	22,015	23,302

(continued)

Table I-16 (continued). Historical Tables: Federal R&D by Agency, FY 1990-2002 in constant FY 2001 dollars

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001**	2002***
(in constant FY 2001 dollars)	(REVISED July '01)												
DOD	48,033	45,426	44,943	45,141	40,389	39,351	39,051	39,865	39,655	40,479	40,808	42,743	47,458
NASA	9,020	9,918	10,164	10,243	10,698	10,530	10,294	10,012	10,292	10,115	9,696	9,925	9,762
DOE	8,863	8,959	9,676	8,650	7,702	7,142	6,846	6,656	6,704	7,251	7,104	7,744	7,247
NIH *	10,283	10,960	11,449	11,493	11,913	11,980	12,468	13,079	13,837	15,609	17,600	19,710	21,934
NSF	2,193	2,312	2,346	2,340	2,551	2,667	2,610	2,595	2,640	2,779	2,993	3,279	3,160
USDA	1,552	1,698	1,807	1,705	1,738	1,655	1,623	1,666	1,648	1,712	1,813	1,959	1,764
Interior	673	757	765	754	805	744	623	633	565	519	631	631	581
DOT	449	502	739	722	729	741	656	655	622	632	620	747	781
EPA	538	560	586	577	669	617	527	637	672	696	570	609	557
Commerce	574	655	694	922	1,162	1,245	1,054	1,032	1,151	1,128	1,199	1,201	1,087
All Other *	2,101	2,181	2,414	2,196	2,485	2,308	1,958	2,319	2,372	2,530	2,513	2,821	2,689
Total R&D	84,279	83,929	85,583	84,741	80,839	78,980	77,710	79,150	80,159	83,451	85,548	91,371	97,019
Defense R&D	51,977	49,292	49,050	48,935	43,561	42,116	41,979	42,872	42,824	43,807	44,077	46,243	50,926
Nondef. R&D	32,303	34,637	36,533	35,806	37,278	36,864	35,731	36,277	37,335	39,644	41,471	45,128	46,093
Basic Res.	14,306	15,147	15,397	15,622	15,574	15,331	15,762	16,017	16,385	18,146	19,884	22,015	22,822

Source: AAAS Reports VII through XXVI, based on OMB and agency R&D budget data.

Constant dollar conversions based on OMB's GDP deflators from the FY 2002 budget.

* Between FY 1991 and 1992, R&D from ADAMHA (HHS) transferred to NIH. ADAMHA R&D included in NIH totals for all years.

** - Latest estimate for FY 2001. *** - **AAAS estimates of President's request. Revised to reflect amended DOD request.**

The full version of this table ('76-'02) is available on the World Wide Web at www.aaas.org/spp/R&D/.