

# LIST OF DETAILED STATISTICAL TABLES

<i>Table</i>	<i>Page</i>
<b>Total Funds for R&amp;D</b>	
1. Industrial R&D performance in the United States, by source of funds: 1953–2002 .....	13
2. Summary data for companies performing industrial R&D in the United States, by industry and size of company: 2001–2002 .....	15
3. Funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002 .....	18
4. Funds for industrial R&D performance in the United States, by industry and by size of company: 2002 ...	20
5. Funds for industrial R&D performance in the United States and number of companies that performed R&D in the United States, by industry and size of company and by size of total R&D program: 2002 .....	22
6. Funds for industrial R&D performance in the United States and number of companies in manufacturing and nonmanufacturing industries that performed industrial R&D in the United States, by size of company: 2002 .....	25
<b>Distribution of R&amp;D by Type of Cost</b>	
7. Funds for industrial R&D performance in the United States, by industry and size of company and by type of cost: 2002 .....	26
<b>Distribution of R&amp;D by Technology Area</b>	
8. Funds for industrial R&D performance in the United States, by industry and size of company and by technology area: 2002 .....	29
9. Companies reporting nanotechnology activity, by industry and size of company and by technology area and percentage of R&D attributable to nanotechnology: 2002 .....	32
<b>Energy R&amp;D</b>	
10. Funds for industrial energy R&D performance in the United States and companies that performed energy R&D in the United States, by selected industry and size of company: 2002 and projected 2003 .....	36
11. Funds for industrial energy R&D performance in the United States and number of companies that performed energy R&D in the United States, by primary energy source: 2002 and projected 2003 .....	37
<b>Company and Other Nonfederal Funds for R&amp;D</b>	
12. Company and other nonfederal funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002 .....	38

<i>Table</i>	<i>Page</i>
13. Company and other nonfederal funds for industrial R&D performance in the United States, by industry and by size of company: 2002 .....	40
14. Company and other nonfederal funds for industrial R&D performance in the United States and number of companies that performed company and other nonfederally funded R&D in the United States, by industry and size of company and by size of nonfederally funded R&D program: 2002 .....	43
<b>Company and Other Funds for R&amp;D Performed by Outside Organizations</b>	
15. Company and other nonfederal funds for industrial R&D performance in the United States performed by outside organizations and number of R&D-performing companies that funded outside performance of company-funded R&D, by industry and size of company: 2001–2002 .....	46
16. Company and other nonfederal funds for industrial R&D performance in the United States by outside organizations and number of R&D-performing companies that funded outside performance of R&D, by type of organization and by industry and size of company: 2002 .....	48
<b>Company and Other Funds for R&amp;D Performed Outside of the United States</b>	
17. Company and other nonfederal funds and number of companies that funded industrial R&D performed outside of the United States by majority-owned foreign affiliates and other organizations, by industry and size of company: 1999–2002 .....	51
18. Company and other nonfederal funds for industrial R&D performance outside of the United States by majority-owned foreign affiliates and other organizations, by location of R&D performance: 2002 .....	56
<b>Company and Other Funds for R&amp;D Performed in Collaboration with Other Organizations</b>	
19. Company and other nonfederal funds for performance of collaborative industrial R&D in the United States, by industry and size of company, by type of collaborator: 2002 .....	57
<b>Federal Funds for R&amp;D</b>	
20. Federal funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002 .....	61
21. Federal funds for industrial R&D performance in the United States, by industry and by size of company: 2002 .....	63
22. Federal funds for industrial R&D performance in the United States and number of companies that performed federally funded R&D in the United States, by industry and size of company and by size of federally funded R&D program: 2002 .....	66
<b>Federal Funds for R&amp;D by Funding Agency</b>	
23. Federal funds for industrial R&D performance in the United States, by selected federal agency and selected industry: 1999–2002 .....	69

**Sales of R&D-Performing Companies and R&D as a Percent of Sales**

24. Domestic net sales of companies that performed industrial R&D in the United States, by industry and by size of company: 2002 .....	70
25. Concentration of total, federal, and company and other industrial R&D funds and net sales of companies that performed industrial R&D in the United States, ranked by size of R&D program: 1992–2002 .....	73
26. Funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002 .....	74
27. Company and other nonfederal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002 .....	76
28. Funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of R&D program: 2002 .....	78
29. Company and other nonfederal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of nonfederally funded R&D program: 2002 .....	80
30. Federal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of federally funded R&D program: 2002 .....	82

**Funds for Basic Research, Applied Research, and Development**

31. Trends in total (federal plus company and other) funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002 .....	84
32. Trends in company and other nonfederal funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002 .....	86
33. Trends in federal funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002 .....	88
34. Funds for performance of and number of companies that performed industrial basic research, applied research, and development in the United States, by industry and size of company and by source of funds: 2002 .....	90

**Geographic Distribution of R&D**

35. Funds for industrial R&D performance in the United States, by state: Selected years 1987–2002 .....	96
36. Funds for industrial R&D performance in the United States and number of companies that performed R&D in the United States, by state and source of funds: 2002 .....	98

<i>Table</i>	<i>Page</i>
37. Funds for industrial R&D performance in the United States and number of R&D-performing companies in the United States, by industry and size of company, for the United States and top 10 R&D-performing states: 2002 .....	100
<b>Employment of R&amp;D-Performing Companies</b>	
38. Domestic employment of companies that performed industrial R&D in the United States, by industry and by size of company: 2002 .....	104
39. R&D funds per employee spent by companies that performed industrial R&D in the United States, by size of company: 1999–2002 .....	106
40. Distribution of total employment in companies that performed industrial R&D in the United States, ranked by size of R&D program: 1992–2002 .....	107
41. Full-time equivalent R&D scientists and engineers in companies that performed industrial R&D in the United States, by industry and size of company and by source of R&D funds: January 2003 .....	108
42. R&D funds per full-time equivalent R&D scientist or engineer spent by companies that performed industrial R&D in the United States, by industry and by size of company: 2002 .....	110
43. R&D funds per full-time equivalent R&D scientist or engineer spent by companies that performed industrial R&D in the United States, ranked by size of R&D program: 1992–2002 .....	113
44. Full-time equivalent R&D scientists and engineers per 1,000 employees in companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002 .....	114

TABLE 1. Industrial R&D performance in the United States, by source of funds: 1953–2002  
(Millions of dollars)

Year	All R&D <sup>a</sup>		Federal <sup>a</sup>		Company and other <sup>b</sup>	
	Current dollars	Constant	Current dollars	Constant	Current dollars	Constant
		2000 dollars		2000 dollars		2000 dollars
1953	3,630	19,899	1,430	7,839	2,200	12,060
1954	4,070	22,098	1,750	9,501	2,320	12,596
1955	4,640	24,756	2,180	11,631	2,460	13,125
1956	6,605	34,060	3,328	17,161	3,277	16,898
1957	7,731	38,583	4,335	21,635	3,396	16,949
1958	8,389	40,925	4,759	23,216	3,630	17,709
1959	9,618	46,351	5,635	27,156	3,983	19,195
1960	10,509	49,948	6,081	28,902	4,428	21,046
1961	10,908	51,266	6,240	29,327	4,668	21,939
1962	11,464	53,152	6,434	29,831	5,029	23,317
1963	12,630	57,941	7,270	33,351	5,360	24,589
1964	13,512	61,054	7,720	34,883	5,792	26,171
1965	14,185	62,945	7,740	34,346	6,445	28,599
1966	15,548	67,084	8,332	35,950	7,216	31,134
1967	16,385	68,577	8,365	35,010	8,020	33,566
1968	17,429	69,963	8,560	34,361	8,869	35,602
1969	18,308	70,015	8,451	32,319	9,857	37,696
1970	18,067	65,618	7,779	28,253	10,288	37,365
1971	18,320	63,369	7,666	26,517	10,654	36,852
1972	19,552	64,814	8,017	26,576	11,535	38,238
1973	21,249	66,716	8,145	25,573	13,104	41,143
1974	22,887	65,908	8,220	23,671	14,667	42,237
1975	24,187	63,648	8,605	22,644	15,582	41,004
1976	26,997	67,163	9,561	23,786	17,436	43,377
1977	29,825	69,764	10,485	24,526	19,340	45,238
1978	33,304	72,785	11,189	24,453	22,115	48,332
1979	38,226	77,151	12,518	25,265	25,708	51,886
1980	44,505	82,351	14,029	25,959	30,476	56,392
1981	51,810	87,636	16,382	27,710	35,428	59,926
1982	58,650	93,501	18,545	29,565	40,105	63,936
1983	65,268	100,093	20,680	31,714	44,588	68,379
1984	74,800	110,561	23,396	34,581	51,404	75,980
1985	84,239	120,837	27,196	39,011	57,043	81,825
1986	87,823	123,261	27,891	39,145	59,932	84,115
1987	92,155	125,902	30,752	42,013	61,403	83,889
1988 <sup>c</sup>	97,015	128,168	30,343	40,087	66,672	88,082
1989 <sup>c</sup>	102,055	129,913	28,554	36,348	73,501	93,564
1990 <sup>c</sup>	109,727	134,487	28,125	34,471	81,602	100,015
1991 <sup>c</sup>	116,952	138,497	26,372	31,230	90,580	107,267
1992 <sup>d</sup>	119,110	137,882	24,722	28,618	94,388	109,263
1993 <sup>d</sup>	117,400	132,835	22,809	25,808	94,591	107,027
1994 <sup>d</sup>	119,595	132,502	22,463	24,887	97,131	107,614
1995 <sup>d</sup>	132,103	143,426	23,451	25,461	108,652	117,965
1996 <sup>d</sup>	144,667	154,144	23,653	25,202	121,015	128,943
1997 <sup>d</sup>	157,539	165,112	23,928	25,078	133,611	140,033
1998 <sup>d</sup>	169,180	175,367	24,164	25,048	145,016	150,320
1999 <sup>d,e</sup>	182,711	186,692	22,535	23,026	160,176	163,666

TABLE 1. Industrial R&D performance in the United States, by source of funds: 1953–2002  
(Millions of dollars)

Year	All R&D <sup>a</sup>		Federal <sup>a</sup>		Company and other <sup>b</sup>	
	Current	Constant	Current	Constant	Current	Constant
	dollars	2000 dollars	dollars	2000 dollars	dollars	2000 dollars
2000 <sup>d</sup>	199,539	199,539	19,118	19,118	180,421	180,421
2001 <sup>d</sup>	198,505	193,904	16,899	16,507	181,606	177,397
2002 <sup>d</sup>	190,809	183,567	16,401	15,779	174,408	167,789

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

<sup>b</sup> The company-funded R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

<sup>c</sup> As a result of a new sample design, statistics for 1988–91 were revised after they were originally published and are not directly comparable with statistics for earlier years.

<sup>d</sup> As a result of annual sampling, implemented to produce statistics that better reflect R&D performance among firms in nonmanufacturing industries and small firms in all industries, statistics for 1992 and later years are not directly comparable with statistics for earlier years.

<sup>e</sup> Statistics for 1999 have been revised since originally published.

NOTES: Gross domestic product (GDP) implicit price deflators were used to convert current dollars to constant (2000) dollars. For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 2. Summary data for companies performing industrial R&amp;D in the United States, by industry and size of company: 2001–2002

Industry and size of company	NAICS codes	Research and development funds						Domestic net sales		R&D scientists and engineers (January) <sup>b</sup>		Domestic employment (March)	
		Total <sup>a</sup>		Federal <sup>a</sup>		Company and other		2001	2002	2002	2003	2001	2002
		2001	2002	2001	2002	2001	2002						
Distribution by industry:		Millions of dollars								Thousands			
All industries	21-23, 31-33, 42, 44-81	198,505	190,809	16,899	16,401	181,606	174,408	4,835,140	4,903,345	1060.2	1,066.1	16,749	15,415
Manufacturing	31-33	120,705	108,985	11,484	10,745	109,221	98,240	3,012,938	3,028,003	615.8	585.8	9,913	9,089
Food	311	1,819	(D)	(D)	(D)	1,818	2,034	384,846	314,176	12.2	12.9	1,192	991
Beverage and tobacco products	312	152	170	-	-	152	170	37,026	33,910	0.9	1.0	59	57
Textiles, apparel, and leather	313-16	(D)	(D)	(D)	(D)	255	248	30,929	29,308	2.5	2.5	229	186
Wood products	321	182	(D)	(D)	(D)	181	132	17,041	18,691	2.0 (S)	(D)	92	94
Paper, printing and support activities	322, 323	(D)	(D)	(D)	(D)	2,664	2,620	125,696	204,814	11.1	17.9	611	585
Petroleum and coal products	324	(D)	(D)	(D)	(D)	1,057	1,233	311,244	304,747	2.8 (S)	4.3 (S)	168	179
Chemicals	325	17,892	20,641	180	246	17,713	20,395	368,728	343,723	81.5	86.9	838	837
Basic chemicals	3251	1,876	1,782	42	72	1,835	1,710	83,452	67,183	9.3	8.5	169	154
Resin, synthetic rubber, fibers, and filament	3252	(D)	2,426	(D)	13	2,745	2,413	60,396	61,452	11.1	12.8	118	122
Pharmaceuticals and medicines	3254	10,137	(D)	-	(D)	10,137	14,186	130,287	147,175	39.6	51.8	289	355
Other chemicals	325 minus (3251-52, 3254)	(D)	(D)	(D)	(D)	2,996	2,087	94,593	67,913	21.5 (S)	13.9	262	207
Plastics and rubber products	326	(D)	(D)	(D)	(D)	2,245	1,508	78,730	84,089	11.5	11.0	451	468
Nonmetallic mineral products	327	990	(D)	11	(D)	978	420	41,766	33,945	6.9	(D)	273	145
Primary metals	331	485	473	6	12	479	461	72,413	70,718	4.7	4.0 (S)	311	260
Fabricated metal products	332	1,599	1,355	54	104	1,545	1,251	94,141	89,406	10.1	13.1	517	477
Machinery	333	6,404	6,429	67	62	6,337	6,366	150,306	147,148	55.9	56.5	764	740
Computer and electronic products	334	47,079	35,777	5,848	5,470	41,232	30,307	379,342	401,273	256.7 (S)	209.6	1,420	1,259
Computers and peripheral equipment	3341	(D)	3,040	(D)	25	3,165	3,015	41,383	40,409	15.6	15.1	112	83
Communications equipment	3342	15,507	6,635	298	215	15,209	6,420	91,381	55,294	90.6 (S)	40.9 (S)	284	175
Semiconductor and other electronic components	3344	14,358	11,919	148	48	14,210	11,871	135,597	138,596	83.3	73.3	501	404
Navigational, measuring, electromedical, and control instruments	3345	12,947	13,729	5,382	5,180	7,565	8,549	102,942	158,397	63.5 (S)	75.9	491	574
Other computer and electronic products	334 minus (3341-42, 3344-45)	(D)	453	(D)	1	1,083	452	8,038	8,576	3.7	4.4	32	23
Electrical equipment, appliances, and components	335	4,980	2,039	301 (S)	61	4,680	1,978	162,732 (S)	72,859	33.6	14.0	550	324
Transportation equipment	336	25,965	26,145	4,961	4,692	21,004	21,452	625,167	753,734	99.5	123.1	1,759	1,907
Motor vehicles, trailers, and parts	3361-63	(D)	(D)	(D)	(D)	16,089	15,199	455,455	487,740	73.5	83.2	1,065	987
Aerospace products and parts	3364	7,868	9,654	3,785	4,306	4,083	5,349	137,052	234,840	19.1	32.5	538	785
Other transportation equipment	336 minus (3361-64)	(D)	(D)	(D)	(D)	832 (S)	905	32,659	31,154	6.9 (S)	7.3 (S)	157	135

TABLE 2. Summary data for companies performing industrial R&amp;D in the United States, by industry and size of company: 2001–2002

Industry and size of company	NAICS codes	Research and development funds						Domestic net sales		R&D scientists and engineers (January) <sup>b</sup>		Domestic employment (March)	
		Total <sup>a</sup>		Federal <sup>a</sup>		Company and other		2001	2002	2002	2003	2001	2002
		2001	2002	2001	2002	2001	2002	2001	2002	2002	2003	2001	2002
Distribution by industry:		Millions of dollars								Thousands			
Furniture and related products	337	301	258	-	7	301	251	32,825	31,772	2.2	2.0	247	200
Miscellaneous manufacturing	339	6,606	7,457	25	44	6,581	7,414	100,006	93,692	21.9	22.6	431	379
Medical equipment and supplies	3391	(D)	(D)	(D)	(D)	5,903	6,179	65,846	63,537	15.7	14.4	246	227
Other miscellaneous manufacturing	339 minus (3391)	(D)	(D)	(D)	(D)	678	1,235	34,160	30,155	6.2	8.2	185	152
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	--
Distribution by industry:													
Nonmanufacturing	21-23, 42, 44-81	77,799	81,824	5,415	5,656	72,384	76,168	1,822,202	1,875,341	444.4	480.3	6,836	6,326
Mining, extraction, and support activities	21	(D)	(D)	(D)	(D)	846	715	64,140	22,181	4.9	(D)	113	85
Utilities	22	133	(D)	19	(D)	114	117	274,151	173,480	0.6	0.5	299	270
Construction	23	320	164	1	-	320	164	22,822	25,426	2.1	1.0	99	91
Wholesale trade	42	(NA)	(D)	(NA)	(D)	(NA)	24,082	(NA)	337,929	(NA)	126.6	(NA)	957
Professional and commercial equipment including computers	4214	(NA)	(D)	(NA)	(D)	(NA)	11,771	(NA)	125,305	(NA)	73.0	(NA)	477
Electrical goods	4216	(NA)	(D)	(NA)	(D)	(NA)	3,980	(NA)	49,960	(NA)	23.6	(NA)	128
Drugs and druggists' sundries	4222	(NA)	(D)	(NA)	(D)	(NA)	6,811	(NA)	72,150	(NA)	20.1	(NA)	115
Other wholesale trade	42 minus (4214, 4216, 4222)	(NA)	1,521	(NA)	1	(NA)	1,520	(NA)	90,515	(NA)	9.8	(NA)	237
Retail trade	44, 45	(NA)	932	(NA)	-	(NA)	932	(NA)	158,289	(NA)	7.9	(NA)	530
Transportation and warehousing	48, 49	1,848	(D)	72	(D)	1,776	339	72,515	71,288	0.7	(D)	650	707
Information	51	(D)	17,870	(D)	106	17,259	17,764	388,770	443,897	119.4	117.0	1,493	1,399
Publishing	511	13,760	13,541	44	53	13,716	13,488	91,172	82,487	86.7	85.1	392	450
Newspaper, periodical, book, and database	5111	649	614	-	-	649	614	23,620	22,307	5.5	4.3	145	140
Software	5112	13,111	12,927	44	53	13,067	12,874	67,552	60,180	81.1	80.8	247	311
Broadcasting and tele-communications	513	(D)	(D)	(D)	(D)	1,270	1,637	249,287	231,311 (S)	13.5	8.6 (S)	(D)	728 (S)
Radio and television broadcasting	5131	(D)	(D)	-	-	(D)	(D)	(D)	(D)	(D)	0.0	(D)	2
Telecommunications	5133	(D)	(D)	(D)	(D)	1,101	1,608	234,848	230,679 (S)	11.7	8.5 (S)	827	725 (S)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	(D)	-	-	(D)	(D)	(D)	(D)	(D)	0.1	(D)	1
Other information	51 minus (511, 513)	(D)	(D)	(D)	(D)	2,273	2,639	48,311	130,099	(D)	23.3	(D)	220



TABLE 2. Summary data for companies performing industrial R&D in the United States, by industry and size of company: 2001–2002

Industry and size of company	NAICS codes	Research and development funds						Domestic net sales		R&D scientists and engineers (January) <sup>b</sup>		Domestic employment (March)	
		Total <sup>a</sup>		Federal <sup>a</sup>		Company and other		2001	2002	2002	2003	2001	2002
		2001	2002	2001	2002	2001	2002						
Distribution by industry:													
Millions of dollars													
Thousands													
Finance, insurance, and real estate	52, 53	(D)	1,903	(D)	-	2,424	1,903	323,250	343,709	19.9	18.9	789	711
Professional, scientific, and technical services	54	27,704	30,358	5,065	5,412	22,640	24,946	165,299	223,013	152.9	181.8	900	956
Architectural, engineering, and related services	5413	3,386	4,159	1,021	1,337	2,365	2,822	45,221	53,594	23.7	32.2	225	250
Computer systems design and related services	5415	9,154	11,983	498	1,590	8,656	10,394	52,466	72,495	62.8	90.8	290	333
Scientific R&D services	5417	14,244	13,034	3,352	2,299	10,893	10,735	29,858	61,103	59.9	50.0	164	159
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	920	1,182	194	186	726	996	37,753	35,822	6.5	8.9	221	213
Management of companies and enterprises	55	381	148	-	-	381	148	4,862	1,962	1.5	1.5	26	13
Health care services	621-23	1,149	(D)	29	(D)	1,120	4,163	27,200	27,603	8.1	9.1	156	158
Other nonmanufacturing	56, 61, 624, 71, 72, 81	1,259	(D)	38	(D)	1,221	894	85,826	46,563	20.0	10.8	748	450
Distribution by size of company (number of employees):													
Total	(na)	198,505	190,809	16,899	16,401	181,606	174,408	4,835,140	4,903,345	1060.2	1,066.1	16,749	15,415
5 to 24	(na)	4,828	4,261	653	789	4,175	3,471	32,242	48,993	34.4	60.0	159	144
25 to 49	(na)	3,750	3,845	201	259	3,548	3,586	33,507	40,091	26.7	26.6	178	162
50 to 99	(na)	8,202	6,164	548	463	7,654	5,701	73,288	79,880	40.4	38.4	360	280
100 to 249	(na)	12,916	13,227	903	606	12,012	12,622	111,392	140,438	79.9	61.4	639	535
250 to 499	(na)	8,702	8,055	560	686	8,143	7,370	101,466	185,592	47.6	46.4	520	546
500 to 999	(na)	10,564	9,925	627	531	9,936	9,394	175,292	136,776	61.9	61.3	814	690
1,000 to 4,999	(na)	26,748	28,625	608	985	26,140	27,640	627,725	682,463	159.1	165.5	2,333	2,326
5,000 to 9,999	(na)	17,487	17,987	1,651	1,574	15,836	16,414	635,660	489,531	110.6 (S)	104.0	1,772	1,498
10,000 to 24,999	(na)	27,065	26,458	904	1,226	26,161	25,232	753,055	872,414	144.3	158.3	2,397	2,414
25,000 or more	(na)	78,244	72,261	10,243	9,282	68,001	62,979	2,291,513	2,227,168	355.2	344.2	7,577	6,820

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (NA) = not available; (na) = not applicable.

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

<sup>b</sup> Data recorded in January represent employment figures for the previous year.

NOTE: For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 3. Funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002  
(Millions of dollars)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Distribution by industry:						
All industries	21-23, 31-33, 42, 44-81	182,711	199,539	198,505	190,809	-4
Manufacturing	31-33	116,921	124,078	120,705	108,985	-10
Food	311	1,132	(D)	1,819	(D)	(na)
Beverage and tobacco products	312	(D)	417	152	170	12
Textiles, apparel, and leather	313-16	334	(D)	(D)	(D)	(na)
Wood products	321	70	105	182	(D)	(na)
Paper, printing and support activities	322, 323	(D)	(D)	(D)	(D)	(na)
Petroleum and coal products	324	615	(D)	(D)	(D)	(na)
Chemicals	325	20,246	20,918	17,892	20,641	15
Basic chemicals	3251	2,746	2,080	1,876	1,782	-5
Resin, synthetic rubber, fibers, and filament	3252	(D)	2,852	(D)	2,426	(na)
Pharmaceuticals and medicines	3254	(D)	(D)	10,137	(D)	(na)
Other chemicals	325 minus (3251-52, 3254)	(D)	(D)	(D)	(D)	(na)
Plastics and rubber products	326	1,785	(D)	(D)	(D)	(na)
Nonmetallic mineral products	327	(D)	846	990	(D)	(na)
Primary metals	331	470	624	485	473	-2
Fabricated metal products	332	1,655	1,672	1,599	1,355	-15
Machinery	333	6,057	6,580	6,404	6,429	0
Computer and electronic products	334	35,932	45,097	47,079	35,777	-24
Computers and peripheral equipment	3341	(D)	5,162	(D)	3,040	(na)
Communications equipment	3342	6,003	11,616	15,507	6,635	-57
Semiconductor and other electronic components	3344	10,701	12,894	14,358	11,919	-17
Navigational, measuring, electromedical, and control instruments	3345	14,337	15,116	12,947	13,729	6
Other computer and electronic products	334 minus (3341-42, 3344-45)	(D)	310	(D)	453	(na)
Electrical equipment, appliances, and components	335	(D)	(D)	4,980	2,039	-59
Transportation equipment	336	33,965	30,085	25,965	26,145	1
Motor vehicles, trailers, and parts	3361-63	(D)	(D)	(D)	(D)	(na)
Aerospace products and parts	3364	14,425	10,319	7,868	9,654	23
Other transportation equipment	336 minus (3361-64)	(D)	(D)	(D)	(D)	(na)
Furniture and related products	337	248	284	301	258	-14
Miscellaneous manufacturing	339	3,851	4,206	6,606	7,457	13
Medical equipment and supplies	3391	(D)	(D)	(D)	(D)	(na)
Other miscellaneous manufacturing	339 minus (3391)	(D)	(D)	(D)	(D)	(na)
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	(na)
Nonmanufacturing	21-23, 42, 44-81	65,790	75,461	77,799	81,824	5
Mining, extraction, and support activities	21	(D)	823	(D)	(D)	(na)
Utilities	22	142	(D)	133	(D)	(na)
Construction	23	691	(D)	320	164	-49
Trade	42, 44, 45	19,616	24,959	24,372	(D)	(na)
Transportation and warehousing	48, 49	460	(D)	1,848	(D)	(na)
Information	51	15,389	16,830	(D)	17,870	(na)

TABLE 3. Funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002  
(Millions of dollars)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Distribution by industry:						
Publishing	511	11,302	13,004	13,760	13,541	-2
Newspaper, periodical, book, and database	5111	371	365	649	614	-5
Software	5112	10,931	12,639	13,111	12,927	-1
Broadcasting and telecommunications	513	(D)	1,407 (S)	(D)	(D)	(na)
Radio and television broadcasting	5131	(D)	(D)	(D)	(D)	(na)
Telecommunications	5133	(D)	(D)	(D)	(D)	(na)
Other broadcasting and telecommunications	513 minus (5131, 5133)	31	59	(D)	(D)	(na)
Other information	51 minus (511, 513)	(D)	2,420	(D)	(D)	(na)
Finance, insurance, and real estate	52, 53	(D)	4,025	(D)	1,903	(na)
Professional, scientific, and technical services	54	18,994	22,577	27,704	30,358	10
Architectural, engineering, and related services	5413	3,580	3,381	3,386	4,159	23
Computer systems design and related services	5415	(D)	5,169	9,154	11,983	31
Scientific R&D services	5417	10,470	12,892	14,244	13,034	-8
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	(D)	1,135	920	1,182	28
Management of companies and enterprises	55	(D)	49	381	148	-61
Health care services	621-23	642	536	1,149	(D)	(na)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	(D)	731	1,259	(D)	(na)
Distribution by size of company (number of employees):						
Total	(na)	182,711	199,539	198,505	190,809	-4
5 to 24	(na)	7,004	6,862	4,828	4,261	-12
25 to 49	(na)	4,750	5,008	3,750	3,845	3
50 to 99	(na)	7,225	7,259	8,202	6,164	-25
100 to 249	(na)	7,213	9,020	12,916	13,227	2
250 to 499	(na)	7,892	7,479	8,702	8,055	-7
500 to 999	(na)	7,032	9,074	10,564	9,925	-6
1,000 to 4,999	(na)	24,840	30,636	26,748	28,625	7
5,000 to 9,999	(na)	16,376	16,768	17,487	17,987	3
10,000 to 24,999	(na)	24,922	28,653	27,065	26,458	-2
25,000 or more	(na)	75,457	78,779	78,244	72,261	-8

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (na) = not applicable.

<sup>a</sup> Some statistics for 1999 have been revised since originally published.

<sup>b</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTE: The R&D in this table is the industrial R&D performed within company facilities funded from all sources. The funds are the company's own; funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments; and funds from the federal government. Excluded from this table are R&D not performed within the company (e.g., R&D contracted out to other organizations) and R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 4. Funds for industrial R&D performance in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	Total <sup>a</sup>	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
All industries	21-23, 31-33, 42, 44-81	190,809	4,261	3,845	6,164	13,227	8,055	9,925	28,625	17,987	26,458	72,261
Manufacturing	31-33	108,985	767	937	1,580	2,800	2,831	4,704	15,216	(D)	15,205	(D)
Food	311	(D)	13	-	112	32	38	73	194	98	(D)	(D)
Beverage and tobacco products	312	170	9	(z)	(D)	(D)	1	-	56	(D)	(D)	-
Textiles, apparel, and leather	313-16	(D)	4	(D)	1	(D)	14	(D)	(D)	(D)	(D)	(D)
Wood products	321	(D)	-	4	(z)	5	6	2	27	(D)	(D)	-
Paper, printing and support activities	322, 323	(D)	5	5	2	20	19	90	(D)	96	319	(D)
Petroleum and coal products	324	(D)	6	(z)	(D)	4	5	(D)	(D)	-	(D)	(D)
Chemicals	325	20,641	(D)	82	148	(D)	297	(D)	(D)	(D)	(D)	(D)
Basic chemicals	3251	1,782	11	16	17	(D)	43	246	(D)	267	(D)	-
Resin, synthetic rubber, fibers, and filament	3252	2,426	2	2	2	13	59	50	(D)	(D)	(D)	(D)
Pharmaceuticals and medicines	3254	(D)	(D)	24	(D)	(D)	136	234	(D)	(D)	(D)	(D)
Other chemicals	325 minus (3251-52, 3254)	(D)	36	40	(D)	(D)	59	(D)	(D)	324	(D)	(D)
Plastics and rubber products	326	(D)	17	7	31	91	78	(D)	(D)	(D)	(D)	(D)
Nonmetallic mineral products	327	(D)	(D)	9	1	28	42	7	(D)	(D)	(D)	(D)
Primary metals	331	473	2	(D)	3	(D)	3	(D)	78	(D)	(D)	(D)
Fabricated metal products	332	1,355	22	12	57	77	(D)	(D)	(D)	(D)	(D)	(D)
Machinery	333	6,429	88	168	197	400	285	569	(D)	1,336	(D)	(D)
Computer and electronic products	334	35,777	319	422	568	1,150	1,377	(D)	7,107	(D)	(D)	(D)
Computers and peripheral equipment	3341	3,040	(D)	72	(D)	(D)	178	(D)	600	(D)	(D)	-
Communications equipment	3342	6,635	(D)	41	102	417	414	(D)	1,050	(D)	(D)	(D)
Semiconductor and other electronic components	3344	11,919	75	215	192	(D)	476	(D)	(D)	1,598	(D)	(D)
Navigational, measuring, electromedical, and control instruments	3345	13,729	133	86	(D)	(D)	284	(D)	1,777	(D)	(D)	(D)
Other computer and electronic products	334 minus (3341-42, 3344-45)	453	(D)	9	20	32	26	(D)	(D)	(D)	-	-
Electrical equipment, appliances, and components	335	2,039	27	(D)	109	109	(D)	226	(D)	287	585	-
Transportation equipment	336	26,145	31	18	96	(D)	148	(D)	(D)	(D)	1,857	(D)
Motor vehicles, trailers, and parts	3361-63	(D)	28	4	89	(D)	58	172	(D)	(D)	(D)	(D)
Aerospace products and parts	3364	9,654	-	4	1	(D)	75	(D)	(D)	(D)	(D)	8,437
Other transportation equipment	336 minus (3361-64)	(D)	2	9	6	(D)	16	(D)	(D)	(D)	(D)	-
Furniture and related products	337	258	(D)	(D)	5	(D)	15	(D)	44	76	(D)	(D)
Miscellaneous manufacturing	339	7,457	75	(D)	245	253	(D)	(D)	(D)	1,291	(D)	(D)
Medical equipment and supplies	3391	(D)	44	(D)	209	168	(D)	(D)	(D)	1,175	(D)	(D)
Other miscellaneous manufacturing	339 minus (3391)	(D)	31	(D)	36	85	75	450	(D)	116	(D)	-

TABLE 4. Funds for industrial R&D performance in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	Total <sup>a</sup>	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	81,824	3,493	(D)	4,584	10,428	5,224	5,221	13,409	(D)	11,254	(D)
Mining, extraction, and support activities	21	(D)	-	-	-	-	19	(D)	129	(D)	(D)	(D)
Utilities	22	(D)	25	-	-	-	(D)	(D)	(D)	(D)	(D)	(D)
Construction	23	164	(D)	(z)	(D)	(D)	(D)	(D)	17	(D)	(D)	-
Trade	42, 44, 45	(D)	266	(D)	428	1,096	(D)	(D)	(D)	(D)	(D)	(D)
Transportation and warehousing	48, 49	(D)	-	-	-	-	(D)	(D)	(D)	(D)	11	(D)
Information	51	17,870	(D)	(D)	(D)	771	(D)	1,189	3,997	797	1,680	(D)
Publishing	511	13,541	(D)	(D)	(D)	568	(D)	889	(D)	(D)	1,416	(D)
Newspaper, periodical, book, and database	5111	614	-	2	(z)	25	(D)	-	(D)	(D)	(D)	(D)
Software	5112	12,927	(D)	(D)	(D)	543	(D)	889	(D)	(D)	(D)	(D)
Broadcasting and telecommunications	513	(D)	(D)	-	(D)	59	(D)	48	(D)	(D)	-	(D)
Radio and television broadcasting	5131	(D)	-	-	-	(D)	-	-	(D)	-	-	-
Telecommunications	5133	(D)	-	-	-	(D)	(D)	(D)	(D)	(D)	-	(D)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	(D)	-	(D)	(D)	(D)	(D)	-	-	-	-
Other information	51 minus (511, 513)	(D)	31	66	(D)	144	(D)	252	(D)	(D)	264	(D)
Finance, insurance, and real estate	52, 53	1,903	(D)	(D)	(D)	193	76	21	(D)	(D)	463	(D)
Professional, scientific, and technical services	54	30,358	2,182	(D)	3,515	5,338	2,938	2,967	(D)	1,464	(D)	(D)
Architectural, engineering, and related services	5413	4,159	(D)	93	957	500	434	352	(D)	(D)	(D)	38
Computer systems design and related services	5415	11,983	(D)	(D)	927	1,231	(D)	(D)	1,162	(D)	(D)	(D)
Scientific R&D services	5417	13,034	(D)	(D)	1,619	3,489	(D)	(D)	(D)	(D)	-	(D)
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	1,182	(D)	(D)	12	119	68 (S)	146	182	61	(D)	(D)
Management of companies and enterprises	55	148	(D)	(D)	(D)	(D)	44	(D)	(D)	-	-	-
Health care services	621-23	(D)	(D)	(D)	(D)	2,977	(D)	(D)	41 (S)	(D)	(D)	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	(D)	(D)	(D)	52	(D)	(D)	(D)	(D)	75	26 (S)	(D)

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the value shown; (-) = indicates data not collected; (-) = indicates a value of zero.

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 5. Funds for industrial R&D performance in the United States and number of companies that performed R&D in the United States, by industry and size of company and by size of total R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount <sup>a</sup> (millions of dollars)	Size of R&D Program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
All industries	21-23, 31-33, 42, 44-81	29,001	190,809	13,609	907	8,141	3,941	5,331	16,367	1,681	42,984	238	126,610
Manufacturing	31-33	14,043	108,985	7,538	510	3,578	1,619	2,151	6,472	639	18,926	137	81,457
Food	311	529	(D)	245	(D)	161	72	102	304	17	673	4	(D)
Beverage and tobacco products	312	57	170	14	(D)	36	13	2	(D)	6	152	0	-
Textiles, apparel, and leather	313-16	364	(D)	250	(D)	67	34	40	128	6	89	0	-
Wood products	321	90	(D)	43	(D)	35	15	8	26	3	88	0	-
Paper, printing and support activities	322, 323	396	(D)	259	(D)	81	29	39	121	14	426	3	2,061
Petroleum and coal products	324	79	(D)	50	(D)	17	7	4	10	3	120	4	1,093
Chemicals	325	1,242	20,641	518	48	360	151	225	709	116	3,870	24	15,863
Basic chemicals	3251	182	1,782	47	6	52	23	47	(D)	33	1,192	3	(D)
Resin, synthetic rubber, fibers, and filament	3252	82	2,426	30	1	15	5	22	72	11	374	4	1,974
Pharmaceuticals and medicines	3254	313	(D)	98	9	71	30	83	(D)	46	1,488	15	12,455
Other chemicals	325 minus (3251-52, 3254)	666	(D)	343	32	222	93	73	(D)	25	815	2	(D)
Plastics and rubber products	326	951	(D)	562	(D)	261	108	103	(D)	23	598	2	(D)
Nonmetallic mineral products	327	211	(D)	124	(D)	49	21	27	73	11	321	0	-
Primary metals	331	200	473	130	(D)	33	14	27	93	9	142	1	(D)
Fabricated metal products	332	1,382	1,355	989	(D)	265	131	107	326	21	601	1	(D)
Machinery	333	2,706	6,429	1,669	115	641	311	312	900	72	1,713	12	3,391
Computer and electronic products	334	2,808	35,777	1,012	84	912	402	634	1,869	202	6,053	48	27,368
Computers and peripheral equipment	3341	329	3,040	84	7	146	(D)	67	263	26	625	6	(D)
Communications equipment	3342	501	6,635	193	14	160	73	90	364	49	1,487	8	4,697
Semiconductor and other electronic components	3344	806	11,919	301	34	196	95	232	575	61	2,092	17	9,123
Navigational, measuring, electromedical, and control instruments	3345	1,047	13,729	378	24	368	158	226	610	59	1,595	16	11,342
Other computer and electronic products	334 minus (3341-42, 3344-45)	125	453	55	4	43	(D)	19	57	7	254	1	(D)
Electrical equipment, appliances, and components	335	840	2,039	501	34	171	81	127	406	37	847	5	670
Transportation equipment	336	785	26,145	377	36	197	91	146	444	42	1,418	24	24,156
Motor vehicles, trailers, and parts	3361-63	488	(D)	212	(D)	125	56	116	333	27	1,010	9	13,832
Aerospace products and parts	3364	84	9,654	31	3	17	7	15	62	9	255	11	9,327
Other transportation equipment	336 minus (3361-64)	213	(D)	134	(D)	54	28	14	49	6	153	4	997

TABLE 5. Funds for industrial R&D performance in the United States and number of companies that performed R&D in the United States, by industry and size of company and by size of total R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount <sup>a</sup> (millions of dollars)	Size of R&D Program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
Furniture and related products	337	267	258	180	13	46	21	36	79	6	145	0	-
Miscellaneous manufacturing	339	1,136	7,457	616	28	246	118	213	633	51	1,671	9	5,007
Medical equipment and supplies	3391	557	(D)	216	10	145	63	154	(D)	33	822	8	(D)
Other miscellaneous manufacturing	339 minus (3391)	579	(D)	400	19	101	55	59	(D)	18	849	1	(D)
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)												
Nonmanufacturing	21-23, 42, 44-81	14,958	81,824	6,071	398	4,563	2,321	3,180	9,895	1,042	24,058	101	45,153
Mining, extraction, and support activities	21	22	(D)	0	-	4	2	14	(D)	3	118	2	(D)
Utilities	22	285	(D)	254	26	13	7	15	(D)	3	52	0	-
Construction	23	300	164	273	17	14	8	8	25	4	115	0	-
Trade	42, 44, 45	2,837	(D)	1,272	62	1,133	613	280	(D)	118	3,420	35	20,058
Transportation and warehousing	48, 49	120	(D)	10	1	99	56	9	(D)	1	(D)	1	(D)
Information	51	1,726	17,870	398	42	683	368	473	(D)	145	4,320	27	(D)
Publishing	511	1,320	13,541	361	39	477	235	370	1,109	90	2,414	23	9,744
Newspaper, periodical, book, and database	5111	51	614	32	2	4	1	8	47	4	103	3	460
Software	5112	1,269	12,927	329	37	473	234	362	1,062	86	2,311	20	9,284
Broadcasting and telecommunications	513	112	(D)	5	(D)	73	61	8	(D)	24	1,042	2	(D)
Radio and television broadcasting	5131	4	(D)	4	(D)	0	-	0	-	0	-	0	-
Telecommunications	5133	93	(D)	0	-	62	(D)	7	(D)	23	(D)	2	(D)
Other broadcasting and telecommunications	513 minus (5131, 5133)	14	(D)	1	(D)	11	(D)	1	(D)	1	(D)	0	-
Other information	51 minus (511, 513)	294	(D)	31	(D)	134	71	96	(D)	31	864	2	(D)
Finance, insurance, and real estate	52, 53	463	1,903	273	4	22	8	129	426	35	952	3	513
Professional, scientific, and technical services	54	6,973	30,358	2,355	174	2,240	1,090	1,889	5,881	457	11,351	31	11,863
Architectural, engineering, and related services	5413	1,392	4,159	557	40	501	279	273	1,192	57	1,398	5	1,251
Computer systems design and related services	5415	3,304	11,983	1,292	102	1,110	493	746	2,135	146	3,053	10	6,200
Scientific R&D services	5417	1,364	13,034	141	17	370	167	594	(D)	244	6,555	14	(D)

TABLE 5. Funds for industrial R&D performance in the United States and number of companies that performed R&D in the United States, by industry and size of company and by size of total R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount <sup>a</sup> (millions of dollars)	Size of R&D Program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	913	1,182	366	14	259	151	276	(D)	11	344	2	(D)
Management of companies and enterprises	55	35	148	8	(z)	1	(D)	23	59	3	(D)	0	-
Health care services	621-23	1,231	(D)	385	17	324	(D)	265	(D)	256	(D)	1	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	966	(D)	842	56	29	16	76	(D)	18	485	1	(D)
Distribution by size of company (number of employees):													
Total	(na)	29,001	190,809	13,609	907	8,141	3,941	5,331	16,367	1,681	42,984	238	126,610
5 to 24	(na)	13,028	4,261	8,477	(D)	3,338	1,556	1,211	2,147	2	(D)	0	-
25 to 49	(na)	4,620	3,845	1,828	131	1,846	937	918	2,375	28	402	0	-
50 to 99	(na)	3,846	6,164	1,851	135	948	467	921	3,580	126	1,982	0	-
100 to 249	(na)	3,441	13,227	879	70	1,145	553	855	2,894	563	9,709	0	-
250 to 499	(na)	1,573	8,055	423	44	407	192	536	1,699	205	5,674	3	446
500 to 999	(na)	962	9,925	85	9	288	150	362	1,334	216	6,692	11	1,740
1,000 to 4,999	(na)	1,054	28,625	46	5	148	74	437	1,902	347	11,202	76	15,442
5,000 to 9,999	(na)	220	17,987	21	2	16	7	54	254	91	3,205	39	14,519
10,000 to 24,999	(na)	152	26,458	1	(D)	5	(D)	26	123	69	2,590	51	23,742
25,000 or more	(na)	105	72,261	0	-	1	(D)	11	59	35	(D)	58	70,720

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.



TABLE 6. Funds for industrial R&D performance in the United States and number of companies in manufacturing and nonmanufacturing industries that performed industrial R&D in the United States, by size of company: 2002

Size of company (number of employees)	All industries <sup>a</sup>	Manufacturing	Nonmanufacturing
Total	190,809	108,985	81,824
5 to 24	4,261	767 (S)	3,493
25 to 49	(D)	937	(D)
50 to 99	6,164	1,580	4,584
100 to 249	13,227	2,800	10,428
250 to 499	8,055	2,831	5,224
500 to 999	9,925	4,704	5,221
1,000 to 4,999	28,625	15,216	13,409
5,000 to 9,999	(D)	(D)	(D)
10,000 to 24,999	26,458	15,205	11,254
25,000 or more	(D)	(D)	(D)
	Number of R&D-performing companies		
Total	29,001	14,043	14,958
5 to 24	13,028	4,856	8,172
25 to 49	4,620	2,272	2,348
50 to 99	3,846	2,151	1,695
100 to 249	3,441	2,028	1,414
250 to 499	1,573	1,065	508
500 to 999	962	628	334
1,000 to 4,999	1,054	744	310
5,000 to 9,999	220	146	74
10,000 to 24,999	152	93	59
25,000 or more	105	61	44

(D) = data have been withheld to avoid disclosing operations of individual companies.

(S) = indicates imputation of more than 50 percent.

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 7. Funds for industrial R&amp;D performance in the United States, by industry and size of company and by type of cost: 2002

Industry and size of company	NAICS codes	Total R&D cost	Wages of R&D personnel	Fringe benefits of R&D personnel	Materials and supplies	R&D depreciation	Other costs
		Millions of dollars	Percent				
Distribution by industry:							
All industries	21-23, 31-33, 42, 44-81	190,809	44.5	8.5	11.6	4.3	31.0
Manufacturing	31-33	108,985	43.3	9.0	14.2	4.0	29.6
Food	311	(D)	41.8	11.4	10.2	5.6	31.0
Beverage and tobacco products	312	170	48.2	17.9	6.4	6.1	21.4
Textiles, apparel, and leather	313-16	(D)	46.9	6.2	15.5	2.2 (S)	29.3
Wood products	321	(D)	48.1	4.1	8.8	4.1	34.9
Paper, printing and support activities	322, 323	(D)	47.4	2.8 (S)	13.3	3.6	33.0
Petroleum and coal products	324	(D)	38.7 (S)	18.2 (S)	9.5 (S)	2.7 (S)	30.9 (S)
Chemicals	325	20,641	38.5	8.3	11.5	6.6	35.1
Basic chemicals	3251	1,782	44.5	9.5	11.2	6.2	28.7
Resin, synthetic rubber, fibers, and filament	3252	2,426	47.4	4.6	9.7	9.4	28.8
Pharmaceuticals and medicines	3254	(D)	34.3	8.0	11.6	6.2	39.9
Other chemicals	325 minus (3251-52, 3254)	(D)	51.6	14.4	13.0	5.7	15.3
Plastics and rubber products	326	(D)	52.4	8.7	20.9	4.1	13.9
Nonmetallic mineral products	327	(D)	40.8	10.1	13.3	3.6	32.2
Primary metals	331	473	73.2	4.0	5.8	4.8	12.2
Fabricated metal products	332	1,355	51.2	15.9	9.0	2.7	21.1
Machinery	333	6,429	42.7	5.1	20.7	5.5	26.0
Computer and electronic products	334	35,777	48.9	7.3	14.6 (S)	4.4	24.8
Computers and peripheral equipment	3341	3,040	53.2	6.1 (S)	9.9 (S)	6.4 (S)	24.3
Communications equipment	3342	6,635	48.8 (S)	4.0	20.9 (S)	4.1	22.2 (S)
Semiconductor and other electronic components	3344	11,919	49.7	7.1	10.5	5.4	27.4
Navigational, measuring, electromedical, and control instruments	3345	13,729	47.1 (S)	9.3 (S)	16.1 (S)	3.5 (S)	24.0 (S)
Other computer and electronic products	334 minus (3341-42, 3344-45)	453	60.2	3.9	9.5	3.4	22.9 (S)
Electrical equipment, appliances, and components	335	2,039	48.2	9.6	11.5	3.1	27.6
Transportation equipment	336	26,145	42.5	13.3	16.9	1.9	25.4
Motor vehicles, trailers, and parts	3361-63	(D)	48.4	15.5 (S)	16.6	2.3 (S)	17.4 (S)
Aerospace products and parts	3364	9,654	33.1	10.3	16.5	1.0	39.1
Other transportation equipment	336 minus (3361-64)	(D)	44.1	9.5 (S)	23.9	4.3	18.2
Furniture and related products	337	258	46.4	9.9	13.3	1.4 (S)	28.9
Miscellaneous manufacturing	339	7,457	24.9 (S)	5.0 (S)	7.5 (S)	1.1	61.5
Medical equipment and supplies	3391	(D)	22.2 (S)	4.4 (S)	7.4 (S)	1.0	65.0
Other miscellaneous manufacturing	339 minus (3391)	(D)	51.1	10.8	7.8	1.8	28.5
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--

TABLE 7. Funds for industrial R&amp;D performance in the United States, by industry and size of company and by type of cost: 2002

Industry and size of company	NAICS codes	Total R&D cost	Wages of R&D personnel	Fringe benefits of R&D personnel	Materials and supplies	R&D depreciation	Other costs
		Millions of dollars	Percent				
Distribution by industry:							
Nonmanufacturing	21–23, 42, 44–81	81,824	46.5	7.7	7.5	4.8	33.4
Mining, extraction, and support activities	21	(D)	53.1 (S)	11.3 (S)	11.1 (S)	4.7 (S)	19.8 (S)
Utilities	22	(D)	22.4	(D)	13.0	(D)	58.1
Construction	23	164	47.7	7.4 (S)	29.2	1.1 (S)	14.6
Trade	42, 44, 45	(D)	36.4	5.2	6.5	4.3	47.7
Transportation and warehousing	48, 49	(D)	53.7	16.9	1.4	(D)	(D)
Information	51	17,870	64.7	9.1 (S)	3.0 (S)	4.8 (S)	18.4
Publishing	511	13,541	61.2 (S)	10.3 (S)	3.4 (S)	5.2 (S)	19.9
Newspaper, periodical, book, and database	5111	614	67.4	10.4	(D)	(D)	17.3
Software	5112	12,927	60.9 (S)	10.3 (S)	3.5 (S)	5.3 (S)	20.1
Broadcasting and telecommunications	513	(D)	81.3 (S)	4.9 (S)	1.4 (S)	8.1 (S)	4.4 (S)
Radio and television broadcasting	5131	(D)	(D)	(D)	(D)	(D)	(D)
Telecommunications	5133	(D)	81.4 (S)	4.8 (S)	1.4 (S)	8.0 (S)	4.4 (S)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	(D)	(D)	(D)	(D)	(D)
Other information	51 minus (511, 513)	(D)	81.2	3.2	1.3	0.6 (S)	13.6
Finance, insurance, and real estate	52, 53	1,903	72.5	7.6	6.0 (S)	2.6	11.5
Professional, scientific, and technical services	54	30,358	42.5	9.1	11.6	5.7	31.1
Architectural, engineering, and related services	5413	4,159	42.4	10.9	18.0	6.6 (S)	22.1
Computer systems design and related services	5415	11,983	50.9	9.4	5.4	5.9	28.4
Scientific R&D services	5417	13,034	35.3	8.4	15.7	5.4	35.3
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	1,182	41.7	7.9	8.6	2.2	39.6 (S)
Management of companies and enterprises	55	148	56.3	(D)	(D)	2.8	37.9
Health care services	621–23	(D)	43.8	12.3	4.0	1.3	38.6
Other nonmanufacturing	56, 61, 624, 71, 72, 81	(D)	45.9	6.9	4.4 (S)	10.4	32.3

TABLE 7. Funds for industrial R&D performance in the United States, by industry and size of company and by type of cost: 2002

Industry and size of company	NAICS codes	Total R&D cost	Wages of R&D personnel	Fringe benefits of R&D personnel	Materials and supplies	R&D depreciation	Other costs
		Millions of dollars	Percent				
Distribution by size of company (number of employees):							
Total	(na)	190,809	44.5	8.5	11.6	4.3	31.0
5 to 24	(na)	4,261	44.8	8.2	14.4	4.4	28.1
25 to 49	(na)	3,845	38.4	8.1	11.9	5.0	36.6
50 to 99	(na)	6,164	44.9	7.7	12.4	5.4	29.6
100 to 249	(na)	13,227	41.6	7.4	14.0	5.8	31.5
250 to 499	(na)	8,055	47.7	7.4	10.1	5.6	29.7
500 to 999	(na)	9,925	47.6	7.3	10.2	5.2	29.8
1,000 to 4,999	(na)	28,625	47.9	7.8	10.8	6.1	27.3
5,000 to 9,999	(na)	17,987	45.1	8.1	12.4	4.6	29.8
10,000 to 24,999	(na)	26,458	40.3	7.3	10.3	3.3	38.8
25,000 or more	(na)	72,261	44.4	9.7	12.2	3.7	30.0

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (na) = not applicable.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 8. Funds for industrial R&amp;D performance in the United States, by industry and size of company and by technology area: 2002

Industry and size of company	NAICS codes	Number of companies	Amount (millions of dollars)	Biotechnology R&D		Software development R&D		Materials synthesis and processing R&D		R&D in other technology areas		Undistributed R&D	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
All industries	21-23, 31-33, 42, 44-81	29,001	190,809	2,694	13,493	10,238	24,014	5,367	14,571	13,711	48,949	2,853	89,782
Manufacturing	31-33	14,043	108,985	752	4,973	2,665	3,390	4,273	11,850	7,826	32,792	1,709	55,979
Food	311	529	(D)	47	97	108	(D)	134	111	234	946	52	875
Beverage and tobacco products	312	57	170	0	-	31	2	2	(D)	43	60	15	(D)
Textiles, apparel, and leather	313-16	364	(D)	0	-	41	1	116	53	94	81	142	(D)
Wood products	321	90	(D)	0	-	13	1	41	83	35	45	18	(D)
Paper, printing and support activities	322, 323	396	(D)	2	(D)	118	52	145	105	114	190	36	2,299
Petroleum and coal products	324	79	(D)	1	(D)	1	(D)	37	(D)	36	207	7	768
Chemicals	325	1,242	20,641	316	4,102	34	205	528	2,612	399	3,596	106	10,125
Basic chemicals	3251	182	1,782	23	109	2	(D)	82	492	66	563	27	(D)
Resin, synthetic rubber, fibers, and filament	3252	82	2,426	3	9	0	-	55	109	29	234	8	2,074
Pharmaceuticals and medicines	3254	313	(D)	229	3,820	14	93	48	1,213	41	2,322	23	(D)
Other chemicals	325 minus (3251-52, 3254)	666	(D)	61	164	18	(D)	343	799	263	478	48	677
Plastics and rubber products	326	951	(D)	10	(D)	6	(z)	497	362	446	377	57	769
Nonmetallic mineral products	327	211	(D)	1	(D)	4	4	82	87	103	96	32	232
Primary metals	331	200	473	2	(D)	6	1	104	292	95	106	12	(D)
Fabricated metal products	332	1,382	1,355	118	14	200	58	545	207	833	699	237	377
Machinery	333	2,706	6,429	41	22	412	216	590	1,313	1,847	2,124	257	2,755
Computer and electronic products	334	2,808	35,777	101	143	1,172	1,815	593	4,635	1,848	11,008	249	18,176
Computers and peripheral equipment	3341	329	3,040	22	(D)	238	361	31	96	144	741	50	(D)
Communications equipment	3342	501	6,635	1	(D)	181	596	78	79	348	1,959	49	(D)
Semiconductor and other electronic components	3344	806	11,919	6	23	259	160	290	3,792	588	4,214	45	3,729
Navigational, measuring, electro-medical, and control instruments	3345	1,047	13,729	73	107	450	645	185	662	687	3,885	93	8,431
Other computer and electronic products	334 minus (3341-42, 3344-45)	125	453	0	-	43	54	9	5	80	208	11	186
Electrical equipment, appliances, and components	335	840	2,039	8	2	226	53	253	269	553	987	76	728
Transportation equipment	336	785	26,145	2	(D)	44	(D)	275	1,195	455	11,495	159	13,118

TABLE 8. Funds for industrial R&amp;D performance in the United States, by industry and size of company and by technology area: 2002

Industry and size of company	NAICS codes	Number of companies	Biotechnology R&D		Software development R&D		Materials synthesis and processing R&D		R&D in other technology areas		Undistributed R&D		
			Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
			(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)
Distribution by industry:													
Motor vehicles, trailers, and parts	3361-63	488	(D)	1	(D)	17	46	160	1,014	293	6,556	117	7,642
Aerospace products and parts	3364	84	9,654	1	(D)	6	255	25	124	44	4,296	23	(D)
Other transportation equipment	336 minus (3361-64)	213	(D)	0	-	21	36	90	57	118	642	19	(D)
Furniture and related products	337	267	258	1	(D)	30	14	36	29	129	112	104	(D)
Miscellaneous manufacturing	339	1,136	7,457	100	562	220	603	294	261	565	663	150	5,369
Medical equipment and supplies	3391	557	(D)	87	542	164	79	146	131	253	302	45	(D)
Other miscellaneous manufacturing	339 minus (3391)	579	(D)	13	20	57	524	148	130	312	361	106	(D)
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	14,958	81,824	1,942	8,519	7,573	20,624	1,095	2,721	5,886	16,157	1,144	33,803
Mining, extraction, and support activities	21	22	(D)	3	(D)	1	(D)	4	16	15	71	6	619
Utilities	22	285	(D)	2	(D)	5	3	3	(z)	26	66	257	64
Construction	23	300	164	0	-	180	12	30	22	85	27	7	103
Trade	42, 44, 45	2,837	(D)	431	2,157	859	4,058	231	1,633	1,585	4,914	117	(D)
Transportation and warehousing	48, 49	120	(D)	0	-	105	108	3	2	5	8	11	(D)
Information	51	1,726	17,870	4	1	1,495	8,174	130	103	111	1,453	108	8,139
Publishing	511	1,320	13,541	4	1	1,147	5,921	129	103	51	206	87	7,310
Newspaper, periodical, book, and database	5111	51	614	0	-	38	232	4	(z)	5	178	4	203
Software	5112	1,269	12,927	4	1	1,109	5,689	125	103	46	28	83	7,107
Broadcasting and telecommunications	513	112	(D)	0	-	88	248	1	(D)	20	(D)	8	677
Radio and television broadcasting	5131	4	(D)	0	-	0	-	0	-	4	(D)	0	-
Telecommunications	5133	93	(D)	0	-	75	230	0	-	15	(D)	7	667
Other broadcasting and telecommunications	513 minus (5131, 5133)	14	(D)	0	-	13	18	1	(D)	0	-	1	(D)
Other information	51 minus (511, 513)	294	(D)	0	-	260	2,005	0	-	41	(D)	13	152
Finance, insurance, and real estate	52, 53	463	1,903	15	4	173	1,284	3	(D)	11	84	265	(D)
Professional, scientific, and technical services	54	6,973	30,358	1,089	5,763	4,361	6,483	635	843	2,618	5,849	296	11,420

TABLE 8. Funds for industrial R&amp;D performance in the United States, by industry and size of company and by technology area: 2002

Industry and size of company	NAICS codes	Number of companies	Amount (millions of dollars)	Biotechnology R&D		Software development R&D		Materials synthesis and processing R&D		R&D in other technology areas		Undistributed R&D	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
Architectural, engineering, and related services	5413	1,392	4,159	443	357	422	886	39	55	729	1,451	50	1,410
Computer systems design and related services	5415	3,304	11,983	11	(D)	3,155	4,706	378	(D)	473	2,011	111	4,859
Scientific R&D services	5417	1,364	13,034	534	5,157	272	546	216	465	578	1,990	124	4,875
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	913	1,182	102	(D)	511	344	2	(D)	837	396	10	276
Management of companies and enterprises	55	35	148	1	(D)	1	(D)	3	(D)	28	52	2	(D)
Health care services	621-23	1,231	(D)	393	558	1	(D)	0	-	805	3,515	35	105
Other nonmanufacturing	56, 61, 624, 71, 72, 81	966	(D)	3	(D)	392	433	53	13	595	117	40	384
Distribution by company size (number of employees):													
Total	(na)	29,001	190,809	2,694	13,493	10,238	24,014	5,367	14,571	13,711	48,949	2,853	89,782
5 to 24	(na)	13,028	4,261	1,540	891	5,265	1,044	2,111	359	6,108	1,850	968	117
25 to 49	(na)	4,620	3,845	421	458	1,960	1,675	710	434	2,183	962	321	318
50 to 99	(na)	3,846	6,164	291	1,333	1,287	1,990	859	358	1,855	1,875	284	608
100 to 249	(na)	3,441	13,227	198	1,537	853	2,932	733	834	1,769	5,432	354	2,493
250 to 499	(na)	1,573	8,055	90	1,156	309	1,694	354	617	830	2,477	231	2,111
500 to 999	(na)	962	9,925	50	1,486	286	2,407	254	658	366	2,668	171	2,706
1,000 to 4,999	(na)	1,054	28,625	59	3,225	191	4,504	243	2,007	428	7,838	300	11,051
5,000 to 9,999	(na)	220	17,987	19	1,189	24	1,003	50	622	77	4,139	98	11,035
10,000 to 24,999	(na)	152	26,458	10	(D)	34	(D)	28	1,199	62	4,442	70	17,840
25,000 or more	(na)	105	72,261	14	(D)	29	(D)	25	7,483	34	17,268	56	41,505

(D) = data have been withheld to avoid disclosing operations of individual companies; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 9. Companies reporting nanotechnology activity, by industry and size of company and by technology area and percentage of R&D attributable to nanotechnology: 2002

Industry and size of company	NAICS codes	Biotechnology		Software development	
		Less than 50%	50% or more	Less than 50%	50% or more
Distribution by industry:					
All industries	21-23, 31-33, 42, 44-81	90	400	487	989
Manufacturing	31-33	52	162	375	199
Food	311	4	18	7	3
Beverage and tobacco products	312	0	0	1	0
Textiles, apparel, and leather	313-16	0	0	6	2
Wood products	321	0	0	3	0
Paper, printing and support activities	322, 323	2	0	5	5
Petroleum and coal products	324	1	0	1	0
Chemicals	325	15	88	15	2
Basic chemicals	3251	5	11	2	0
Resin, synthetic rubber, fibers, and filament	3252	2	1	0	0
Pharmaceuticals and medicines	3254	5	64	7	1
Other chemicals	325 minus (3251-52, 3254)	3	12	6	1
Plastics and rubber products	326	2	0	5	0
Nonmetallic mineral products	327	1	0	3	1
Primary metals	331	1	1	5	1
Fabricated metal products	332	2	2	19	3
Machinery	333	2	5	48	13
Computer and electronic products	334	9	22	165	132
Computers and peripheral equipment	3341	1	1	34	42
Communications equipment	3342	0	1	33	32
Semiconductor and other electronic components	3344	4	1	18	9
Navigational, measuring, electromedical, and control instruments	3345	4	19	73	36
Other computer and electronic products	334 minus (3341-42, 3344-45)	0	0	7	13
Electrical equipment, appliances, and components	335	2	1	36	9
Transportation equipment	336	2	0	21	4
Motor vehicles, trailers, and parts	3361-63	1	0	11	0
Aerospace products and parts	3364	1	0	4	2
Other transportation equipment	336 minus (3361-64)	0	0	6	2
Furniture and related products	337	1	0	5	1
Miscellaneous manufacturing	339	8	25	30	23
Medical equipment and supplies	3391	6	24	22	7
Other miscellaneous manufacturing	339 minus (3391)	2	1	8	16
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	38	238	112	790
Mining, extraction, and support activities	21	2	1	1	0
Utilities	22	1	1	4	1
Construction	23	0	0	2	2
Trade	42, 44, 45	9	22	23	54
Transportation and warehousing	48, 49	0	0	0	7
Information	51	1	0	4	295
Publishing	511	1	0	1	240
Newspaper, periodical, book, and database	5111	0	0	0	10
Software	5112	1	0	1	230



TABLE 9. Companies reporting nanotechnology activity, by industry and size of company and by technology area and percentage of R&D attributable to nanotechnology: 2002

Industry and size of company	NAICS codes	Biotechnology		Software development	
		Less than 50%	50% or more	Less than 50%	50% or more
Distribution by industry:					
Broadcasting and telecommunications	513	0	0	2	12
Radio and television broadcasting	5131	0	0	0	0
Telecommunications	5133	0	0	1	9
Other broadcasting and telecommunications	513 minus (5131, 5133)	0	0	1	3
Other information	51 minus (511, 513)	0	0	1	43
Finance, insurance, and real estate	52, 53	0	2	1	28
Professional, scientific, and technical services	54	24	183	71	382
Architectural, engineering, and related services	5413	8	12	20	38
Computer systems design and related services	5415	2	2	14	282
Scientific R&D services	5417	13	165	33	40
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	1	4	4	22
Management of companies and enterprises	55	0	1	0	1
Health care services	621-23	1	25	0	1
Other nonmanufacturing	56, 61, 624, 71, 72, 81	0	3	6	19
Distribution by size of company (number of employees):					
Total	(na)	90	400	487	989
5 to 24	(na)	5	50	42	137
25 to 49	(na)	7	44	45	147
50 to 99	(na)	8	69	61	186
100 to 249	(na)	8	101	99	197
250 to 499	(na)	11	49	57	124
500 to 999	(na)	14	32	72	79
1,000 to 4,999	(na)	15	43	66	78
5,000 to 9,999	(na)	5	5	9	15
10,000 to 24,999	(na)	5	5	19	15
25,000 or more	(na)	12	2	17	11

TABLE 9. Companies reporting nanotechnology activity, by industry and size of company and by technology area and percentage of R&D attributable to nanotechnology: 2002

Industry and size of company	NAICS codes	Materials synthesis and processing		Other technology areas	
		Less than 50%	50% or more	Less than 50%	50% or more
All industries	21-23, 31-33, 42, 44-81	255	1,029	269	2,195
Manufacturing	31-33	202	924	177	1,742
Food	311	9	32	7	91
Beverage and tobacco products	312	2	0	0	13
Textiles, apparel, and leather	313-16	1	41	6	39
Wood products	321	2	19	1	19
Paper, printing and support activities	322, 323	6	22	2	44
Petroleum and coal products	324	1	10	0	8
Chemicals	325	25	181	22	151
Basic chemicals	3251	5	38	6	29
Resin, synthetic rubber, fibers, and filament	3252	3	23	3	14
Pharmaceuticals and medicines	3254	7	14	5	17
Other chemicals	325 minus (3251-52, 3254)	10	106	8	91
Plastics and rubber products	326	12	102	5	113
Nonmetallic mineral products	327	6	29	2	35
Primary metals	331	6	42	5	32
Fabricated metal products	332	10	63	13	116
Machinery	333	19	75	13	210
Computer and electronic products	334	47	116	62	394
Computers and peripheral equipment	3341	8	12	17	48
Communications equipment	3342	11	11	12	81
Semiconductor and other electronic components	3344	13	44	11	97
Navigational, measuring, electromedical, and control instruments	3345	14	44	21	137
Other computer and electronic products	334 minus (3341-42, 3344-45)	1	5	1	31
Electrical equipment, appliances, and components	335	12	42	7	139
Transportation equipment	336	20	63	11	134
Motor vehicles, trailers, and parts	3361-63	9	37	5	67
Aerospace products and parts	3364	6	13	4	24
Other transportation equipment	336 minus (3361-64)	5	13	2	43
Furniture and related products	337	0	18	3	48
Miscellaneous manufacturing	339	24	69	18	156
Medical equipment and supplies	3391	15	37	12	75
Other miscellaneous manufacturing	339 minus (3391)	9	32	6	81
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	53	105	92	453
Mining, extraction, and support activities	21	2	2	2	11
Utilities	22	3	0	2	24
Construction	23	0	12	0	14
Trade	42, 44, 45	10	29	20	95
Transportation and warehousing	48, 49	1	2	3	2
Information	51	4	6	11	22
Publishing	511	4	5	5	9
Newspaper, periodical, book, and database	5111	0	1	0	5
Software	5112	4	4	5	4

TABLE 9. Companies reporting nanotechnology activity, by industry and size of company and by technology area and percentage of R&D attributable to nanotechnology: 2002

Industry and size of company	NAICS codes	Materials synthesis and processing		Other technology areas	
		Less than 50%	50% or more	Less than 50%	50% or more
Broadcasting and telecommunications	513	0	1	1	4
Radio and television broadcasting	5131	0	0	0	2
Telecommunications	5133	0	0	1	2
Other broadcasting and telecommunications	513 minus (5131, 5133)	0	1	0	0
Other information	51 minus (511, 513)	0	0	5	9
Finance, insurance, and real estate	52, 53	0	3	3	7
Professional, scientific, and technical services	54	33	43	49	229
Architectural, engineering, and related services	5413	9	3	18	59
Computer systems design and related services	5415	6	7	6	28
Scientific R&D services	5417	18	31	23	130
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	0	2	2	12
Management of companies and enterprises	55	0	3	0	4
Health care services	621-23	0	0	0	16
Other nonmanufacturing	56, 61, 624, 71, 72, 81	0	5	2	29
Distribution by size of company (number of employees):					
Total	(na)	255	1,029	269	2,195
5 to 24	(na)	18	91	35	192
25 to 49	(na)	24	62	18	191
50 to 99	(na)	16	123	48	248
100 to 249	(na)	46	232	41	473
250 to 499	(na)	38	163	22	323
500 to 999	(na)	24	143	28	280
1,000 to 4,999	(na)	47	163	44	351
5,000 to 9,999	(na)	14	27	9	65
10,000 to 24,999	(na)	15	13	12	50
25,000 or more	(na)	13	12	12	22

(-) = indicates data not collected.

(na) = not applicable.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 10. Funds for industrial energy R&D performance in the United States and companies that performed energy R&D in the United States, by selected industry and size of company: 2002 and projected 2003

(Millions of dollars)

Industry and size of company	NAICS codes	Number of companies	2002 <sup>a</sup>			Projected 2003		
			Total	Federal	Company and other <sup>b</sup>	Total	Federal	Company and other <sup>b</sup>
Distribution by industry:								
All industries	21-23, 31-33, 42, 44-81	86	1,725	123	1,603	1,031	90	941
Manufacturing	31-33	52	1,470	70	1,400	907	47	859
Petroleum and coal products	324	3	(D)	(D)	361	(D)	(D)	317
Chemicals	325	9	19	4	16	(D)	(D)	18
Machinery	333	3	(D)	(D)	15	(D)	(D)	17
Computer and electronic products	334	12	(D)	(D)	371	(D)	(D)	280
Electrical equipment, appliances, and components	335	4	(D)	(D)	5	(D)	(D)	(z)
Transportation equipment	336	7	(D)	(D)	575	(D)	(D)	162
All other manufacturing		14	(D)	(D)	58	(D)	(D)	65
Nonmanufacturing	21-23, 42, 44-81	34	255	53	202	124	43	81
Mining, extraction, and support activities	21	4	(D)	(D)	10	(D)	(D)	(z)
All other nonmanufacturing	--	30	(D)	(D)	192	(D)	(D)	81
Distribution by size of company (number of employees):								
Total	(na)	86	1,725	123	1,603	1,031	90	941
5 to 24	(na)	3	(D)	(D)	8	-	-	-
25 to 49	(na)	2	(D)	(D)	6	(D)	(D)	6
50 to 99	(na)	3	11	11	(z)	(D)	(D)	(z)
100 to 249	(na)	9	35	17	18	24	17	7
250 to 499	(na)	5	(D)	(D)	31	(D)	(D)	(z)
500 to 999	(na)	12	(D)	(D)	92	(D)	(D)	65
1,000 to 4,999	(na)	17	(D)	(D)	219	(D)	(D)	90
5,000 to 9,999	(na)	8	(D)	(D)	55	(D)	(D)	56
10,000 to 24,999	(na)	14	400	2	398	433	2	431
25,000 or more	(na)	13	818	43	776	315	29	286

(D) = data have been withheld to avoid disclosing operations of individual companies; (z) = indicates data less than half the unit shown; (-) = all NAICS codes other than those specified; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

<sup>b</sup> The company R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

NOTES: Energy R&D data are collected only on Form RD-1, the questionnaire sent to larger R&D-performing companies. Consequently, the universe of companies that performs energy R&D may not be represented by the statistics in this table. For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 11. Funds for industrial energy R&D performance in the United States and companies that performed energy R&D in the United States, by primary energy source: 2002 and projected 2003

(Millions of dollars)

Primary energy source	Number of companies <sup>b</sup>	2002 <sup>a</sup>			Projected 2003		
		All R&D	Federal	Company and other <sup>c</sup>	All R&D	Federal R&D	Company and other <sup>c</sup>
All sources	86	1,725	123	1,603	1,031	90	941
Fossil fuels	27	769	35	735	338	(D)	(D)
Nuclear	6	(D)	(D)	21	1	(D)	(D)
Geothermal, solar, and conservation and utilization	31	333	42	291	282	34	249
All other energy	50	(D)	(D)	377	198	35	163

(D) = data have been withheld to avoid disclosing operations of individual companies.

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

<sup>b</sup> Detail does not add to total because categories are not mutually exclusive.

<sup>c</sup> The company R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

NOTES: Energy R&D data are collected only on Form RD-1, the survey form sent to larger R&D-performing companies. Consequently, the universe of companies that performs energy R&D may not be represented by the statistics in this table. For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 12. Company and other nonfederal funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002  
(Millions of dollars)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001	2002	Percent change 2002/2001
Distribution by industry:						
All industries	21–23, 31–33, 42, 44–81	160,176	180,421	181,606	174,408	-4
Manufacturing	31–33	99,865	110,750	109,221	98,240	-10
Food	311	1,132	1,145	1,818	2,034	12
Beverage and tobacco products	312	(D)	417	152	170	12
Textiles, apparel, and leather	313–16	334	266	255	248	-3
Wood products	321	70	105	181	132	-27
Paper, printing and support activities	322, 323	2,474	2,700	2,664	2,620	-2
Petroleum and coal products	324	(D)	1,172	1,057	1,233	17
Chemicals	325	20,051	20,768	17,713	20,395	15
Basic chemicals	3251	2,648	2,050	1,835	1,710	-7
Resin, synthetic rubber, fibers, and filament	3252	2,216	2,842	2,745	2,413	-12
Pharmaceuticals and medicines	3254	12,236	12,793	10,137	14,186	40
Other chemicals	325 minus (3251–52, 3254)	2,951	3,084	2,996	2,087	-30
Plastics and rubber products	326	1,785	1,675	2,245	1,508	-33
Nonmetallic mineral products	327	595	845	978	420	-57
Primary metals	331	457	598	479	461	-4
Fabricated metal products	332	1,608	1,631	1,545	1,251	-19
Machinery	333	5,658	6,539	6,337	6,366	0
Computer and electronic products	334	29,939	39,553	41,232	30,307	-26
Computers and peripheral equipment	3341	4,126	5,162	3,165	3,015	-5
Communications equipment	3342	5,797	11,183	15,209	6,420	-58
Semiconductor and other electronic components	3344	10,624	12,787	14,210	11,871	-16
Navigational, measuring, electromedical, and control instruments	3345	8,632	10,114	7,565	8,549	13
Other computer and electronic products	334 minus (3341–42, 3344–45)	760	307	1,083	452	-58
Electrical equipment, appliances, and components	335	3,820	3,390	4,680	1,978	-58
Transportation equipment	336	23,928	22,917	21,004	21,452	2
Motor vehicles, trailers, and parts	3361–63	17,987	18,306	16,089	15,199	-6
Aerospace products and parts	3364	5,309	3,895	4,083	5,349	31
Other transportation equipment	336 minus (3361–64)	632	716	832	905	9
Furniture and related products	337	248	284	301	251	-17
Miscellaneous manufacturing	339	3,825	4,195	6,581	7,414	13
Medical equipment and supplies	3391	3,251	3,741	5,903	6,179	5
Other miscellaneous manufacturing	339 minus (3391)	574	453	678	1,235	82
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	--	--	--	--	(na)
Nonmanufacturing	21–23, 42, 44–81	60,311	69,671	72,384	76,168	5
Mining, extraction, and support activities	21	2,352	822	846	715	-15
Utilities	22	126	136	114	117	3
Construction	23	690	222	320	164	-49
Trade	42, 44, 45	19,521	24,929	24,284	25,014	3
Transportation and warehousing	48, 49	460	277	1,776	339	-81
Information	51	14,892	16,290	17,259	17,764	3
Publishing	511	11,253	12,926	13,716	13,488	-2
Newspaper, periodical, book, and database	5111	371	365	649	614	-5
Software	5112	10,882	12,561	13,067	12,874	-1

TABLE 12. Company and other nonfederal funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002  
(Millions of dollars)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001	2002	Percent change 2002/2001
Distribution by industry:						
Broadcasting and telecommunications	513	1,393	1,025	1,270	1,637	29
Radio and television broadcasting	5131	(D)	(D)	(D)	(D)	(na)
Telecommunications	5133	(D)	(D)	1,101	1,608	46
Other broadcasting and telecommunications	513 minus (5131, 5133)	18	59	(D)	(D)	(na)
Other information	51 minus (511, 513)	2,246	2,339	2,273	2,639	16
Finance, insurance, and real estate	52, 53	1,570	4,024	2,424	1,903	-21
Professional, scientific, and technical services	54	14,379	17,949	22,640	24,946	10
Architectural, engineering, and related services	5413	2,402	2,232	2,365	2,822	19
Computer systems design and related services	5415	3,989	4,943	8,656	10,394	20
Scientific R&D services	5417	7,413	9,715	10,893	10,735	-1
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	575	1,059	726	996	37
Management of companies and enterprises	55	72	49	381	148	-61
Health care services	621–23	631	477	1,120	4,163	272
Other nonmanufacturing	56, 61, 624, 71, 72, 81	640	713	1,221	894	-27
Distribution by size of company (number of employees):						
Total	(na)	160,176	180,421	181,606	174,408	-4
5 to 24	(na)	6,393	5,940	4,175	3,471	-17
25 to 49	(na)	4,382	4,786	3,548	3,586	1
50 to 99	(na)	6,623	6,745	7,654	5,701	-26
100 to 249	(na)	6,540	8,351	12,012	12,622	5
250 to 499	(na)	7,407	6,819	8,143	7,370	-9
500 to 999	(na)	6,441	8,580	9,936	9,394	-5
1,000 to 4,999	(na)	23,944	29,860	26,140	27,640	6
5,000 to 9,999	(na)	14,182	15,143	15,836	16,414	4
10,000 to 24,999	(na)	24,525	27,976	26,161	25,232	-4
25,000 or more	(na)	59,740	66,221	68,001	62,979	-7

(D) = data have been withheld to avoid disclosing operations of individual companies; (-) = indicates data not collected; (na) = not applicable.

<sup>a</sup> Some statistics for 1999 have been revised since originally published.

NOTES: The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 13. Company and other nonfederal funds for industrial R&amp;D performance in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	Total	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
All industries	21-23, 31-33, 42, 44-81	174,408	3,471	3,586	5,701	12,622	7,370	9,394	27,640	16,414	25,232	62,979
Manufacturing	31-33	98,240	682	894	1,541	2,748	2,728	4,614	14,856	12,466	13,981	43,730
Food	311	2,034	13	-	112	32	38	73	194	98	(D)	(D)
Beverage and tobacco products	312	170	9	(z)	(D)	(D)	1	-	56	(D)	(D)	-
Textiles, apparel, and leather	313-16	248	4	(D)	1	(D)	14	51	79	(D)	(D)	(D)
Wood products	321	132	-	4	(z)	5	6	2	27	(D)	(D)	-
Paper, printing and support activities	322, 323	2,620	5	5	2	20	19	86	116	96	319	1,951
Petroleum and coal products	324	1,233	6	(z)	(D)	4	5	(D)	(D)	-	(D)	950
Chemicals	325	20,395	110	82	148	455	297	643	2,908	3,745	4,204	7,805
Basic chemicals	3251	1,710	9	16	17	(D)	43	246	798	(D)	(D)	-
Resin, synthetic rubber, fibers, and filament	3252	2,413	2	2	2	13	59	50	(D)	(D)	(D)	(D)
Pharmaceuticals and medicines	3254	14,186	62	24	(D)	294	136	234	(D)	(D)	(D)	(D)
Other chemicals	325 minus (3251-52, 3254)	2,087	36	40	(D)	(D)	59	113	(D)	324	(D)	(D)
Plastics and rubber products	326	1,508	17	7	31	91	78	(D)	(D)	(D)	(D)	(D)
Nonmetallic mineral products	327	420	10	9	1	28	42	7	124	(D)	(D)	(D)
Primary metals	331	461	2	7	3	(D)	3	(D)	78	44	(D)	(D)
Fabricated metal products	332	1,251	9	12	57	77	99	124	230	135	(D)	(D)
Machinery	333	6,366	88	156	197	400	285	559	1,391	1,336	633	1,320
Computer and electronic products	334	30,307	263	391	547	1,141	1,350	1,811	6,994	4,396	4,332	9,081
Computers and peripheral equipment	3341	3,015	49	71	85	130	178	340	600	(D)	(D)	-
Communications equipment	3342	6,420	(D)	40	102	417	414	(D)	1,050	(D)	(D)	(D)
Semiconductor and other electronic components	3344	11,871	75	188	192	290	462	(D)	3,465	1,598	(D)	(D)
Navigational, measuring, electromedical, and control instruments	3345	8,549	93	83	149	272	270	540	1,671	920	1,940	2,611
Other computer and electronic products	334 minus (3341-42, 3344-45)	452	(D)	9	20	32	26	(D)	208	(D)	-	-
Electrical equipment, appliances, and components	335	1,978	27	101	96	95	121	226	441	287	585	-
Transportation equipment	336	21,452	31	18	92	104	141	199	809	604	1,265	18,189
Motor vehicles, trailers, and parts	3361-63	15,199	28	4	89	(D)	58	172	(D)	(D)	(D)	13,416
Aerospace products and parts	3364	5,349	-	4	1	36	67	(D)	158	111	(D)	4,773
Other transportation equipment	336 minus (3361-64)	905	2	9	3	(D)	16	(D)	(D)	(D)	589 (S)	-



TABLE 13. Company and other nonfederal funds for industrial R&amp;D performance in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	Total	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
Furniture and related products	337	251	15	(D)	5	(D)	15	5	44	76	(D)	(D)
Miscellaneous manufacturing	339	7,414	75	97	245	240	213	548	(D)	1,291	(D)	(D)
Medical equipment and supplies	3391	6,179	44	(D)	209	155	138	98	764	1,175	(D)	(D)
Other miscellaneous manufacturing	339 minus (3391)	1,235	31	(D)	36	85	75	450	(D)	116	(D)	-
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	76,168	2,789	2,692	4,160	9,873	4,642	4,780	12,783	3,947	11,251	19,249
Mining, extraction, and support activities	21	715	-	-	-	-	19	(D)	129	(D)	(D)	(D)
Utilities	22	117	25	-	-	-	(D)	(D)	(D)	29	(D)	(D)
Construction	23	164	(D)	-	(D)	(D)	(D)	(D)	17	(D)	(D)	-
Trade	42, 44, 45	25,014	266	(D)	428	1,094	(D)	(D)	4,907	(D)	(D)	7,981
Transportation and warehousing	48, 49	339	-	-	-	-	(D)	(D)	8	(D)	11	257
Information	51	17,764	306	285	539	754	1,576	1,189	3,997	797	1,680	6,641
Publishing	511	13,488	278	219	(D)	551	659	889	(D)	(D)	1,416	(D)
Newspaper, periodical, book, and database	5111	614	-	2	(z)	25	(D)	-	(D)	(D)	(D)	(D)
Software	5112	12,874	278	217	(D)	526	(D)	889	(D)	(D)	(D)	(D)
Broadcasting and telecommunications	513	1,637	(D)	-	(D)	59	(D)	48	(D)	(D)	-	(D)
Radio and television broadcasting	5131	(D)	-	-	-	(D)	-	-	(D)	-	-	-
Telecommunications	5133	1,608	-	-	-	(D)	(D)	(D)	(D)	(D)	-	(D)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	(D)	-	(D)	(D)	(D)	(D)	-	-	-	-
Other information	51 minus (511, 513)	2,639	(D)	66	(D)	144	(D)	252	(D)	(D)	264	(D)
Finance, insurance, and real estate	52, 53	1,903	(D)	(D)	(D)	193	76	21	(D)	(D)	463	(D)
Professional, scientific, and technical services	54	24,946	1,493	1,766	3,099	4,803	2,409	2,528	2,850	(D)	(D)	3,567
Architectural, engineering, and related services	5413	2,822	178	71	880	402	191	152	819	36 (S)	56 (S)	38
Computer systems design and related services	5415	10,394	446	(D)	774	1,213	700	808	1,162	(D)	(D)	(D)
Scientific R&D services	5417	10,735	(D)	(D)	1,433	3,107	1,449	1,423	687	(D)	-	(D)
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	996	(D)	(D)	12	81	68 (S)	146	182	61	(D)	(D)

TABLE 13. Company and other nonfederal funds for industrial R&D performance in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	Total	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
Management of companies and enterprises	55	148	(D)	(D)	(D)	(D)	44	(D)	(D)	-	-	-
Health care services	621-23	4,163	679	(D)	27	2,977	(D)	85	25 (S)	(D)	(D)	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	894	(D)	(D)	51	(D)	53	100	347	75	26 (S)	(D)

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected;

(-) = indicates a value of zero or a value rounded to zero.

NOTES: The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For information on sampling for 1999-2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 14. Company and other nonfederal funds for industrial R&D performance in the United States and number of companies that performed company and other nonfederally funded R&D in the United States, by industry and size of company and by size of nonfederally funded R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount (millions of dollars)	Size of nonfederally funded R&D program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
All industries	21-23, 31-33, 42, 44-81	28,200	174,408	14,040	936	7,256	3,469	5,079	15,600	1,595	40,928	229	113,474
Manufacturing	31-33	13,823	98,240	7,458	500	3,481	1,574	2,122	6,327	631	18,737	131	71,102
Food	311	529	2,034	245	15	161	72	102	304	17	673	4	971
Beverage and tobacco products	312	57	170	14	(D)	36	13	2	(D)	6	152	0	-
Textiles, apparel, and leather	313-16	363	248	250	10	67	34	40	126	5	78	0	-
Wood products	321	90	132	43	3	35	15	8	26	3	88	0	-
Paper, printing and support activities	322, 323	391	2,620	259	15	81	29	34	115	14	426	3	2,036
Petroleum and coal products	324	79	1,233	50	5	17	7	4	10	3	120	4	1,092
Chemicals	325	1,241	20,395	527	50	352	148	225	690	115	3,816	24	15,692
Basic chemicals	3251	181	1,710	56	(D)	43	20	47	174	32	1,141	3	(D)
Resin, synthetic rubber, fibers, and filament	3252	82	2,413	30	1	15	5	22	72	11	373	4	1,961
Pharmaceuticals and medicines	3254	313	14,186	98	9	71	30	83	209	46	1,487	15	12,451
Other chemicals	325 minus (3251-52, 3254)	666	2,087	343	(D)	222	93	73	235	25	815	2	(D)
Plastics and rubber products	326	951	1,508	562	(D)	261	108	103	347	23	598	2	(D)
Nonmetallic mineral products	327	211	420	124	5	49	21	27	73	11	321	0	-
Primary metals	331	200	461	130	(D)	33	14	27	90	9	142	1	(D)
Fabricated metal products	332	1,281	1,251	889	(D)	267	134	103	283	21	549	1	(D)
Machinery	333	2,703	6,366	1,665	114	641	299	312	898	72	1,704	12	3,351
Computer and electronic products	334	2,786	30,307	1,103	91	830	372	605	1,769	202	6,023	46	22,051
Computers and peripheral equipment	3341	328	3,015	84	7	149	(D)	63	255	26	609	6	(D)
Communications equipment	3342	501	6,420	218	15	136	63	90	364	50	1,516	7	4,462
Semiconductor and other electronic components	3344	806	11,871	301	33	198	95	230	543	60	2,077	17	9,123
Navigational, measuring, electro-medical, and control instruments	3345	1,031	8,549	449	32	305	139	203	550	59	1,568	15	6,261
Other computer and electronic products	334 minus (3341-42, 3344-45)	121	452	50	4	43	(D)	19	57	7	253	1	(D)
Electrical equipment, appliances, and components	335	840	1,978	502	34	171	80	133	453	30	740	5	670
Transportation equipment	336	775	21,452	377	36	188	87	147	437	44	1,504	20	19,388
Motor vehicles, trailers, and parts	3361-63	488	15,199	212	26	125	56	117	335	26	999	9	13,781

TABLE 14. Company and other nonfederal funds for industrial R&D performance in the United States and number of companies that performed company and other nonfederally funded R&D in the United States, by industry and size of company and by size of nonfederally funded R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount (millions of dollars)	Size of nonfederally funded R&D program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
Aerospace products and parts	3364	83	5,349	31	3	17	7	15	54	12	352	7	4,933
Other transportation equipment	336 minus (3361-64)	204	905	134	7	46	24	14	48	6	153	4	673
Furniture and related products	337	189	251	102	8	46	21	35	78	6	145	0	-
Miscellaneous manufacturing	339	1,136	7,414	616	28	246	117	214	625	50	1,660	9	4,984
Medical equipment and supplies	3391	557	6,179	216	10	145	63	155	443	32	(D)	8	(D)
Other miscellaneous manufacturing	339 minus (3391)	579	1,235	400	19	101	55	59	181	18	(D)	1	(D)
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	14,377	76,168	6,582	435	3,776	1,895	2,957	9,274	964	22,191	98	42,372
Mining, extraction, and support activities	21	22	715	0	-	4	2	14	(D)	3	118	2	(D)
Utilities	22	284	117	253	26	13	7	16	(D)	2	(D)	0	-
Construction	23	295	164	269	16	14	8	8	25	4	115	0	-
Trade	42, 44, 45	2,837	25,014	1,272	62	1,133	613	280	889	118	3,418	35	20,032
Transportation and warehousing	48, 49	120	339	10	1	99	56	9	(D)	1	(D)	1	(D)
Information	51	1,723	17,764	429	46	653	351	472	(D)	142	4,271	27	(D)
Publishing	511	1,317	13,488	361	39	478	236	368	1,092	88	2,377	23	9,744
Newspaper, periodical, book, and database	5111	51	614	32	2	4	1	8	47	4	103	3	460
Software	5112	1,266	12,874	329	37	474	234	360	1,045	84	2,274	20	9,284
Broadcasting and telecommunications	513	112	1,637	5	(D)	73	61	8	(D)	24	1,042	2	(D)
Radio and television broadcasting	5131	4	(D)	4	(D)	0	-	0	-	0	-	0	-
Telecommunications	5133	93	1,608	0	-	62	(D)	7	(D)	23	(D)	2	(D)
Other broadcasting and telecommunications	513 minus (5131, 5133)	14	(D)	1	(D)	11	(D)	1	(D)	1	(D)	0	-
Other information	51 minus (511, 513)	294	2,639	63	(D)	103	54	97	(D)	30	852	2	(D)
Finance, insurance, and real estate	52, 53	463	1,903	273	4	22	8	129	(D)	35	952	3	(D)
Professional, scientific, and technical services	54	6,412	24,946	2,848	208	1,484	683	1,665	5,250	387	9,660	28	9,144
Architectural, engineering, and related services	5413	1,123	2,822	565	41	255	91	259	(D)	41	925	3	(D)

TABLE 14. Company and other nonfederal funds for industrial R&D performance in the United States and number of companies that performed company and other nonfederally funded R&D in the United States, by industry and size of company and by size of nonfederally funded R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount (millions of dollars)	Size of nonfederally funded R&D program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
Computer systems design and related services	5415	3,046	10,394	1,372	112	863	435	671	1,979	129	2,849	10	5,018
Scientific R&D services	5417	1,333	10,735	302	39	350	150	460	1,718	208	5,577	13	3,251
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	911	996	609	16	17	7	274	(D)	9	309	2	(D)
Management of companies and enterprises	55	35	148	8	(z)	1	(D)	23	(D)	3	89	0	-
Health care services	621-23	1,230	4,163	385	17	324	(D)	265	(D)	255	3,106	1	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	955	894	835	56	28	16	77	(D)	15	(D)	1	(D)
Distribution by size of company (number of employees):													
Total	(na)	28,200	174,408	14,040	936	7,256	3,469	5,079	15,600	1,595	40,928	229	113,474
5 to 24	(na)	12,312	3,471	8,846	(D)	2,452	1,091	1,012	1,803	2	(D)	0	(D)
25 to 49	(na)	4,605	3,586	1,833	132	1,871	930	873	2,135	27	389	0	-
50 to 99	(na)	3,820	5,701	1,852	136	951	470	922	3,527	96	1,569	0	-
100 to 249	(na)	3,426	12,622	890	72	1,154	558	843	2,772	538	9,220	0	-
250 to 499	(na)	1,559	7,370	464	50	370	185	539	1,672	184	5,016	3	446
500 to 999	(na)	951	9,394	87	9	289	150	358	(D)	207	6,302	10	(D)
1,000 to 4,999	(na)	1,050	27,640	46	5	148	74	439	1,898	344	10,991	73	14,671
5,000 to 9,999	(na)	220	16,414	21	2	17	8	55	260	92	3,256	36	12,888
10,000 to 24,999	(na)	152	25,232	1	(D)	5	(D)	26	(D)	71	2,682	49	22,424
25,000 or more	(na)	105	62,979	0	(D)	1	(D)	12	(D)	34	(D)	58	61,456

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates less than half the unit shown; (-) = indicates data not collected;

(-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

NOTES: The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 15. Company and other nonfederal funds for industrial R&D performance in the United States performed by outside organizations and number of R&D-performing companies that funded outside performance of company-funded R&D, by industry and size of company: 2001–2002

Industry and size of company	NAICS codes	2001		2002		Percent change 2002/2001
		Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	
Distribution by industry:						
All industries	21–23, 31–33, 42, 44–81	2,939	8,723	3,097	7,846	-10
Manufacturing	31–33	1,363	3,957	1,676	4,428	12
Food	311	53	59	61	105	78
Beverage and tobacco products	312	2	(D)	2	(D)	(na)
Textiles, apparel, and leather	313–16	6	2	42	9	350
Wood products	321	2	(D)	16	12	(na)
Paper, printing and support activities	322, 323	2	(D)	26	248	(na)
Petroleum and coal products	324	3	107	3	(D)	(na)
Chemicals	325	325	2,065	188	2,485	20
Basic Chemicals	3251	124	(D)	26	30	(na)
Resin, synthetic rubber, fibers, and filament	3252	4	(D)	14	38	(na)
Pharmaceuticals and medicines	3254	162	1,899	79	2,368	25
Other chemicals	325 minus (3251–52, 3254)	35	99	70	49	-51
Plastics and rubber products	326	23	22	142	28	27
Nonmetallic mineral products	327	10	2	16	2	0
Primary metals	331	19	4	44	4	0
Fabricated metal products	332	46	10	145	12	20
Machinery	333	51	115	146	134	17
Computer and electronic products	334	530	565	433	411	-27
Computers and peripheral equipment	3341	119	118	58	83	-30
Communications equipment	3342	87	80	136	19	-76
Semiconductor and other electronic components	3344	108	86	82	41	-52
Navigational, measuring, electromedical, and control instruments	3345	210	278	140	264	-5
Other computer and electronic products	334 minus (3341–42, 3344–45)	5	2	17	5	150
Electrical equipment, appliances, and components	335	81	60 (S)	125	35	-42
Transportation equipment	336	62	708	114	799	13
Motor vehicles, trailers, and parts	3361–63	10	657	68	617	-6
Aerospace products and parts	3364	50	(D)	18	178	(na)
Other transportation equipment	336 minus (3361–64)	2	(D)	29	5	(na)
Furniture and related products	337	4	2	11	3	50
Miscellaneous manufacturing	339	145	54	162	79	46
Medical equipment and supplies	3391	110	50	96	70	40
Other miscellaneous manufacturing	339 minus (3391)	34	4	66	8	100
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	--	--	--	--	(na)
Nonmanufacturing	21–23, 42, 44–81	1,576	4,766	1,422	3,418	-28
Mining, extraction, and support activities	21	4	11	5	71	545
Utilities	22	26	93	24	110	18
Construction	23	63	(D)	3	(D)	(na)
Trade	42, 44, 45	429	1,887	173	1,301	-31

TABLE 15. Company and other nonfederal funds for industrial R&D performance in the United States performed by outside organizations and number of R&D-performing companies that funded outside performance of company-funded R&D, by industry and size of company: 2001–2002

Industry and size of company	NAICS codes	2001		2002		Percent change 2002/2001
		Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	
Distribution by industry:						
Transportation and warehousing	48, 49	3	(D)	4	32	(na)
Information	51	237	577	275	363	-37
Publishing	511	153	187	146	113	-40
Newspaper, periodical, book, and database	5111	4	10	37	11	10
Software	5112	149	177	109	102	-42
Broadcasting and telecommunications	513	4	171	64	122 (S)	-29
Radio and television broadcasting	5131	0	-	0	-	(na)
Telecommunications	5133	4	171	63	(D)	(na)
Other broadcasting and telecommunications	513 minus (5131, 5133)	0	-	1	(D)	(na)
Other information	51 minus (511, 513)	81	218	65	129	-41
Finance, insurance, and real estate	52, 53	27	241	15	400	66
Professional, scientific, and technical services	54	655	1,676	611	1,113	-34
Architectural, engineering, and related services	5413	92	86	131	69	-20
Computer systems design and related services	5415	114	233	143	86	-63
Scientific R&D services	5417	441	1,310	328	890	-32
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	8	46	10	68	48
Distribution by industry:						
Management of companies and enterprises	55	18	22	2	(D)	(na)
Health care services	621–23	6	8	6	11	38
Other nonmanufacturing	56, 61, 624, 71, 72, 81	107	245	302	17	-93
Distribution by size of company (number of employees):						
Total	(na)	2,939	8,723	3,097	7,846	-10
5 to 24	(na)	735	311	675	133	-57
25 to 49	(na)	562	265	469	130	-51
50 to 99	(na)	551	489	719	326	-33
100 to 249	(na)	532	1,080	540	555	-49
250 to 499	(na)	131	260	234	229	-12
500 to 999	(na)	158	248	139	262	6
1,000 to 4,999	(na)	150	1,104	165	1,212	10
5,000 to 9,999	(na)	47	1,021	59	832	-19
10,000 to 24,999	(na)	34	1,702	50	1,539	-10
25,000 or more	(na)	39	2,242	47	2,626	17

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (–) = indicates data not collected; (–) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

NOTE: The R&D in this table is the industrial R&D performed outside company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table is company-funded R&D not performed within the 50 U.S. states or DC. (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 16. Company and other nonfederal funds for industrial R&D performance in the United States by outside organizations and number of R&D-performing companies that funded outside performance of R&D, by type of organization and by industry and size of company: 2002

Industry and size of company	NAICS codes	Number of companies	Company-funded	For-profit companies		Universities or colleges		Nonprofit organizations (other than universities and colleges)		Undistributed R&D performed by outside organizations	
			R&D performed by outside organizations (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:											
All industries	21-23, 31-33, 42, 44-81	3,097	7,846	319	4,850	134	331	47	109	2,746	2,556
Manufacturing	31-33	1,676	4,428	154	3,122	74	237	22	53	1,500	1,016
Food	311	61	105	9	67	4	31	2	(D)	52	(D)
Beverage and tobacco products	312	2	(D)	2	(D)	2	(D)	1	(D)	0	-
Textiles, apparel, and leather	313-16	42	9	5	2	2	(D)	0	-	37	(D)
Wood products	321	16	12	2	(D)	1	(D)	0	-	14	2
Paper, printing and support activities	322, 323	26	248	4	(D)	4	1	1	(D)	20	123
Petroleum and coal products	324	3	(D)	3	(D)	3	(D)	1	(D)	0	-
Chemicals	325	188	2,485	25	1,693	20	182	6	45	156	566
Basic chemicals	3251	26	30	6	12	5	1	0	-	18	17
Resin, synthetic rubber, fibers, and filament	3252	14	38	2	(D)	2	(D)	0	-	10	26
Pharmaceuticals and medicines	3254	79	2,368	13	1,676	11	171	6	45	65	475
Other chemicals	325 minus (3251-52, 3254)	70	49	4	(D)	2	(D)	0	-	64	47
Plastics and rubber products	326	142	28	5	3	1	(D)	0	-	137	(D)
Nonmetallic mineral products	327	16	2	1	(D)	1	(D)	0	-	14	1
Primary metals	331	44	4	0	-	1	(D)	1	(D)	43	(D)
Fabricated metal products	332	145	12	7	2	2	(D)	1	(D)	137	(D)
Machinery	333	146	134	11	83	6	4	1	(D)	134	(D)
Computer and electronic products	334	433	411	38	268	10	5	4	3	390	136
Computers and peripheral equipment	3341	58	83	5	38	1	(D)	1	(D)	53	(D)
Communications equipment	3342	136	19	7	5	0	-	1	(D)	128	(D)
Semiconductor and other electronic components	3344	82	41	7	(D)	4	2	1	(D)	72	11
Navigational, measuring, electromedical, and control instruments	3345	140	264	17	195	4	(D)	1	(D)	122	66
Other computer and electronic products	334 minus (3341-42, 3344-45)	17	5	2	(D)	1	(D)	0	-	15	1
Electrical equipment, appliances, and components	335	125	35	11	10	1	(D)	0	-	114	(D)
Transportation equipment	336	114	799	20	(D)	9	(D)	2	(D)	91	24
Motor vehicles, trailers, and parts	3361-63	68	617	13	605	7	1	0	-	53	11
Aerospace products and parts	3364	18	178	5	165	2	(D)	2	(D)	12	(D)
Other transportation equipment	336 minus (3361-64)	29	5	2	(D)	0	-	0	-	27	(D)
Furniture and related products	337	11	3	0	-	0	-	0	-	11	3
Miscellaneous manufacturing	339	162	79	11	32	7	(D)	2	(D)	150	40



TABLE 16. Company and other nonfederal funds for industrial R&D performance in the United States by outside organizations and number of R&D-performing companies that funded outside performance of R&D, by type of organization and by industry and size of company: 2002

Industry and size of company	NAICS codes	Number of companies	Company-funded	For-profit companies		Universities or colleges		Nonprofit organizations (other than universities and colleges)		Undistributed R&D performed by outside organizations		
			R&D performed by outside organizations (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	
Distribution by industry:												
Medical equipment and supplies	3391	96	70	7	29	6	(D)	2	(D)	88	34	
Other miscellaneous manufacturing	339 minus (3391)	66	8	4	3	1	(D)	0	(D)	62	6	
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	
Nonmanufacturing	21-23, 42, 44-81	1,422	3,418	165	1,728	60	94	25	57	1,247	1,540	
Mining, extraction, and support activities	21	5	71	3	(D)	0	-	0	-	2	(D)	
Utilities	22	24	110	5	6	3	1	6	37	17	67	
Construction	23	3	(D)	0	-	0	-	0	-	3	(D)	
Trade	42, 44, 45	173	1,301	19	539	7	(D)	3	(D)	151	736	
Transportation and warehousing	48, 49	4	(D)	1	(D)	0	-	0	-	3	31	
Information	51	275	363	26	146	2	(D)	0	-	249	(D)	
Publishing	511	146	113	20	(D)	1	(D)	0	-	126	(D)	
Newspaper, periodical, book, and database	5111	37	11	2	(D)	0	-	0	-	35	(D)	
Software	5112	109	102	18	36	1	(D)	0	-	91	(D)	
Broadcasting and telecommunications	513	64	122 (S)	1	(D)	0	-	0	-	63	(D)	
Radio and television broadcasting	5131	0	-	0	-	0	-	0	-	0	-	
Telecommunications	5133	63	(D)	1	(D)	0	-	0	-	62	113	
Other broadcasting and telecommunications	513 minus (5131, 5133)	1	(D)	0	-	0	-	0	-	1	(D)	
Other information	51 minus (511, 513)	65	129	5	98	1	(D)	0	-	60	(D)	
Finance, insurance, and real estate	52, 53	15	400	10	294	0	-	0	-	5	106	
Professional, scientific, and technical services	54	611	1,113	96	(D)	46	63	15	(D)	510	356	
Architectural, engineering, and related services	5413	131	69	8	21	2	(D)	1	(D)	123	44	
Computer systems design and related services	5415	143	86	16	35	0	-	0	-	128	50	
Scientific R&D services	5417	328	890	67	584	42	47	14	11	255	248	
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	10	68	5	(D)	2	(D)	0	-	5	15	
Management of companies and enterprises	55	2	(D)	0	-	0	-	0	-	2	(D)	
Health care services	621-23	6	11	2	(D)	1	(D)	1	(D)	4	3	
Other nonmanufacturing	56, 61, 624, 71, 72, 81	302	17	3	(D)	1	(D)	0	-	299	12	

TABLE 16. Company and other nonfederal funds for industrial R&D performance in the United States by outside organizations and number of R&D-performing companies that funded outside performance of R&D, by type of organization and by industry and size of company: 2002

Industry and size of company	NAICS codes	Number of companies	Company-funded R&D performed by outside organizations (millions of dollars)	For-profit companies		Universities or colleges		Nonprofit organizations (other than universities and colleges)		Undistributed R&D performed by outside organizations	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by size of company (number of employees):											
Total	(na)	3097	7,846	319	4,850	134	331	47	109	2,746	2,556
5 to 24	(na)	675	133	7	12	3	1	0	-	668	121
25 to 49	(na)	469	130	13	34	4	1	1	(D)	455	(D)
50 to 99	(na)	719	326	26	107	14	8	6	1	690	211
100 to 249	(na)	540	555	46	320	23	21	7	6	490	209
250 to 499	(na)	234	229	34	112	12	18	3	(D)	197	(D)
500 to 999	(na)	139	262	41	159	6	4	1	(D)	97	(D)
1,000 to 4,999	(na)	165	1,212	66	774	30	44	7	4	87	391
5,000 to 9,999	(na)	59	832	23	659	12	39	4	8	33	125
10,000 to 24,999	(na)	50	1,539	30	466	14	75	9	44	15	954
25,000 or more	(na)	47	2,626	33	2,207	16	121	9	40	14	258

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (·) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

NOTES: The R&D in this table is the industrial R&D performed outside company facilities by outside organizations funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table is company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 17. Company and other nonfederal funds and number of companies that funded industrial R&D performed outside of the United States by majority-owned foreign affiliates and other organizations, by industry and size of company: 1999–2002

Industry, size of company, and affiliation of performing organizations	NAICS codes	1999 <sup>a</sup>		2000		2001		2002		Percent change 2002/2001
		Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	
All foreign R&D:										
All industries	21–23, 31–33, 42, 44–81	1,261	16,765	1,718	17,463	2,407	17,869	1,404	24,868	39
Manufacturing	31–33	747	12,354	572	12,252	593	10,998	828	17,093	55
Food	311	9	87	16	95 (S)	21	210	53	300	43
Beverage and tobacco products	312	1	(D)	1	(D)	0	-	1	(D)	(na)
Textiles, apparel, and leather	313–16	7	(D)	15	(D)	8	26	6	25	-4
Wood products	321	1	(D)	0	-	2	(D)	4	(D)	(na)
Paper, printing and support activities	322, 323	11	(D)	9	(D)	8	(D)	15	544	(na)
Petroleum and coal products	324	3	(D)	3	9	2	(D)	3	16	(na)
Chemicals	325	105	3,243	94	3,578	60	2,328	116	3,989	71
Basic chemicals	3251	15	(D)	40	256	15	152	24	249	64
Resin, synthetic rubber, fibers, and filament	3252	7	(D)	4	(D)	6	(D)	20	366	(na)
Pharmaceuticals and medicines	3254	64	2,832	20	3,030	19	1,720	39	3,268	90
Other chemicals	325 minus (3251–52, 3254)	18	95	30	(D)	20	(D)	33	107	(na)
Plastics and rubber products	326	42	172	23	168	37	181	28	218	20
Nonmetallic mineral products	327	5	40	14	40	8	15	16	32	113
Primary metals	331	5	7	3	(D)	15	12	19	23	92
Fabricated metal products	332	42	75	32	65	20	61	44	371	508
Machinery	333	70	707	86	736	66	527	111	788	50
Computer and electronic products	334	177	1,902	178	1,705	219	2,562	259	3,763	47
Computers and peripheral equipment	3341	12	289	25	(D)	16	478 (S)	31	383 (S)	-20
Communications equipment	3342	22	(D)	33	377	55	633	41	969	53
Semiconductor and other electronic components	3344	98	302	34	327	86	852	75	1,647	93
Navigational, measuring, electromedical, and control instruments	3345	42	1,112	85	679	59	586	102	756	29
Other computer and electronic products	334 minus (3341–42, 3344–45)	2	(D)	1	(D)	3	12	10	7	-42
Electrical equipment, appliances, and components	335	33	433	20	455	23	418 (S)	33	279	-33
Transportation equipment	336	90	3,933	27	3,640	22	2,832	49	5,160	82

TABLE 17. Company and other nonfederal funds and number of companies that funded industrial R&D performed outside of the United States by majority-owned foreign affiliates and other organizations, by industry and size of company: 1999–2002

Industry, size of company, and affiliation of performing organizations	NAICS codes	1999 <sup>a</sup>		2000		2001		2002		Percent change 2002/2001
		Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	
Motor vehicles, trailers, and parts	3361–63	64	(D)	21	(D)	15	(D)	33	4,598	(na)
Aerospace products and parts	3364	6	(D)	3	(D)	4	138	8	552	300
Other transportation equipment	336 minus (3361–64)	20	17	3	(D)	3	(D)	8	10	(na)
Furniture and related products	337	2	(D)	5	(D)	1	(D)	7	(z)	(na)
Miscellaneous manufacturing	339	47	963	47	942	83	1,226	65	1,578	29
Medical equipment and supplies	3391	38	(D)	26	(D)	67	1,150	48	1,472	28
Other miscellaneous manufacturing	339 minus (3391)	8	(D)	21	(D)	16	76	16	106	39
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	--	--	--	--	--	--	--	--	(na)
Nonmanufacturing	21–23, 42, 44–81	513	4,411	1,146	5,211	1,814	6,871	575	7,775	13
Mining, extraction, and support activities	21	52	48	6	43	7	37	5	48	30
Utilities	22	0	-	0	-	0	-	2	(D)	(na)
Construction	23	1	(D)	1	(D)	2	(D)	1	(D)	(na)
Trade	42, 44, 45	93	2,356	345	2,244	447	4,192	109	4,753	13
Transportation and warehousing	48, 49	0	-	0	-	0	-	0	-	(na)
Information	51	108	1,379	135	1,564	345	1,672	165	1,806	8
Publishing	511	101	637	118	940	336	983	146	(D)	(na)
Newspaper, periodical, book, and database	5111	0	-	2	(D)	5	8	6	(D)	(na)
Software	5112	101	637	116	(D)	331	975	140	1,058	9
Broadcasting and telecommunications	513	1	(D)	1	(D)	1	(D)	1	(D)	(na)
Radio and television broadcasting	5131	0	-	0	-	0	-	0	-	(na)
Telecommunications	5133	1	(D)	1	(D)	1	(D)	1	(D)	(na)
Other broadcasting and telecommunications	513 minus (5131, 5133)	0	-	0	-	0	-	0	-	(na)
Other information	51 minus (511, 513)	6	(D)	16	(D)	8	(D)	18	(D)	(na)
Finance, insurance, and real estate	52, 53	3	(D)	4	(D)	6	24	13	113	371
Professional, scientific, and technical services	54	196	523	236	904	943	881	270	964	9

TABLE 17. Company and other nonfederal funds and number of companies that funded industrial R&D performed outside of the United States by majority-owned foreign affiliates and other organizations, by industry and size of company: 1999–2002

Industry, size of company, and affiliation of performing organizations	NAICS codes	1999 <sup>a</sup>		2000		2001		2002		Percent change 2002/2001
		Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	
Architectural, engineering, and related services	5413	47	(D)	54	371	193	78	14	(D)	(na)
Computer systems design and related services	5415	67	146	101	(D)	149	302	144	600	99
Scientific R&D services	5417	81	287	80	292	592	488	110	297	-39
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	1	(D)	1	(D)	9	12	3	(D)	(na)
Management of companies and enterprises	55	2	(D)	5	(D)	2	(D)	2	(D)	(na)
Health care services	621–23	2	(D)	1	(D)	2	(D)	1	(D)	(na)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	55	14	7	75 (S)	60	43	7	65	51
Distribution by size of company (number of employees):										
Total	(na)	1,261	16,765	1,718	17,463	2,407	17,869	1,404	24,868	39
5 to 24	(na)	46	1	484	352	1,050	96	156	35	-64
25 to 49	(na)	51	14	86	37	269	21	120	60	186
50 to 99	(na)	231	117	188	455	301	228	203	267	17
100 to 249	(na)	264	140	246	421	149	223	152	262	17
250 to 499	(na)	144	243	132	162	93	207	143	289	40
500 to 999	(na)	156	860	188	532	134	647	152	484	-25
1,000 to 4,999	(na)	204	2,099	228	2,238	251	2,104	292	2,955	40
5,000 to 9,999	(na)	81	1,188	74	1,352	74	2,073	71	2,652	28
10,000 to 24,999	(na)	48	2,965	49	3,626	44	3,329	59	4,168	25
25,000 or more	(na)	35	9,138	42	8,288	43	8,940	55	13,696	53
Foreign R&D performed by majority-owned foreign affiliates:										
All industries	21–23, 31–33, 42, 44–81	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	1,076	23,974	(na)
Manufacturing	31–33	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	636	16,399	(na)
Nonmanufacturing	21–23, 42, 44–81	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	439	7,575	

TABLE 17. Company and other nonfederal funds and number of companies that funded industrial R&D performed outside of the United States by majority-owned foreign affiliates and other organizations, by industry and size of company: 1999–2002

Industry, size of company, and affiliation of performing organizations	NAICS codes	1999 <sup>a</sup>		2000		2001		2002		Percent change 2002/2001
		Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	
Distribution by size of company (number of employees):										
Total	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	1,076	23,974	(na)
5 to 24	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	136	34	(na)
25 to 49	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	73	55	(na)
50 to 99	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	133	232	(na)
100 to 249	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	95	212	(na)
250 to 499	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	115	261	(na)
500 to 999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	122	399	(na)
1,000 to 4,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	241	2,654	(na)
5,000 to 9,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	63	(D)	(na)
10,000 to 24,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	53	(D)	(na)
25,000 or more	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	45	13,592	(na)
Foreign R&D performed by other organizations other than majority-owned affiliates:										
All industries	21–23, 31–33, 42, 44–81	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	275	321	(na)
Manufacturing	31–33	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	132	219	(na)
Nonmanufacturing	21–23, 42, 44–81	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	143	102	
Total		(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	275	321	(na)
5 to 24	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	20	1	(na)
25 to 49	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	47	5	(na)
50 to 99	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	66	23	(na)
100 to 249	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	47	27	(na)
250 to 499	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	21	12	(na)
500 to 999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	21	20	(na)
1,000 to 4,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	33	117	(na)
5,000 to 9,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	5	12	(na)
10,000 to 24,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	4	1	(na)
25,000 or more	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	10	104	(na)

TABLE 17. Company and other nonfederal funds and number of companies that funded industrial R&D performed outside of the United States by majority-owned foreign affiliates and other organizations, by industry and size of company: 1999–2002

Industry, size of company, and affiliation of performing organizations	NAICS codes	1999 <sup>a</sup>		2000		2001		2002		Percent change 2002/2001
		Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	
Undistributed foreign R&D										
All industries	21–23, 31–33, 42, 44–81	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	53	573 (S)	(na)
Manufacturing	31–33	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	30	475 (S)	(na)
Nonmanufacturing	21–23, 42, 44–81	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	23	98 (S)	(na)
Distribution by size of company (number of employees):										
Total	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	53	573 (S)	(na)
5 to 24	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	0	-	(na)
25 to 49	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	0	-	(na)
50 to 99	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	4	12 (S)	(na)
100 to 249	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	10	22 (S)	(na)
250 to 499	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	7	16 (S)	(na)
500 to 999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	9	66 (S)	(na)
1,000 to 4,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	18	185 (S)	(na)
5,000 to 9,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	3	(D)	(na)
10,000 to 24,999	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	2	(D)	(na)
25,000 or more	(na)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	0	-	(na)

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (--) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (NA) = not available; (na) = not applicable.

<sup>a</sup> Some statistics for 1999 have been revised since originally published.

NOTES: The R&D in this table is the industrial R&D performed outside the 50 U.S. states and DC by a company's foreign subsidiaries or other organizations funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments.

Excluded from this table is company-funded R&D performed within the 50 U.S. states or DC (e.g., R&D performed on U.S. soil by foreign subsidiaries or other organizations). For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 18. Company and other nonfederal funds for industrial R&D performance outside of the United States by majority-owned foreign affiliates and other organizations, by location of R&D performance: 2002

(Millions of current US dollars)

Location of R&D performance	Number of companies <sup>a</sup>	Amount
All locations	1,404	24,868
Canada	212	2,176
Germany	193	3,071
France	161	1,578
Japan	124	1,058
United Kingdom	278	2,887
Puerto Rico	21	178 (S)
Other locations <sup>a</sup>	377	4,943
Undistributed <sup>b</sup>	900	8,977

(S) = indicates imputation of more than 50 percent.

<sup>a</sup> Outside of the 50 U.S. states and DC.

<sup>b</sup> Includes R&D reported on Form RD-1 that was not allocated to specific locations outside of the 50 U.S. states and DC. Also includes total R&D performed in locations outside of the 50 U.S. states and DC reported on Form RD-1A, because Form RD-1A does not collect data by location.

NOTES: The R&D in this table is the industrial R&D performed outside the 50 U.S. states and DC by a company's foreign subsidiaries or other organizations funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table is company-funded R&D performed within the 50 U.S. states or DC (e.g., R&D performed on U.S. soil by foreign subsidiaries or other organizations). For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.



TABLE 19. Company and other nonfederal funds for performance of collaborative industrial R&amp;D in the United States, by industry and size of company and by type of collaborator: 2002

Industry and size of company	NAICS codes	Company-funded R&D		All collaborative R&D		For-profit companies		Federal laboratories		Universities or colleges		Nonprofit organizations (other than universities and colleges)		Undistributed collaborative R&D	
		Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
		of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)
Distribution by industry:															
All industries	21-23, 31-33, 42, 44-81	28,200	174,408	180	3,961	152	3,852	13	21	53	57	13	22	3	10
Manufacturing	31-33	13,823	98,240	80	2,361	65	2,291	8	18	32	40	8	12	0	-
Food	311	529	2,034	3	(D)	3	(D)	0	-	2	(D)	1	(D)	0	(D)
Beverage and tobacco products	312	57	170	3	(D)	3	(D)	0	-	1	(D)	1	(D)	0	(D)
Textiles, apparel, and leather	313-16	363	248	1	(D)	1	(D)	0	-	0	(D)	0	-	0	-
Wood products	321	90	132	1	(D)	0	-	0	-	1	(D)	0	-	0	(D)
Paper, printing and support activities	322, 323	391	2,620	3	(D)	3	(D)	1	(D)	1	(D)	1	(D)	0	(D)
Petroleum and coal products	324	79	1,233	3	5	2	(D)	1	(D)	2	(D)	0	(D)	0	(D)
Chemicals	325	1,241	20,395	18	212	15	190	2	(D)	11	16	4	(D)	0	-
Basic chemicals	3251	181	1,710	4	10	4	4	1	(D)	4	5	2	(D)	0	-
Resin, synthetic rubber, fibers, and filament	3252	82	2,413	2	(D)	1	(D)	0	-	1	(D)	0	-	0	(D)
Pharmaceuticals and medicines	3254	313	14,186	9	198	8	184	1	(D)	4	9	2	(D)	0	(D)
Other chemicals	325 minus (3251-52, 3254)	666	2,087	3	(D)	2	(D)	0	-	2	(D)	0	-	0	(D)
Plastics and rubber products	326	951	1,508	3	(D)	2	(D)	0	-	1	(D)	0	-	0	(D)
Nonmetallic mineral products	327	211	420	3	(D)	1	(D)	0	-	2	(D)	0	-	0	(D)
Primary metals	331	200	461	1	(D)	1	(D)	0	-	0	(D)	0	-	0	-
Fabricated metal products	332	1,281	1,251	8	68	7	(D)	0	-	1	(D)	0	-	0	(D)
Machinery	333	2,703	6,366	6	195	5	(D)	0	-	1	(D)	0	-	0	(D)
Computer and electronic products	334	2,786	30,307	16	1,627	15	1,606	2	(D)	5	1	1	(D)	0	-
Computers and peripheral equipment	3341	328	3,015	2	(D)	2	(D)	0	-	0	(D)	0	-	0	-
Communications equipment	3342	501	6,420	1	(D)	1	(D)	0	-	0	(D)	0	-	0	-
Semiconductor and other electronic components	3344	806	11,871	5	(D)	4	(D)	0	-	2	(D)	1	6	0	(D)
Navigational, measuring, electromedical, and control instruments	3345	1,031	8,549	7	1,357	7	1,342	2	(D)	2	1	0	(D)	0	(D)
Other computer and electronic products	334 minus (3341-42, 3344-45)	121	452	1	(D)	1	(D)	0	-	1	(D)	0	-	0	(D)

TABLE 19. Company and other nonfederal funds for performance of collaborative industrial R&amp;D in the United States, by industry and size of company and by type of collaborator: 2002

Industry and size of company	NAICS codes	Company-funded R&D		All collaborative R&D		For-profit companies		Federal laboratories		Universities or colleges		Nonprofit organizations (other than universities and colleges)		Undistributed collaborative R&D	
		Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
		of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)
Distribution by industry:															
Electrical equipment, appliances, and components	335	840	1,978	3	(D)	2	(D)	1	(D)	0	(D)	0	(D)	0	-
Transportation equipment	336	775	21,452	5	17	4	14	1	(D)	2	(D)	0	(D)	0	(D)
Motor vehicles, trailers, and parts	3361-63	488	15,199	3	(D)	2	(D)	0	-	2	(D)	0	-	0	(D)
Aerospace products and parts	3364	83	5,349	2	(D)	2	(D)	1	(D)	0	(D)	0	(D)	0	-
Other transportation equipment	336 minus (3361-64)	204	905	0	-	0	-	0	-	0	-	0	-	0	-
Furniture and related products	337	189	251	0	-	0	-	0	-	0	-	0	-	0	-
Miscellaneous manufacturing	339	1,136	7,414	3	(D)	1	(D)	0	-	2	(D)	0	-	0	(D)
Medical equipment and supplies	3391	557	6,179	3	(D)	1	(D)	0	-	2	(D)	0	-	0	(D)
Other miscellaneous manufacturing	339 minus (3391)	579	1,235	0	-	0	-	0	-	0	-	0	-	0	-
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	14,377	76,168	100	1,600	87	1,560	5	3	21	17	5	10	3	10
Mining, extraction, and support activities	21	22	715	2	(D)	1	(D)	0	-	1	(D)	0	-	0	(D)
Utilities	22	284	117	0	-	0	-	0	-	0	-	0	-	0	-
Construction	23	295	164	0	-	0	-	0	-	0	-	0	-	0	-
Trade	42, 44, 45	2,837	25,014	13	742	12	739	1	(D)	3	1	2	(D)	0	(D)
Transportation and warehousing	48, 49	120	339	0	-	0	-	0	-	0	-	0	-	0	-
Information	51	1,723	17,764	8	191	8	191	0	-	0	-	0	-	0	-
Publishing	511	1,317	13,488	7	(D)	7	(D)	0	-	0	(D)	0	-	0	-
Newspaper, periodical, book, and database	5111	51	614	0	-	0	-	0	-	0	-	0	-	0	-
Software	5112	1,266	12,874	7	(D)	7	(D)	0	-	0	(D)	0	-	0	-

TABLE 19. Company and other nonfederal funds for performance of collaborative industrial R&D in the United States, by industry and size of company and by type of collaborator: 2002

Industry and size of company	NAICS codes	Company-funded R&D		All collaborative R&D		For-profit companies		Federal laboratories		Universities or colleges		Nonprofit organizations (other than universities and colleges)		Undistributed collaborative R&D	
		Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
		of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)
Distribution by industry:															
Broadcasting and telecommunications	513	112	1,637	1	(D)	1	(D)	0	-	0	(D)	0	-	0	-
Radio and television broadcasting	5131	4	(D)	0	-	0	-	0	-	0	-	0	-	0	-
Telecommunications	5133	93	1,608	1	(D)	1	(D)	0	-	0	(D)	0	-	0	-
Other broadcasting and telecommunications	513 minus (5131, 5133)	14	(D)	0	-	0	-	0	-	0	-	0	-	0	-
Other information	51 minus (511, 513)	294	2,639	0	-	0	-	0	-	0	-	0	-	0	-
Finance, insurance, and real estate	52, 53	463	1,903	1	(D)	1	(D)	0	-	0	(D)	0	-	0	-
Professional, scientific, and technical services	54	6,412	24,946	73	645	63	610	4	(D)	16	(D)	3	(D)	3	10
Architectural, engineering, and related services	5413	1,123	2,822	8	(D)	7	(D)	1	(D)	2	2	0	(D)	0	(D)
Computer systems design and related services	5415	3,046	10,394	14	99	11	91	0	-	1	(D)	0	-	2	(D)
Scientific R&D services	5417	1,333	10,735	49	513	43	488	3	(D)	13	13	3	(D)	1	(D)
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	911	996	2	(D)	2	(D)	0	-	0	(D)	0	-	0	-
Management of companies and enterprises	55	35	148	0	-	0	-	0	-	0	-	0	-	0	-
Health care services	621-23	1,230	4,163	2	(D)	1	(D)	0	-	1	(D)	0	-	0	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	955	894	1	(D)	1	(D)	0	-	0	(D)	0	-	0	-

TABLE 19. Company and other nonfederal funds for performance of collaborative industrial R&D in the United States, by industry and size of company and by type of collaborator: 2002

Industry and size of company	NAICS codes	Company-funded R&D		All collaborative R&D		For-profit companies		Federal laboratories		Universities or colleges		Nonprofit organizations (other than universities and colleges)		Undistributed collaborative R&D	
		Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
		of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)	of companies	(millions of dollars)
Distribution by size of company (number of employees):															
Total	(na)	28,200	174,408	180	3,961	152	3,852	13	21	53	57	13	22	3	10
5 to 24	(na)	12,312	3,471	7	12	7	12	1	(D)	1	(D)	1	(D)	0	(D)
25 to 49	(na)	4,605	3,586	11	15	8	8	1	(D)	4	1	0	(D)	1	(D)
50 to 99	(na)	3,820	5,701	13	59	13	(D)	0	-	3	1	0	-	0	(D)
100 to 249	(na)	3,426	12,622	43	394	35	369	2	(D)	12	12	3	(D)	2	(D)
250 to 499	(na)	1,559	7,370	13	148	12	(D)	0	-	2	(D)	0	-	0	(D)
500 to 999	(na)	951	9,394	16	80	15	78	1	(D)	3	2	0	(D)	0	(D)
1,000 to 4,999	(na)	1,050	27,640	38	1,000	30	991	3	(z)	11	5	3	3	0	-
5,000 to 9,999	(na)	220	16,414	9	117	6	(D)	0	-	6	23	2	(D)	0	(D)
10,000 to 24,999	(na)	152	25,232	16	480	14	477	1	(D)	5	2	0	(D)	0	-
25,000 or more	(na)	105	62,979	14	1,657	12	1,619	4	17	6	9	4	11	0	-

(D) = data have been withheld to avoid disclosing operations of individual companies; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

NOTES: The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government in collaboration with another organization. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 20. Federal funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002  
(Millions of dollars)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Distribution by industry:						
All industries	21–23, 31–33, 42, 44–81	22,535	19,118	16,899	16,401	-3
Manufacturing	31–33	17,055	13,328	11,484	10,745	-6
Food	311	-	(D)	-	(D)	(na)
Beverage and tobacco products	312	-	-	-	-	(na)
Textiles, apparel, and leather	313–16	-	(D)	(D)	(D)	(na)
Wood products	321	-	-	-	(D)	(na)
Paper, printing and support activities	322, 323	(D)	(D)	(D)	(D)	(na)
Petroleum and coal products	324	(D)	(D)	(D)	(D)	(na)
Chemicals	325	194	150	180	246	37
Basic chemicals	3251	98	31	42	72	71
Resin, synthetic rubber, fibers, and filament	3252	(D)	11	(D)	13	(na)
Pharmaceuticals and medicines	3254	(D)	(D)	-	(D)	(na)
Other chemicals	325 minus (3251–52, 3254)	(D)	(D)	(D)	(D)	(na)
Plastics and rubber products	326	-	(D)	(D)	(D)	(na)
Nonmetallic mineral products	327	(D)	1	11	(D)	(na)
Primary metals	331	12	26 (S)	6	12	100
Fabricated metal products	332	46	41	54	104	93
Machinery	333	399 (S)	41	67	62	-7
Computer and electronic products	334	5,993	5,544	5,848	5,470	-6
Computers and peripheral equipment	3341	(D)	-	(D)	25	(na)
Communications equipment	3342	206	432	298	215	-28
Semiconductor and other electronic components	3344	77	107	148	48	-68
Navigational, measuring, electromedical, and control instruments	3345	5,705	5,002	5,382	5,180	-4
Other computer and electronic products	334 minus (3341–42, 3344–45)	(D)	3	(D)	1	(na)
Electrical equipment, appliances, and components	335	(D)	(D)	301 (S)	61	-80
Transportation equipment	336	10,037	7,168	4,961	4,692	-5
Motor vehicles, trailers, and parts	3361–63	(D)	(D)	(D)	(D)	(na)
Aerospace products and parts	3364	9,117	6,424	3,785	4,306	14
Other transportation equipment	336 minus (3361–64)	(D)	(D)	(D)	(D)	(na)
Furniture and related products	337	-	-	-	7	(na)
Miscellaneous manufacturing	339	26	12	25	44	76
Medical equipment and supplies	3391	(D)	(D)	(D)	(D)	(na)
Other miscellaneous manufacturing	339 minus (3391)	(D)	(D)	(D)	(D)	(na)
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	--	--	--	--	(na)
Nonmanufacturing	21–23, 42, 44–81	5,479	5,790	5,415	5,656	4
Mining, extraction, and support activities	21	(D)	1	(D)	(D)	(na)
Utilities	22	17	(D)	19	(D)	(na)
Construction	23	2	(D)	1	(z)	(na)
Trade	42, 44, 45	95	30	88	(D)	(na)
Transportation and warehousing	48, 49	-	(D)	72	(D)	(na)
Information	51	497	540 (S)	(D)	106	(na)

TABLE 20. Federal funds for industrial R&D performance in the United States, by industry and size of company: 1999–2002  
(Millions of dollars)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Distribution by industry:						
Publishing	511	49	78	44	53	20
Newspaper, periodical, book, and database	5111	-	-	-	-	(na)
Software	5112	49	78	44	53	20
Broadcasting and telecommunications	513	(D)	382 (S)	(D)	(D)	(na)
Radio and television broadcasting	5131	(D)	(D)	-	-	(na)
Telecommunications	5133	(D)	(D)	(D)	(D)	(na)
Other broadcasting and telecommunications	513 minus (5131, 5133)	13	-	-	-	(na)
Other information	51 minus (511, 513)	(D)	81	(D)	(D)	(na)
Finance, insurance, and real estate	52, 53	(D)	-	(D)	-	(na)
Professional, scientific, and technical services	54	4,615	4,628	5,065	5,412	7
Architectural, engineering, and related services	5413	1,177	1,149	1,021	1,337	31
Computer systems design and related services	5415	(D)	226	498	1,590	219
Scientific R&D services	5417	3,057	3,177	3,352	2,299	-31
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	(D)	77	194	186	-4
Management of companies and enterprises	55	(D)	-	-	-	(na)
Health care services	621–23	10	59	29	(D)	(na)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	(D)	18	38	(D)	(na)
Distribution by size of company (number of employees):						
Total	(na)	22,535	19,118	16,899	16,401	-3
5 to 24	(na)	611	922	653	789	21
25 to 49	(na)	368	222	201	259	29
50 to 99	(na)	603	514	548	463	-16
100 to 249	(na)	674	669	903	606	-33
250 to 499	(na)	485	660	560	686	23
500 to 999	(na)	591	495	627	531	-15
1,000 to 4,999	(na)	896	775	608	985	62
5,000 to 9,999	(na)	2,194	1,625	1,651	1,574	-5
10,000 to 24,999	(na)	397	678	904	1,226	36
25,000 or more	(na)	15,717	12,559	10,243	9,282	-9

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

<sup>a</sup> Some statistics for 1999 have been revised since originally published.

<sup>b</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTES: The R&D in this table is the industrial R&D performed within company facilities funded by the federal government. Excluded from this table are R&D not performed within the company (e.g., R&D contracted out to other organizations) and R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by subsidiaries or other foreign organizations). For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 21. Federal funds for industrial R&D performance in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	Total <sup>a</sup>	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
All industries	21-23, 31-33, 42, 44-81	16,401	789	259	463	606	686	531	985	1,574	1,226	9,282
Manufacturing	31-33	10,745	85	43	39	51	104	90	360	(D)	1,224	(D)
Food	311	(D)	-	-	-	-	-	-	-	-	(D)	-
Beverage and tobacco products	312	-	-	-	-	-	-	-	-	-	-	-
Textiles, apparel, and leather	313-16	(D)	-	-	-	-	-	(D)	(D)	-	-	-
Wood products	321	(D)	-	-	-	-	-	-	-	(D)	-	-
Paper, printing and support activities	322, 323	(D)	-	-	-	-	-	4	(D)	-	-	(D)
Petroleum and coal products	324	(D)	-	-	-	-	-	-	-	-	-	(D)
Chemicals	325	246	(D)	-	1	(D)	1	(D)	(D)	(D)	(D)	(D)
Basic chemicals	3251	72	1	-	-	(D)	-	-	(D)	(D)	-	-
Resin, synthetic rubber, fibers, and filament	3252	13	-	-	-	-	-	-	(D)	-	(D)	(D)
Pharmaceuticals and medicines	3254	(D)	(D)	-	1	(D)	1	-	(D)	-	-	(D)
Other chemicals	325 minus (3251-52, 3254)	(D)	-	-	-	(D)	-	(D)	-	-	(D)	(D)
Plastics and rubber products	326	(D)	-	-	-	-	-	-	(D)	-	-	-
Nonmetallic mineral products	327	(D)	(D)	-	-	-	-	-	(D)	-	-	-
Primary metals	331	12	-	(D)	-	-	-	-	-	(D)	-	(D)
Fabricated metal products	332	104	13	-	-	(z)	(D)	(D)	(D)	(D)	-	-
Machinery	333	62	(z)	12	(z)	(z)	-	9	(D)	-	(D)	(D)
Computer and electronic products	334	5,470	56	31	21	9	27 (S)	(D)	113	(D)	(D)	(D)
Computers and peripheral equipment	3341	25	(D)	1	(D)	(D)	-	(D)	-	-	-	-
Communications equipment	3342	215	(D)	1	-	-	-	(D)	-	-	(D)	(D)
Semiconductor and other electronic components	3344	48	(z)	26	-	(D)	13 (S)	-	(D)	-	(D)	(D)
Navigational, measuring, electromedical, and control instruments	3345	5,180	39	3	(D)	(D)	14 (S)	(D)	106	(D)	(D)	(D)
Other computer and electronic products	334 minus (3341-42, 3344-45)	1	(D)	-	-	-	-	-	(D)	-	-	-
Electrical equipment, appliances, and components	335	61	(z)	(D)	14	14	(D)	-	(D)	-	-	-
Transportation equipment	336	4,692	-	-	3	(D)	7	(D)	(D)	(D)	592	(D)
Motor vehicles, trailers, and parts	3361-63	(D)	-	-	-	-	-	-	(D)	(D)	-	(D)
Aerospace products and parts	3364	4,306	-	-	-	(D)	7	(D)	(D)	(D)	(D)	3,664
Other transportation equipment	336 minus (3361-64)	(D)	-	-	3	-	-	(D)	-	-	(D)	-

TABLE 21. Federal funds for industrial R&D performance in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	Total <sup>a</sup>	Size of company (number of employees)										
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more	
Furniture and related products	337	7	(D)	-	-	-	-	-	(D)	-	-	-	-
Miscellaneous manufacturing	339	44	-	(D)	(z)	13	(D)	(D)	(D)	-	(D)	-	
Medical equipment and supplies	3391	(D)	-	(D)	(z)	13	(D)	(D)	(D)	-	(D)	-	
Other miscellaneous manufacturing	339 minus (3391)	(D)	-	-	-	-	-	-	(D)	-	(D)	-	
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	
Nonmanufacturing	21-23, 42, 44-81	5,656	704	(D)	424	554	582	441	625	(D)	3	(D)	
Mining, extraction, and support activities	21	(D)	-	-	-	-	-	-	-	-	-	(D)	
Utilities	22	(D)	-	-	-	-	(D)	-	-	(D)	(D)	(D)	
Construction	23	(z)	-	(z)	-	-	-	-	-	-	-	-	
Trade	42, 44, 45	(D)	-	-	-	2	(D)	-	(D)	(D)	(D)	(D)	
Transportation and warehousing	48, 49	(D)	-	-	-	-	-	-	(D)	-	-	(D)	
Information	51	106	(D)	(D)	(D)	17	(D)	-	-	-	-	(D)	
Publishing	511	53	(D)	(D)	(D)	17	(D)	-	-	-	-	-	
Newspaper, periodical, book, and database	5111	-	-	-	-	-	-	-	-	-	-	-	
Software	5112	53	(D)	(D)	(D)	17	(D)	-	-	-	-	-	
Broadcasting and telecommunications	513	(D)	-	-	-	-	-	-	-	-	-	(D)	
Radio and television broadcasting	5131	-	-	-	-	-	-	-	-	-	-	-	
Telecommunications	5133	(D)	-	-	-	-	-	-	-	-	-	(D)	
Other broadcasting and telecommunications	513 minus (5131, 5133)	-	-	-	-	-	-	-	-	-	-	-	
Other information	51 minus (511, 513)	(D)	(D)	-	-	-	(D)	-	-	-	-	(D)	
Finance, insurance, and real estate	52, 53	-	-	-	-	-	-	-	-	-	-	-	
Professional, scientific, and technical services	54	5,412	689	(D)	416	535	529	439	(D)	(D)	(D)	(D)	
Architectural, engineering, and related services	5413	1,337	(D)	22	76	98	243	200	(D)	(D)	(D)	-	
Computer systems design and related services	5415	1,590	(D)	12	153	17	(D)	(D)	-	-	-	(D)	
Scientific R&D services	5417	2,299	156	(D)	186	382	(D)	(D)	(D)	(D)	-	-	
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	186	148	-	-	38	-	-	-	-	-	-	



TABLE 21. Federal funds for industrial R&D performance in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	Total <sup>a</sup>	Size of company (number of employees)										
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more	
Management of companies and enterprises	55	-	-	-	-	-	-	-	-	-	-	-	-
Health care services	621-23	(D)	(D)	(D)	(D)	-	-	-	(D)	15	-	-	-
Other nonmanufacturing	56, 61, 624, 71, 72, 81	(D)	-	-	1	(z)	(D)	(D)	(D)	(D)	-	-	-

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero.

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 22. Federal funds for industrial R&D performance in the United States and number of companies that performed federally funded R&D in the United States, by industry and size of company and by size of federally funded R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount <sup>a</sup> (millions of dollars)	Size of federally funded R&D program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
All industries	21-23, 31-33, 42, 44-81	2,496	16,401	722	61	1,256	575	400	1,099	98	2,400	20	12,266
Manufacturing	31-33	786	10,745	461	41	174	61	116	336	20	681	15	9,626
Food	311	1	(D)	0	-	1	(D)	0	-	0	-	0	-
Beverage and tobacco products	312	0	-	0	-	0	-	0	-	0	-	0	-
Textiles, apparel, and leather	313-16	2	(D)	0	-	0	-	2	(D)	0	-	0	-
Wood products	321	1	(D)	1	(D)	0	-	0	-	0	-	0	-
Paper, printing and support activities	322, 323	5	(D)	0	-	0	-	4	(D)	1	(D)	0	-
Petroleum and coal products	324	2	(D)	0	-	1	(D)	1	(D)	0	-	0	-
Chemicals	325	53	246	15	(D)	24	15	11	(D)	2	(D)	1	(D)
Basic chemicals	3251	17	72	9	1	2	(D)	4	(D)	2	(D)	0	-
Resin, synthetic rubber, fibers, and filament	3252	3	13	0	-	1	(D)	2	(D)	0	-	0	-
Pharmaceuticals and medicines	3254	29	(D)	4	1	21	(D)	4	(D)	0	-	0	-
Other chemicals	325 minus (3251-52, 3254)	4	(D)	2	(D)	0	-	1	(D)	0	-	1	(D)
Plastics and rubber products	326	1	(D)	0	-	0	-	1	(D)	0	-	0	-
Nonmetallic mineral products	327	2	(D)	2	(D)	0	-	0	-	0	-	0	-
Primary metals	331	4	12	0	-	2	(D)	2	(D)	0	-	0	-
Fabricated metal products	332	120	104	103	(D)	7	2	10	(D)	1	(D)	0	-
Machinery	333	85	62	78	(D)	3	1	3	9	2	(D)	0	-
Computer and electronic products	334	355	5,470	174	(D)	116	33	55	127	6	185	5	(D)
Computers and peripheral equipment	3341	29	25	22	(D)	3	(D)	3	5	1	(D)	0	-
Communications equipment	3342	56	215	28	(D)	25	6	0	-	2	(D)	1	(D)
Semiconductor and other electronic components	3344	144	48	116	2	5	2	22	45	0	-	0	-
Navigational, measuring, electromedical, and control instruments	3345	121	5,180	3	(z)	82	22	30	77	3	(D)	4	(D)
Other computer and electronic products	334 minus (3341-42, 3344-45)	5	1	4	(D)	1	(D)	0	-	0	-	0	-
Electrical equipment, appliances, and components	335	23	61	6	(z)	5	(D)	10	(D)	1	(D)	0	-
Transportation equipment	336	33	4,692	0	-	11	(D)	7	(D)	6	275	9	(D)

TABLE 22. Federal funds for industrial R&D performance in the United States and number of companies that performed federally funded R&D in the United States, by industry and size of company and by size of federally funded R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount <sup>a</sup> (millions of dollars)	Size of federally funded R&D program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
Motor vehicles, trailers, and parts	3361-63	6	(D)	0	-	1	(D)	3	(D)	2	(D)	0	-
Aerospace products and parts	3364	16	4,306	0	-	0	-	4	(D)	4	(D)	8	(D)
Other transportation equipment	336 minus (3361-64)	11	(D)	0	-	10	4	0	-	0	-	1	(D)
Furniture and related products	337	78	7	77	(D)	0	-	1	(D)	0	-	0	-
Miscellaneous manufacturing	339	21	44	5	(z)	5	(D)	9	(D)	1	(D)	0	-
Medical equipment and supplies	3391	19	(D)	5	(z)	4	1	9	(D)	0	-	0	-
Other miscellaneous manufacturing	339 minus (3391)	2	(D)	0	-	1	(D)	0	-	1	(D)	0	-
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	1,710	5,656	261	20	1,082	514	284	763	78	1,720	5	2,640
Mining, extraction, and support activities	21	1	(D)	0	-	1	(D)	0	-	0	-	0	-
Utilities	22	4	(D)	3	(D)	0	-	0	-	1	(D)	0	-
Construction	23	4	(z)	4	(z)	0	-	0	-	0	-	0	-
Trade	42, 44, 45	13	(D)	7	(D)	1	(D)	4	(D)	1	(D)	0	-
Transportation and warehousing	48, 49	2	(D)	1	(D)	1	(D)	0	-	0	-	0	-
Information	51	47	106	2	(D)	34	14	8	(D)	3	(D)	0	-
Publishing	511	13	53	2	(D)	3	(D)	7	(D)	1	(D)	0	-
Newspaper, periodical, book, and database	5111	0	-	0	-	0	-	0	-	0	-	0	-
Software	5112	13	53	2	(D)	3	(D)	7	(D)	1	(D)	0	-
Broadcasting and telecommunications	513	1	(D)	0	-	0	-	0	-	1	(D)	0	-
Radio and television broadcasting	5131	0	-	0	-	0	-	0	-	0	-	0	-
Telecommunications	5133	1	(D)	0	-	0	-	0	-	1	(D)	0	-
Other broadcasting and telecommunications	513 minus (5131, 5133)	0	-	0	-	0	-	0	-	0	-	0	-
Other information	51 minus (511, 513)	33	(D)	0	-	31	(D)	1	(D)	1	(D)	0	-
Finance, insurance, and real estate	52, 53	0	-	0	-	0	-	0	-	0	-	0	-
Professional, scientific, and technical services	54	1,606	5,412	228	17	1,035	495	268	710	70	1,549	5	2,640

TABLE 22. Federal funds for industrial R&D performance in the United States and number of companies that performed federally funded R&D in the United States, by industry and size of company and by size of federally funded R&D program: 2002

Industry and size of company	NAICS codes	Number of companies	Amount <sup>a</sup> (millions of dollars)	Size of federally funded R&D program									
				Less than \$200,000		\$200,000 to \$999,999		\$1 million to \$9.9 million		\$10 million to \$99.9 million		\$100 million or more	
				Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)	Number of companies	Amount (millions of dollars)
Distribution by industry:													
Architectural, engineering, and related services	5413	500	1,337	87	5	371	(D)	24	87	16	475	2	(D)
Computer systems design and related services	5415	369	1,590	2	(D)	256	(D)	94	178	15	171	1	(D)
Scientific R&D services	5417	489	2,299	138	12	164	(D)	147	436	38	869	2	(D)
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	249	186	1	(D)	243	(D)	3	9	1	35	0	-
Management of companies and enterprises	55	0	-	0	-	0	-	0	-	0	-	0	-
Health care services	621-23	11	(D)	0	-	8	2	2	(D)	1	(D)	0	-
Other nonmanufacturing	56, 61, 624, 71, 72, 81	22	(D)	16	(z)	2	(D)	2	(D)	2	(D)	0	-
Distribution by size of company (number of employees):													
Total	(na)	2,496	16,401	722	61	1,256	575	400	1,099	98	2,400	20	12,266
5 to 24	(na)	1,678	789	423	30	1,103	509	153	250	0	-	0	-
25 to 49	(na)	219	259	91	14	53	21	75	225	0	-	0	-
50 to 99	(na)	202	463	115	8	23	10	41	147	22	298	0	-
100 to 249	(na)	137	606	29	2	28	16	55	186	24	401	0	-
250 to 499	(na)	111	686	48	5	21	7	25	126	17	548	0	-
500 to 999	(na)	38	531	4	(z)	7	(D)	18	51	8	329	1	(D)
1,000 to 4,999	(na)	46	985	6	(z)	11	6	17	53	9	251	3	675
5,000 to 9,999	(na)	17	1,574	2	(D)	2	(D)	5	13	6	306	2	(D)
10,000 to 24,999	(na)	17	1,226	3	(z)	5	(D)	2	(D)	3	70	4	1,149
25,000 or more	(na)	32	9,282	1	(D)	3	1	9	(D)	9	196	10	9,041

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

<sup>a</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 23. Federal funds for industrial R&D performance in the United States, by selected federal agency and selected industry: 1999–2002  
(Millions of dollars)

Federal agency and industry	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
All federal agencies	21–23, 31–33, 42, 44–81	22,535	19,118	16,899	16,401	-3
Manufacturing	31–33	NA	NA	NA	10,745	na
Chemicals	325	194	150	180	246	37
Machinery	333	399 (S)	41	67	62	-7
Computer and electronic products	334	5,993	5,544	5,848	5,470	-6
Electrical equipment, appliances, and components	335	(D)	(D)	301 (S)	61	-80
Transportation Equipment	336	NA	NA	NA	4,692	na
Other manufacturing	31–33 minus (325, 333–36)	NA	NA	NA	213	na
Nonmanufacturing	21–23, 42, 44–81	NA	NA	NA	5,656	na
NASA	21–23, 31–33, 42, 44–81	1,469	1,328	1,071	798	na
Manufacturing	31–33	NA	NA	NA	391	na
Chemicals	325	(D)	0	0	(D)	na
Machinery	333	(D)	0 (S)	(D)	-	na
Computer and electronic products	334	267 (S)	(D)	272	149 (S)	-45
Electrical equipment, appliances, and components	335	(D)	(D)	(D)	(D)	na
Transportation Equipment	336	NA	NA	NA	238	na
Other manufacturing	31–33 minus (325, 333–36)	NA	NA	NA	(z) (S)	na
Nonmanufacturing	21–23, 42, 44–81	NA	NA	NA	407	na
DOE	21–23, 31–33, 42, 44–81	2,209	1,435	1,253	969	na
Manufacturing	31–33	NA	NA	NA	381 (S)	na
Chemicals	325	(D)	19 (S)	17 (S)	23	35
Machinery	333	(D)	28 (S)	(D)	(D)	na
Computer and electronic products	334	(D)	0	5	12	140
Electrical equipment, appliances, and components	335	(D)	(D)	34	(D)	-100
Transportation Equipment	336	NA	NA	NA	264 (S)	na
Other manufacturing	31–33 minus (325, 333–36)	NA	NA	NA	27	na
Nonmanufacturing	21–23, 42, 44–81	NA	NA	NA	588	na
DoD and other agencies	21–23, 31–33, 42, 44–81	18,857	16,335	14,575	14,634	na
Manufacturing	31–33	NA	NA	NA	9,973	na
Chemicals	325	NA	NA	NA	(D)	na
Machinery	333	NA	NA	NA	(D)	na
Computer and electronic products	334	NA	NA	NA	5,309	na
Electrical equipment, appliances, and components	335	NA	NA	NA	37	na
Transportation Equipment	336	NA	NA	NA	4,190	na
Other manufacturing	31–33 minus (325, 333–36)	NA	NA	NA	186	na
Nonmanufacturing	21–23, 42, 44–81	NA	NA	NA	4,661	na

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates value less than half the unit shown; NA = not available; na = not applicable.

<sup>a</sup> Some statistics for 1999 have been revised since originally published.

<sup>b</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTES: Federal R&D data collected on the Form RD-1A are not allocated by agency type. For information on sampling for 1999–2002, see appendix A, Technical Notes.

During data collection, if exact figures were not available, respondents were asked to estimate or apportion R&D costs according to the number of scientists and engineers working on Federal projects and/or the costs of Federal programs. Consequently, statistics in this table may be based on such estimates.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 24. Domestic net sales of companies that performed industrial R&amp;D in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	All net sales	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
All industries	21-23, 31-33, 42, 44-81	4,903,345	48,993	40,091	79,880	140,438	185,592	136,776	682,463	489,531	872,414	2,227,168
Manufacturing	31-33	3,028,003	21,284	13,543	57,137	63,468	70,802	95,807	419,024	312,761	528,009	1,446,168
Food	311	314,176	2,272	-	1,659	4,585	6,504	10,275	31,970	21,789	79,845	155,277
Beverage and tobacco products	312	33,910	31	82	94	(D)	281	-	9,347	(D)	(D)	-
Textiles, apparel, and leather	313-16	29,308	352 (S)	156	427	2,414	(D)	4,238	9,101	(D)	(D)	(D)
Wood products	321	18,691	-	(D)	132	1,109	1,276	(D)	(D)	5,377	6,781	-
Paper, printing and support activities	322, 323	204,814	(D)	(D)	301	1,950	2,324	3,210	17,135	13,040	16,801	143,010
Petroleum and coal products	324	304,747	146	(D)	257	836	466	(D)	(D)	-	122,056	179,670
Chemicals	325	343,723	2,088	2,509	3,071	8,475	10,130	15,079	82,180	57,926	63,382	98,883
Basic chemicals	3251	67,183	394	358	663	(D)	1,136	4,694	29,642	(D)	(D)	-
Resin, synthetic rubber, fibers, and filament	3252	61,452	202	82	291	(D)	3,344	4,003	14,717	(D)	(D)	(D)
Pharmaceuticals and medicines	3254	147,175	(D)	258	374	(D)	2,715	2,083	15,035	21,297	25,799	(D)
Other chemicals	325 minus (3251-52, 3254)	67,913	(D)	1,812	1,743	3,456	2,936	4,299	22,786	16,068 (S)	(D)	(D)
Plastics and rubber products	326	84,089	(D)	(D)	3,579	5,509	5,270	6,820	28,532	9,883	10,189	(D)
Nonmetallic mineral products	327	33,945	311 (S)	449	119	(D)	636	603	11,541	5,969	(D)	(D)
Primary metals	331	70,718	(D)	152	1,819	1,577	(D)	2,791	14,454	13,999	21,183	(D)
Fabricated metal products	332	89,406	(D)	581	1,200	5,518	7,036	6,378	21,296	18,370	15,613	(D)
Machinery	333	147,148	2,903	3,033	4,865	9,176	10,038	10,970	34,184	19,572	18,998	33,409
Computer and electronic products	334	401,273	2,417	2,959	34,604	7,929	9,301	14,867	65,878	29,573	64,434	169,300
Computers and peripheral equipment	3341	40,409	305	539	368	635	1,014	(D)	5,502	(D)	(D)	-
Communications equipment	3342	55,294	417	499	996	(D)	2,193	(D)	12,906	(D)	(D)	(D)
Semiconductor and other electronic components	3344	138,596	495	679	31,210	(D)	2,913	4,238	31,416	6,496	13,617	(D)
Navigational, measuring, electromedical, and control instruments	3345	158,397	1,094	842	1,780	2,736	2,500	3,746	13,332	8,133	18,681	105,553
Other computer and electronic products	334 minus (3341-42, 3344-45)	8,576	106	401	250	(D)	681	1,003	2,721	(D)	-	-
Electrical equipment, appliances, and components	335	72,859	531	1,065	1,194	2,437	2,191	5,472	18,036	16,234	25,698	-
Transportation equipment	336	753,734	582	518	1,919	5,494	7,013	8,731	39,037	68,596	37,364	584,480
Motor vehicles, trailers, and parts	3361-63	487,740	442	52	(D)	4,032	4,459	7,492	28,450	(D)	(D)	369,690
Aerospace products and parts	3364	234,840	-	155	28 (S)	516	1,789 (S)	(D)	4,306	7,263	(D)	214,780
Other transportation equipment	336 minus (3361-64)	31,154	141	312	(D)	946	766	(D)	6,280	(D)	16,587	-

TABLE 24. Domestic net sales of companies that performed industrial R&amp;D in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	All net sales	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
Furniture and related products	337	31,772	104	93	377	888	(D)	629	6,291	7,079	6,991	(D)
Miscellaneous manufacturing	339	93,692	1,390	1,245	1,520	4,484	(D)	5,337	25,334	12,359	14,199	(D)
Medical equipment and supplies	3391	63,537	838	(D)	737	1,936	(D)	2,230	16,237	7,552	(D)	(D)
Other miscellaneous manufacturing	339 minus (3391)	30,155	551	(D)	783	2,548	1,727	3,107	9,096	4,807	(D)	-
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	1,875,341	27,708	26,548	22,743	76,969	114,790	40,969	263,439	176,770	344,405	781,000
Mining, extraction, and support activities	21	22,181	-	-	-	-	680	(D)	4,209	(D)	(D)	(D)
Utilities	22	173,480	(D)	-	-	-	(D)	(D)	22,464 (S)	53,269	85,381	(D)
Construction	23	25,426	472	(D)	416	560	420	2,761	10,535	(D)	(D)	-
Trade	42, 44, 45	496,219	14,649	4,670	4,449	11,251	14,063	9,830	84,940	61,643	132,476	158,248
Transportation and warehousing	48, 49	71,288	-	-	-	-	(D)	395	3,509	(D)	10,350	51,920
Information	51	443,897	1,386	1,210	1,531	8,233	84,923	6,898	29,345	8,972	39,344	262,055 (S)
Publishing	511	82,487	1,154	954	1,373	(D)	4,617	4,337	18,957	(D)	14,071	(D)
Newspaper, periodical, book, and database	5111	22,307	-	145	64	132	(D)	-	3,642	(D)	(D)	(D)
Software	5112	60,180	1,154	808	1,309	(D)	(D)	4,337	15,315	(D)	(D)	(D)
Broadcasting and telecommunications	513	231,311 (S)	9	-	(D)	4,002	591	(D)	3,025	(D)	-	220,780 (S)
Radio and television broadcasting	5131	(D)	-	-	-	(D)	-	-	(D)	-	-	-
Telecommunications	5133	230,679 (S)	-	-	-	3,840	(D)	(D)	(D)	(D)	-	220,780 (S)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	9	-	(D)	(D)	(D)	(D)	-	-	-	-
Other information	51 minus (511, 513)	130,099	223	256	(D)	(D)	79,714	(D)	7,363	(D)	25,273	(D)
Finance, insurance, and real estate	52, 53	343,709	307	(D)	(D)	2,115	3,240	1,424	70,681	11,244	34,271	220,140
Professional, scientific, and technical services	54	223,013	8,622	20,034	12,536	46,425	9,121	11,284	21,023	16,524	18,683	58,760
Architectural, engineering, and related services	5413	53,594	(D)	(D)	7,550	3,161	2,168	1,255	8,385	6,373	(D)	11,240
Computer systems design and related services	5415	72,495	4,468	18,067	3,354	3,498	3,418	6,992	7,342	(D)	(D)	(D)
Scientific R&D services	5417	61,103	2,224	(D)	1,594	39,148	2,914	2,011	2,706	(D)	-	(D)
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	35,822	(D)	17	38	618	621	1,026	2,590	3,639	(D)	25,690

TABLE 24. Domestic net sales of companies that performed industrial R&D in the United States, by industry and by size of company: 2002

(Millions of dollars)

Industry	NAICS codes	All net sales	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
Management of companies and enterprises	55	1,962	(D)	(D)	(D)	148	835	(D)	(D)	-	-	-
Health care services	621-23	27,603	1,772	65	1,260	5,821	167	562	(D)	(D)	(D)	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	46,563	471	280	2,464	2,416	(D)	4,874	13,837	8,388	4,103	(D)

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.



TABLE 25. Concentration of all, federal, and company and other industrial R&D funds and net sales of companies that performed industrial R&D in the United States, ranked by size of R&D program: 1992–2002

(Percent distribution)

Companies ranked by size of R&D program	1992	1993	1994	1995	1996	1997	1998	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>
All (company, Federal, and other) R&D funds											
All companies	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	15	17	15	16	15	14	12	11	10	10	10
Next 4 (5–8)	8	7	8	8	8	8	8	8	7	7	7
Next 12 (9–20)	13	13	14	13	13	13	13	13	13	12	13
Next 20 (21–40)	11	12	13	12	12	11	11	11	11	11	12
Next 60 (41–100)	15	16	15	14	14	14	13	13	14	14	15
Next 100 (101–200)	12	8	9	8	9	9	9	9	9	10	10
Next 200 (201–400)	6	7	7	7	7	8	8	7	10	8	10
All others	20	20	19	22	22	23	26	28	26	28	23
Federal R&D funds											
All companies	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	11	23	26	35	37	40	46	47	43	41	42
Next 4 (5–8)	18	17	19	19	20	23	17	14	16 (S)	17	15
Next 12 (9–20)	27	32	32	27	23	18	14	15	15	17	19
Next 20 (21–40)	13	16	13	8	7	7	7	8	7	6	9
Next 60 (41–100)	11	5	7	5	5	5	7	7	6	8	9
Next 100 (101–200)	4	5	2	3	4	3	5	4	5	5	5
Next 200 (201–400)	2	2	1	3	4	4	4	5	7	6	2
All others	14	0	0	0	0	0	0	0	1	0	0
Company and other (except Federal) R&D funds											
All companies	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	17	17	16	16	15	13	12	11	10	11	10
Next 4 (5–8)	8	7	7	7	7	7	7	8	7	8	7
Next 12 (9–20)	12	12	12	11	11	11	12	12	12	11	13
Next 20 (21–40)	11	11	11	11	10	11	10	10	10	10	11
Next 60 (41–100)	17	14	14	14	14	13	13	13	13	14	15
Next 100 (101–200)	14	9	9	9	10	10	10	9	9	10	11
Next 200 (201–400)	7	8	8	8	8	9	8	8	11	8	10
All others	14	22	23	24	25	26	28	29	28	28	23
Net sales											
All companies	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	8	8	8	8	6	6	5	6 (S)	3	3	8
Next 4 (5–8)	3	3	2	2	3	2	3	2	(D)	4	6
Next 12 (9–20)	4	4	5	6	6	5	5	7	8	8	12
Next 20 (21–40)	4	4	5	4	4	5	5	4	4	5	12
Next 60 (41–100)	12	11	10	9	8	7	8	9	11	9	17
Next 100 (101–200)	9	8	8	8	11	8	8	8	9	11	12
Next 200 (201–400)	11	10	10	10	11	13	11	14	12	10	11
All others	49	52	52	53	51	54	55	50	53	50	22

<sup>a</sup> Some percentages for 1999 have been revised since originally published.

<sup>b</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

(D) = data have been withheld to avoid disclosing operations of individual companies.

(S) = indicates imputation of more than 50 percent.

NOTES: This table shows the percentage of total, company, and Federal R&D and net sales of the top R&D-performing companies. The companies are grouped for analysis. For example, if you would like to know the percentage of total R&D accounted for by the top 20 R&D-performing companies in 1999, you would add the percentages shown for the categories "first 4," "next 4," and "next 12." This result is 32%. Companies were ranked individually for each year; therefore, particular companies comprising the size groups may have changed from year to year. For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 26. Funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002

(Percent)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Distribution by industry:						
All industries	21–23, 31–33, 42, 44–81	3.7	3.8	4.1	3.9	-5
Manufacturing	31–33	3.7	3.6	4.0	3.6	-10
Food	311	0.4	(D)	0.5	(D)	(na)
Beverage and tobacco products	312	(D)	0.7	0.4	0.5	25
Textiles, apparel, and leather	313–16	0.7	(D)	(D)	(D)	(na)
Wood products	321	0.5	0.8	1.1	(D)	(na)
Paper, printing and support activities	322, 323	(D)	(D)	(D)	(D)	(na)
Petroleum and coal products	324	0.4	(D)	(D)	(D)	(na)
Chemicals	325	5.2	5.9	4.9	6	22
Basic chemicals	3251	2.1	2.4	2.2	2.7	23
Resin, synthetic rubber, fibers, and filament	3252	(D)	5.6	(D)	3.9	(na)
Pharmaceuticals and medicines	3254	(D)	(D)	7.8	(D)	(na)
Other chemicals	325 minus (3251–52, 3254)	(D)	(D)	(D)	(D)	(na)
Plastics and rubber products	326	1.9	(D)	(D)	(D)	(na)
Nonmetallic mineral products	327	(D)	1.8	2.4	(D)	(na)
Primary metals	331	0.4	0.5	0.7	0.7	0
Fabricated metal products	332	1.5	1.4	1.7	1.5	-12
Machinery	333	3.5	3.9	4.3	4.4	2
Computer and electronic products	334	10.3	9.0	12.4	8.9	-28
Computers and peripheral equipment	3341	(D)	6.5	(D)	7.5	(na)
Communications equipment	3342	12.0	9.9	17.0	12	-29
Semiconductor and other electronic components	3344	8.3	7.5	10.6	8.6	-19
Navigational, measuring, electromedical, and control instruments	3345	15.2	12.0	12.6	8.7	-31
Other computer and electronic products	334 minus (3341–42, 3344–45)	(D)	4.3	(D)	5.3	(na)
Electrical equipment, appliances, and components	335	(D)	(D)	3.1 (S)	2.8	-10
Transportation equipment	336	4.2	4.0	4.2	3.5	-17
Motor vehicles, trailers, and parts	3361–63	(D)	(D)	(D)	(D)	(na)
Aerospace products and parts	3364	8.8	7.3	5.7	4.1	-28
Other transportation equipment	336 minus (3361–64)	(D)	(D)	(D)	(D)	(na)
Furniture and related products	337	0.7	0.8	0.9	0.8	-11
Miscellaneous manufacturing	339	5.7	8.7	6.6	8.0	21
Medical equipment and supplies	3391	(D)	(D)	(D)	(D)	(na)
Other miscellaneous manufacturing	339 minus (3391)	(D)	(D)	(D)	(D)	(na)
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	--	--	--	--	(na)
Nonmanufacturing	21–23, 42, 44–81	3.7	4.1	4.3	4.4	2
Mining, extraction, and support activities	21	(D)	1.0	(D)	(D)	(na)
Utilities	22	0.1	(D)	0.0	(D)	(na)
Construction	23	3.1	(D)	1.4	0.6	-57
Trade	42, 44, 45	5.5	5.3	6.2	(D)	(na)
Transportation and warehousing	48, 49	0.5	(D)	2.5	(D)	(na)
Information	51	3.6	4.1	(D)	4.0	(na)

TABLE 26. Funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002

(Percent)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Publishing	511	13.4	16.3	15.1	16.4	9
Newspaper, periodical, book, and database	5111	2.0	2.0	2.7	2.8	4
Software	5112	16.8	20.5	19.4	21.5	11
Broadcasting and telecommunications	513	(D)	0.5 (S)	(D)	(D)	(na)
Radio and television broadcasting	5131	(D)	(D)	1.1	(D)	(na)
Telecommunications	5133	(D)	(D)	(D)	(D)	(na)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	(D)	(D)	(D)	(na)
Other information	51 minus (511, 513)	(D)	5.1	(D)	(D)	(na)
Finance, insurance, and real estate	52, 53	(D)	1.2	(D)	0.6	(na)
Professional, scientific, and technical services	54	15.3	18.7	16.8	13.6	-19
Architectural, engineering, and related services	5413	10.1	10.8	7.5	7.8	4
Computer systems design and related services	5415	(D)	12.3	17.4	16.5	-5
Scientific R&D services	5417	45.3	42.9	47.7	21.3	-55
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	(D)	6.6	2.4	3.3	38
Management of companies and enterprises	55	(D)	4.4	7.8	7.6	-3
Health care services	621–23	6.5	3.2	4.2	(D)	(na)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	(D)	1.0	1.5	(D)	(na)
Distribution by size of company (number of employees):						
Total	(na)	3.7	3.8	4.1	3.9	-5
5 to 24	(na)	18.2	19.9	15.0	8.7	-42
25 to 49	(na)	11.5	14.0	11.2	9.6	-14
50 to 99	(na)	14.2	12.1	11.2	7.7	-31
100 to 249	(na)	7.6	8.7	11.6	9.4	-19
250 to 499	(na)	6.3	6.7	8.6	4.3	-50
500 to 999	(na)	4.4	5.0	6.0	7.3	22
1,000 to 4,999	(na)	3.2	3.6	4.3	4.2	-2
5,000 to 9,999	(na)	2.6	2.4	2.8	3.7	32
10,000 to 24,999	(na)	2.8	3.2	3.6	3.0	-17
25,000 or more	(na)	3.6	3.4	3.4	3.2	-6

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (na) = not applicable.

<sup>a</sup> Some percentages for 1999 have been revised since originally published.

<sup>b</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTE: For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 27. Company and other nonfederal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002  
(Percent)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001	2002	Percent change 2002/2001
Distribution by industry:						
All industries	21–23, 31–33, 42, 44–81	3.3	3.4	3.8	3.6	-5
Manufacturing	31–33	3.2	3.3	3.6	3.2	-11
Food	311	0.4	0.4	0.5	0.6	20
Beverage and tobacco products	312	(D)	0.7	0.4	0.5	25
Textiles, apparel, and leather	313–16	0.7	0.8	0.8	0.8	0
Wood products	321	0.5	0.8	1.1	0.7	-36
Paper, printing and support activities	322, 323	1.4	1.6	2.1	1.3	-38
Petroleum and coal products	324	(D)	0.3	0.3	0.4	33
Chemicals	325	5.1	5.9	4.8	5.9	23
Basic chemicals	3251	2.0	2.3	2.2	2.5	14
Resin, synthetic rubber, fibers, and filament	3252	4.2	5.6	4.5	3.9	-13
Pharmaceuticals and medicines	3254	10.5	9.8	7.8	9.6	23
Other chemicals	325 minus (3251–52, 3254)	3.2	3.6	3.2	3.1	-3
Plastics and rubber products	326	1.9	1.8	2.9	1.8	-38
Nonmetallic mineral products	327	1.5	1.8	2.3	1.2	-48
Primary metals	331	0.4	0.5	0.7	0.7	0
Fabricated metal products	332	1.4	1.4	1.6	1.4	-13
Machinery	333	3.3	3.8	4.2	4.3	2
Computer and electronic products	334	8.5	7.9	10.9	7.6	-30
Computers and peripheral equipment	3341	6.4	6.5	7.6	7.5	-1
Communications equipment	3342	11.6	9.6	16.6	11.6	-30
Semiconductor and other electronic components	3344	8.3	7.4	10.5	8.6	-18
Navigational, measuring, electromedical, and control instruments	3345	9.1	8.0	7.3	5.4	-26
Other computer and electronic products	334 minus (3341–42, 3344–45)	5.8	4.3	13.5	5.3	-61
Electrical equipment, appliances, and components	335	2.3	2.1	2.9 (S)	2.7	-7
Transportation equipment	336	2.9	3.1	3.4	2.8	-18
Motor vehicles, trailers, and parts	3361–63	2.9	3.2	3.5	3.1	-11
Aerospace products and parts	3364	3.2	2.8	3.0	2.3	-23
Other transportation equipment	336 minus (3361–64)	1.6	1.8	2.5 (S)	2.9	16
Furniture and related products	337	0.7	0.8	0.9	0.8	-11
Miscellaneous manufacturing	339	5.7	8.7	6.6	7.9	20
Medical equipment and supplies	3391	7.7	13.1	9.0	9.7	8
Other miscellaneous manufacturing	339 minus (3391)	2.3	2.3	2.0	4.1	105
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	--	--	--	--	(na)
Nonmanufacturing	21–23, 42, 44–81	3.4	3.8	4.0	4.1	2
Mining, extraction, and support activities	21	1.9	1.0	1.3	3.2	146
Utilities	22	0.1	0.1	0.0	0.1	(na)
Construction	23	3.1	1.9	1.4	0.6	-57
Trade	42, 44, 45	5.5	5.3	6.2	5.0	-19
Transportation and warehousing	48, 49	0.5	0.3	2.4	0.5	-79
Information	51	3.4	4.0	4.4	4.0	-9

TABLE 27. Company and other nonfederal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002  
(Percent)

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001	2002	Percent change 2002/2001
Distribution by industry:						
Publishing	511	13.4	16.3	15.0	16.4	9
Newspaper, periodical, book, and database	5111	2.0	2.0	2.7	2.8	4
Software	5112	16.7	20.4	19.3	21.4	11
Broadcasting and telecommunications	513	0.4	0.4	0.5	0.7 (S)	40
Radio and television broadcasting	5131	(D)	(D)	1.1	0.2	-82
Telecommunications	5133	(D)	(D)	0.5	0.7 (S)	40
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	(D)	(D)	9.2	(na)
Other information	51 minus (511, 513)	8.6	4.9	4.7	2.0	-57
Finance, insurance, and real estate	52, 53	0.5	1.2	0.7	0.6	-14
Professional, scientific, and technical services	54	11.6	14.9	13.7	11.2	-18
Architectural, engineering, and related services	5413	6.8	7.1	5.2	5.3	2
Computer systems design and related services	5415	11.0	11.8	16.5	14.3	-13
Scientific R&D services	5417	32.1	32.3	36.5	17.6	-52
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	1.9	6.1	1.9	2.8	47
Management of companies and enterprises	55	5.7	4.4	7.8	7.6	-3
Health care services	621–23	6.4	2.8	4.1	15.1	268
Other nonmanufacturing	56, 61, 624, 71, 72, 81	0.9	1.0	1.4	1.9	36
Distribution by size of company (number of employees):						
Total	(na)	3.3	3.4	3.8	3.6	-5
5 to 24	(na)	16.6	17.2	12.9	7.1	-45
25 to 49	(na)	10.6	13.4	10.6	8.9	-16
50 to 99	(na)	13.0	11.2	10.4	7.1	-32
100 to 249	(na)	6.9	8.0	10.8	9.0	-17
250 to 499	(na)	5.9	6.1	8.0	4.0	-50
500 to 999	(na)	4.0	4.7	5.7	6.9	21
1,000 to 4,999	(na)	3.1	3.5	4.2	4.0	-5
5,000 to 9,999	(na)	2.2	2.2	2.5	3.4	36
10,000 to 24,999	(na)	2.8	3.1	3.5	2.9	-17
25,000 or more	(na)	2.8	2.9	3.0	2.8	-7

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (na) = not applicable.

<sup>a</sup> Some percentages for 1999 have been revised since originally published.

NOTES: The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 28. Funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of R&D program: 2002

Industry and size of company	NAICS codes	All R&D funds			R&D funds as a percent of net sales		
		First 4	Next 4	Next 12	First 4	Next 4	Next 12
		companies	companies	companies	companies	companies	companies
		Millions of dollars			Percent		
Distribution by industry:							
All industries	21-23, 31-33, 42, 44-81	19,130	12,500	23,697	12.5	6.0	6.1
Manufacturing	31-33	16,860	9,897	17,886	6.5	5.1	6.9
Food	311	971	305	357	1.3	0.8	0.4
Beverage and tobacco products	312	124	33	4	0.5	0.8	0.2
Textiles, apparel, and leather	313-16	67	41 (S)	64	0.9	2.0	1.3
Wood products	321	98	12	11	1.3	0.3	0.2
Paper, printing and support activities	322, 323	2,132	187	176	3.6	0.8	0.2
Petroleum and coal products	324	1,093	124	10	0.5	0.1	0.5
Chemicals	325	6,391	4,278	4,704	8.9	10.8	8.8
Basic chemicals	3251	467	288	501	2.6	5.5	3.9
Resin, synthetic rubber, fibers, and filament	3252	1,974	269	138	5.6	2.9	1.2
Pharmaceuticals and medicines	3254	6,391	3,905	2,566	8.9	12.1	10.0
Other chemicals	325 minus (3251-52, 3254)	1,204	236 (S)	316	6.4	2.7	1.9
Plastics and rubber products	326	553	148	251	3.4	1.8	2.4
Nonmetallic mineral products	327	197	82	84	1.6	1.9	1.2
Primary metals	331	276	57	84	1.2	0.4	0.4
Fabricated metal products	332	430	169	222	2.5	3.0	1.1
Machinery	333	2,077	736	1,046	9.7	4.9	3.7
Computer and electronic products	334	11,787	3,918	6,235	17.5	9.8	8.0
Computers and peripheral equipment	3341	1,783	427	337	5.7	24.4	12.4
Communications equipment	3342	4,081	616	765	16.0	11.6	8.4
Semiconductor and other electronic components	3344	5,789	1,696 (S)	1,927	14.5	6.9	23.2
Navigational, measuring, electromedical, and control instruments	3345	7,334	2,291	2,016	14.2	12.7	12.4
Other computer and electronic products	334 minus (3341-42, 3344-45)	308	68	47	5.4	11.0	5.6
Electrical equipment, appliances, and components	335	560	287	376	2.6	4.0	3.0
Transportation equipment	336	13,806	6,179	3,739	3.7	4.2	4.6
Motor vehicles, trailers, and parts	3361-63	12,894	836	758	3.8	3.1	1.2
Aerospace products and parts	3364	7,091	1,796	689	4.0	4.3	7.2
Other transportation equipment	336 minus (3361-64)	997	127	69	6.3	1.8	1.2
Furniture and related products	337	113	48	35	0.9	0.8	0.9
Miscellaneous manufacturing	339	4,187	717	779	12.9	10.1	5.4
Medical equipment and supplies	3391	4,187	666	470	12.9	12.2	6.6
Other miscellaneous manufacturing	339 minus (3391)	398	197	156	4.4	5.4	3.1
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	14,771	6,234	9,231	14.4	25.1	14.8
Mining, extraction, and support activities	21	625	45	40	4.7	0.8	1.2
Utilities	22	61	18 (S)	25	0.2	0.1	-
Construction	23	115	16	13	1.1	0.9	0.1
Trade	42, 44, 45	11,262	3,104	3,625	11.3	12.4	15.6
Transportation and warehousing	48, 49	263	14	4	0.6	0.1	-
Information	51	7,397	1,185	2,164	19.1	1.8	3.2

TABLE 28. Funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of R&D program: 2002

Industry and size of company	NAICS codes	All R&D funds			R&D funds as a percent of net sales		
		First 4	Next 4	Next 12	First 4	Next 4	Next 12
		companies	companies	companies	companies	companies	companies
		Millions of dollars			Percent		
Distribution by industry:							
Publishing	511	6,537	988	1,882	23.9	22.2	12.4
Newspaper, periodical, book, and database	5111	512	60	28	4.1	3.1	0.4
Software	5112	6,537	988	1,758	23.9	22.2	23.4
Broadcasting and telecommunications	513	625 (S)	134 (S)	108	0.4	0.4	0.3
Radio and television broadcasting	5131	(z)	-	-	0.1	-	-
Telecommunications	5133	625 (S)	(D)	90	0.4	0.4	0.3
Other broadcasting and telecommunications	513 minus (5131, 5133)	20 (S)	(D)	-	7.0	0.3	-
Other information	51 minus (511, 513)	1,485	228	258	10.0	0.9	6.6
Finance, insurance, and real estate	52, 53	610	253	334	1.0	0.6	0.5
Professional, scientific, and technical services	54	6,178	2,145	2,252	30.4	87.1	51.4
Architectural, engineering, and related services	5413	1,138	335	542	40.4	38.3	16.3
Computer systems design and related services	5415	5,353	632	971	37.7	27.7	7.9
Scientific R&D services	5417	2,645	749	1,293	28.5	260.1	96.6
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	335	125 (S)	94	3.8	13.3	1.0
Management of companies and enterprises	55	96	10	(z)	10.3	7.8	0.3
Health care services	621-23	387	48	47 (S)	4.7	15.5	0.5
Other nonmanufacturing	56, 61, 624, 71, 72, 81	299	124	163	3.1	4.1	2.5
Distribution by size of company (number of employees):							
Total	(na)	19,130	12,500	23,697	12.5	6.0	6.1
5 to 24	(na)	60	22 (S)	50	431.2	117.8	17.6
25 to 49	(na)	90	54	128	102.4	185.5	182.1
50 to 99	(na)	153	102	216	149.2	291.4	139.5
100 to 249	(na)	330	266	607	471.8	121.9	191.6
250 to 499	(na)	540	339	740	167.8	89.0	17.7
500 to 999	(na)	769	596	1,134	115.9	74.5	36.6
1,000 to 4,999	(na)	2,193	1,599	3,361	53.3	22.4	27.6
5,000 to 9,999	(na)	3,988	2,474	4,808	30.8	22.3	13.2
10,000 to 24,999	(na)	7,961	3,918	6,405	18.8	13.3	7.4
25,000 or more	(na)	19,130	12,070	21,583	12.5	5.7	5.5

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

NOTES: Excludes data for federally funded research and development centers. Rankings were based on total (company, federal, and other) R&D funds. For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002

TABLE 29. Company and other nonfederal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of nonfederally funded R&D program: 2002

Industry and size of company	NAICS codes	Company and other nonfederal R&D funds			Company and other nonfederal R&D funds as a percent of net sales		
		First 4 companies	Next 4 companies	Next 12 companies	First 4 companies	Next 4 companies	Next 12 companies
		Millions of dollars			Percent		
Distribution by industry:							
All industries	21-23, 31-33, 42, 44-81	18,251	12,009	20,772	11.4	5.7	6.5
Manufacturing	31-33	15,509	8,323	14,903	5.7	3.8	7.1
Food	311	971	305	357	1.3	0.8	0.4
Beverage and tobacco products	312	124	33	4	0.5	0.8	0.2
Textiles, apparel, and leather	313-16	67	37 (S)	59	0.9	1.3	1.4
Wood products	321	98	11	11	1.3	0.3	0.2
Paper, printing and support activities	322, 323	2,106	187	176	3.6	0.8	0.2
Petroleum and coal products	324	1,092	124	10	0.5	0.1	0.5
Chemicals	325	6,387	4,242	4,591	8.9	10.4	8.8
Basic chemicals	3251	449	285	482	2.5	5.4	2.8
Resin, synthetic rubber, fibers, and filament	3252	1,961	268	138	5.6	2.9	1.2
Pharmaceuticals and medicines	3254	6,387	3,905	2,566	8.9	12.1	10.0
Other chemicals	325 minus (3251-52, 3254)	1,067	236 (S)	316	5.6	2.7	1.9
Plastics and rubber products	326	553	148	251	3.4	1.8	2.4
Nonmetallic mineral products	327	197	82	84	1.6	1.9	1.2
Primary metals	331	267	57	81	1.2	0.4	0.4
Fabricated metal products	332	422	145	203	2.3	3.2	1.0
Machinery	333	2,051	734	1,032	9.5	6.4	3.3
Computer and electronic products	334	8,630	3,236	5,481	12.5	9.7	6.9
Computers and peripheral equipment	3341	1,783	414	335	5.7	22.1	12.9
Communications equipment	3342	4,046	515	702	15.9	16.3	6.2
Semiconductor and other electronic components	3344	5,789	1,696 (S)	1,927	14.5	6.9	23.2
Navigational, measuring, electromedical, and control instruments	3345	3,530	1,513	1,601	7.6	7.8	7.9
Other computer and electronic products	334 minus (3341-42, 3344-45)	307	68	47	5.3	11.0	5.6
Electrical equipment, appliances, and components	335	560	287	357	2.6	4.0	2.5
Transportation equipment	336	13,266	3,770	2,352	3.2	3.3	3.1
Motor vehicles, trailers, and parts	3361-63	12,843	836	758	3.8	3.1	1.2
Aerospace products and parts	3364	4,193	813	279	2.2	2.5	2.9
Other transportation equipment	336 minus (3361-64)	673	127	68	4.3	1.8	1.2
Furniture and related products	337	113	48	33	0.9	0.8	0.9
Miscellaneous manufacturing	339	4,187	694	779	12.9	9.8	5.4
Medical equipment and supplies	3391	4,187	666	470	12.9	12.2	6.6
Other miscellaneous manufacturing	339 minus (3391)	375	197	156	4.2	5.4	3.1
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	14,751	6,022	7,900	14.4	26.7	12.7
Mining, extraction, and support activities	21	625	45	40	4.7	0.8	1.2
Utilities	22	43	18 (S)	25	0.1	0.1	-
Construction	23	115	16	13	1.1	0.9	0.1
Trade	42, 44, 45	11,240	3,104	3,625	11.3	12.4	15.6
Transportation and warehousing	48, 49	263	14	4	0.6	0.1	-
Information	51	7,372	1,185	2,154	19.1	1.8	3.2



TABLE 29. Company and other nonfederal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of nonfederally funded R&D program: 2002

Industry and size of company	NAICS codes	Company and other nonfederal R&D funds			Company and other nonfederal R&D funds as a percent of net sales		
		First 4	Next 4	Next 12	First 4	Next 4	Next 12
		companies	companies	companies	companies	companies	companies
		Millions of dollars			Percent		
Distribution by industry:							
Publishing	511	6,537	988	1,882	23.9	22.2	12.4
Newspaper, periodical, book, and database	5111	512	60	28	4.1	3.1	0.4
Software	5112	6,537	988	1,758	23.9	22.2	23.4
Broadcasting and telecommunications	513	614 (S)	134 (S)	108	0.4	0.4	0.3
Radio and television broadcasting	5131	(z)	-	-	0.1	-	-
Telecommunications	5133	614 (S)	(D)	90	0.4	0.4	0.3
Other broadcasting and telecommunications	513 minus (5131, 5133)	20 (S)	(D)	-	7.0	0.3	-
Other information	51 minus (511, 513)	1,460	228	258	9.9	0.9	6.6
Finance, insurance, and real estate	52, 53	610	253	334	1.0	0.6	0.5
Professional, scientific, and technical services	54	5,254	1,124	1,871	37.2	37.3	19.3
Architectural, engineering, and related services	5413	696	231	331	25.2	32.0	2.6
Computer systems design and related services	5415	4,278	526	969	49.8	6.6	7.9
Scientific R&D services	5417	1,910 (S)	695	1,244	23.5	49.3	134.9
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	335	117 (S)	76	3.8	12.2	0.9
Management of companies and enterprises	55	96	10	(z)	10.3	7.8	0.3
Health care services	621-23	385	43 (S)	37	4.7	0.9	0.8
Other nonmanufacturing	56, 61, 624, 71, 72, 81	284	101	140	2.9	2.3	2.7
Distribution by size of company (number of employees):							
Total	(na)	18,251	12,009	20,772	11.4	5.7	6.5
5 to 24	(na)	60	22 (S)	46	431.2	117.8	10.3
25 to 49	(na)	90	54	122 (S)	102.4	158.1	199.1
50 to 99	(na)	132	96	209	280.4	403.1	123.0
100 to 249	(na)	330	265	603	471.8	122.5	178.0
250 to 499	(na)	536	321	719	211.1	84.6	17.2
500 to 999	(na)	769	584	1,064	115.9	79.3	34.2
1,000 to 4,999	(na)	2,154	1,495	3,255	29.6	39.3	27.3
5,000 to 9,999	(na)	3,725	2,284	4,327	26.1	21.3	11.8
10,000 to 24,999	(na)	7,961	3,916	5,885	18.8	13.3	6.6
25,000 or more	(na)	17,975	11,613	17,770	11.4	5.3	4.8

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

NOTES: Rankings were based on company and other nonfederal funds for industrial R&D performance.

The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 30. Federal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of federally funded R&D program: 2002

Industry and size of company	NAICS codes	Federal R&D funds					
		Federal R&D funds			Federal R&D funds as a percent of net sales		
		First 4	Next 4	Next 12	First 4	Next 4	Next 12
		companies	companies	companies	companies	companies	companies
Millions of dollars			Percent				
Distribution by industry:							
All industries	21-23, 31-33, 42, 44-81	6,883	2,397	2,986	7.6	9.8	1.8
Manufacturing	31-33	6,389	1,654	1,901	6.3	3.9	1.4
Food	311	(D)	-	-	-	-	-
Beverage and tobacco products	312	-	-	-	-	-	-
Textiles, apparel, and leather	313-16	(D)	-	-	3.1	-	-
Wood products	321	(D)	-	-	-	-	-
Paper, printing and support activities	322, 323	(D)	-	-	0.3	-	-
Petroleum and coal products	324	(D)	-	-	-	-	-
Chemicals	325	206	14	11	0.8	0.1	0.1
Basic chemicals	3251	67	4	(z)	1.0	0.1	14.2
Resin, synthetic rubber, fibers, and filament	3252	13	-	-	0.1	-	-
Pharmaceuticals and medicines	3254	(D)	1	-	0.1	0.1	-
Other chemicals	325 minus (3251-52, 3254)	(D)	-	-	1.0	-	-
Plastics and rubber products	326	(D)	-	-	0.1	-	-
Nonmetallic mineral products	327	(D)	-	-	0.1	-	-
Primary metals	331	12	-	-	0.1	-	-
Fabricated metal products	332	58	3	(z)	2.1	0.8	-
Machinery	333	46	2	(z)	0.3	0.3	-
Computer and electronic products	334	4,987	250	114	14.0	1.1	0.5
Computers and peripheral equipment	3341	19	1	-	11.1	0.7	-
Communications equipment	3342	206	(z)	-	0.9	2.7	-
Semiconductor and other electronic components	3344	(D)	5	1	3.6	2.5	-
Navigational, measuring, electromedical, and control instruments	3345	4,987	101	37	14.0	8.0	0.2
Other computer and electronic products	334 minus (3341-42, 3344-45)	(D)	-	-	0.2	-	-
Electrical equipment, appliances, and components	335	43	(D)	(z)	34.5	1.9	0.2
Transportation equipment	336	3,002	(D)	459	3.1	1.0	0.1
Motor vehicles, trailers, and parts	3361-63	(D)	(D)	-	-	-	-
Aerospace products and parts	3364	3,002	1,047	256	3.1	0.9	3.7
Other transportation equipment	336 minus (3361-64)	(D)	-	-	4.9	-	-
Furniture and related products	337	(D)	-	-	2.1	-	-
Miscellaneous manufacturing	339	32	2	1	1.3	0.1	0.6
Medical equipment and supplies	3391	(D)	1	(z)	8.5	-	0.4
Other miscellaneous manufacturing	339 minus (3391)	(D)	-	-	0.7	-	-
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	2,539	350	502	30.0	48.6	29.8
Mining, extraction, and support activities	21	1 (S)	-	-	-	-	-
Utilities	22	(D)	-	-	0.1	-	-
Construction	23	(z)	-	-	2.5	-	-
Trade	42, 44, 45	27	2	-	0.1	-	-
Transportation and warehousing	48, 49	(D)	-	-	-	-	-
Information	51	65	14	1	0.1	10.5	1.3

TABLE 30. Federal funds for industrial R&D performance in the United States as a percent of net sales of companies that performed industrial R&D in the United States, by industry and size of company, ranked by size of federally funded R&D program: 2002

Industry and size of company	NAICS codes	Federal R&D funds			Federal R&D funds as a percent of net sales		
		First 4	Next 4	Next 12	First 4	Next 4	Next 12
		companies	companies	companies	companies	companies	companies
		Millions of dollars			Percent		
Publishing	511	39	1	(D)	18.8	2.3	0.1
Newspaper, periodical, book, and database	5111	-	-	-	-	-	-
Software	5112	39	1	(D)	18.8	2.3	0.1
Broadcasting and telecommunications	513	(D)	-	-	-	-	-
Radio and television broadcasting	5131	-	-	-	-	-	-
Telecommunications	5133	10 (S)	-	-	-	-	-
Other broadcasting and telecommunications	513 minus (5131, 5133)	-	-	-	-	-	-
Other information	51 minus (511, 513)	(D)	-	-	0.2	-	-
Finance, insurance, and real estate	52, 53	-	-	-	-	-	-
Professional, scientific, and technical services	54	2,539	350	482	30.0	48.6	33.3
Architectural, engineering, and related services	5413	709	163	191	82.1	16.6	9.2
Computer systems design and related services	5415	(D)	33	39	17.3	58.6	28.0
Scientific R&D services	5417	1,050	176	278	60.1	67.2	32.6
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	(D)	1	-	33.0	81.4	-
Management of companies and enterprises	55	-	-	-	-	-	-
Health care services	621-23	16	1	-	2.5	0.9	-
Other nonmanufacturing	56, 61, 624, 71, 72, 81	69	1	-	16.3	1.6	-
Distribution by size of company (number of employees):							
Total	(na)	6,883	2,397	2,986	7.6	9.8	1.8
5 to 24	(na)	16	9	20	90.4	72.0	74.4
25 to 49	(na)	32	21	44	95.5	91.6	78.1
50 to 99	(na)	92	44	75	72.8	69.8	64.4
100 to 249	(na)	109	79	161	64.3	75.7	70.2
250 to 499	(na)	222	142	207	74.9	57.2	35.6
500 to 999	(na)	354	113	51	82.2	17.3	3.9
1,000 to 4,999	(na)	725	136	105	36.2	7.3	1.8
5,000 to 9,999	(na)	1,439	120	15	24.5	1.6	0.1
10,000 to 24,999	(na)	1,149	73	4	7.2	0.3	-
25,000 or more	(na)	6,883	1,722	641	7.6	1.2	0.2

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

NOTES: Excludes data for federally funded research and development centers. Rankings were based on Federal R&D funds. For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 31. Trends in total (federal plus company and other) funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002

(Millions of dollars)

Year	All R&D		Basic research		Applied research		Development	
	Current	Constant	Current	Constant	Current	Constant	Current	Constant
	dollars	2000 dollars	dollars	2000 dollars	dollars	2000 dollars	dollars	2000 dollars
1953 <sup>a</sup>	3,630	19,899	151	828	726	3,980	2,753	15,092
1954 <sup>a</sup>	4,070	22,098	166	901	814	4,420	3,090	16,777
1955 <sup>a</sup>	4,640	24,756	189	1,008	928	4,951	3,523	18,796
1956	6,605	34,060	253	1,305	1,268	6,539	5,084	26,216
1957	7,731	38,583	271	1,352	1,670	8,335	5,790	28,896
1958	8,389	40,925	295	1,439	1,911	9,323	6,183	30,163
1959	9,618	46,351	320	1,542	1,991	9,595	7,307	35,214
1960	10,509	49,948	376	1,787	2,029	9,644	8,104	38,517
1961	10,908	51,266	395	1,856	1,977	9,292	8,536	40,118
1962	11,464	53,152	488	2,263	2,449	11,355	8,527	39,535
1963	12,630	57,941	522	2,395	2,457	11,272	9,651	44,274
1964	13,512	61,054	549	2,481	2,600	11,748	10,363	46,825
1965	14,185	62,945	592	2,627	2,658	11,795	10,935	48,523
1966	15,548	67,084	624	2,692	2,843	12,267	12,081	52,125
1967	16,385	68,577	629	2,633	2,915	12,200	12,841	53,744
1968	17,429	69,963	642	2,577	3,124	12,540	13,663	54,846
1969	18,308	70,015	618	2,363	3,287	12,570	14,403	55,081
1970	18,067	65,618	602	2,186	3,427	12,447	14,038	50,985
1971	18,320	63,369	590	2,041	3,415	11,813	14,315	49,516
1972	19,552	64,814	593	1,966	3,514	11,649	15,445	51,199
1973	21,249	66,716	631	1,981	3,825	12,010	16,793	52,726
1974	22,887	65,908	699	2,013	4,288	12,348	17,900	51,547
1975	24,187	63,648	730	1,921	4,570	12,026	18,887	49,701
1976	26,997	67,163	819	2,038	5,112	12,718	21,066	52,408
1977	29,825	69,764	911	2,131	5,636	13,183	23,278	54,450
1978 <sup>a</sup>	33,304	72,785	1,035	2,262	6,300	13,769	25,969	56,755
1979	38,226	77,151	1,158	2,337	7,225	14,582	29,843	60,231
1980 <sup>a</sup>	44,505	82,351	1,325	2,452	8,450	15,636	34,730	64,264
1981	51,810	87,636	1,614	2,730	10,699	18,097	39,497	66,809
1982 <sup>a</sup>	58,650	93,501	1,904	3,035	12,323	19,646	44,423	70,820
1983	65,268	100,093	2,223	3,409	13,927	21,358	49,118	75,326
1984	74,800	110,561	2,608	3,855	15,765	23,302	56,427	83,404
1985	84,239	120,837	2,862	4,105	18,255	26,186	63,122	90,546
1986 <sup>b</sup>	87,823	123,261	4,047	5,680	19,759	27,732	64,017	89,849
1987	92,155	125,902	4,324	5,907	19,813	27,068	68,018	92,926
1988 <sup>c</sup>	97,015	128,168	4,500	5,945	20,748	27,411	71,767	94,813
1989 <sup>c</sup>	102,055	129,913	5,216	6,640	22,691	28,885	74,148	94,388
1990 <sup>c</sup>	109,727	134,487	5,128	6,285	24,785	30,378	79,814	97,824
1991 <sup>c</sup>	116,952	138,497	7,837	9,281	27,446	32,502	81,669	96,714
1992 <sup>d</sup>	119,110	137,882	7,002	8,106	26,168	30,292	85,940	99,484
1993 <sup>d</sup>	117,400	132,835	6,919	7,829	24,686	27,931	85,796	97,076
1994 <sup>d</sup>	119,595	132,502	7,017	7,774	23,490	26,025	89,088	98,703
1995 <sup>d</sup>	132,103	143,426	6,099	6,622	27,454	29,807	98,552	106,999
1996 <sup>d</sup>	144,667	154,144	8,207	8,745	29,241	31,157	107,218	114,242
1997 <sup>d</sup>	157,539	165,112	10,419	10,920	32,642	34,211	114,478	119,981
1998 <sup>d,e</sup>	169,180	175,367	6,421	6,656	32,438	33,624	130,320	135,086
1999 <sup>d,e</sup>	182,711	186,692	7,117	7,272	36,692	37,491	138,902	141,928

TABLE 31. Trends in total (federal plus company and other) funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002

(Millions of dollars)

Year	All R&D		Basic research		Applied research		Development	
	Current	Constant	Current	Constant	Current	Constant	Current	Constant
	dollars	dollars	dollars	dollars	dollars	dollars	dollars	dollars
2000 <sup>d, e</sup>	199,539	199,539	7,490	7,490	39,082	39,082	152,967	152,967
2001 <sup>d, e, f</sup>	198,505	193,904	7,911	7,728	43,486	42,478	147,108	143,699
2002 <sup>d, e, f</sup>	190,809	183,567	7,424	7,142	28,072	27,007	155,313	149,418

<sup>a</sup> Character-of-work estimates were made by the National Science Foundation. See National Science Foundation, *National Patterns of R&D Resources: 1998* (NSF 99-335).

<sup>b</sup> The character-of-work estimation procedure was revised for 1986 and later years and resulting statistics are not directly comparable with earlier years.

<sup>c</sup> As a result of a new sample design, statistics for 1988–91 were revised after they were originally published and are not directly comparable with earlier years. These statistics now better reflect R&D performance among firms in nonmanufacturing industries and small firms in all industries.

<sup>d</sup> As a result of annual sampling, implemented to produce statistics that better reflect R&D performance among firms in nonmanufacturing industries and small firms in all industries, statistics for 1992 and later years are not directly comparable with statistics for earlier years.

<sup>e</sup> Using data collected during recent cycles of the survey, NSF investigated a potential reporting anomaly for basic research and found that several large companies, known to develop and manufacture products, reported all R&D as basic research. This phenomenon prompted a renewed effort to strengthen character of work estimates produced from the survey. Consequently, improved edit checks were applied during statistical processing to produce the basic research, applied research, and development estimates beginning in 2001. Also, estimates for 1998, 1999, and 2000 were recalculated.

<sup>f</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTES: Gross domestic product (GDP) implicit price deflators were used to convert current dollars to constant (2000) dollars. For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 32. Trends in company and other nonfederal funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002

(Millions of dollars)

Year	All R&D		Basic research		Applied research		Development	
	Current	Constant	Current	Constant	Current	Constant	Current	Constant
	dollars	2000 dollars	dollars	2000 dollars	dollars	2000 dollars	dollars	2000 dollars
1953 <sup>a</sup>	2,200	12,060	132	724	438	2,401	1,630	8,936
1954 <sup>a</sup>	2,320	12,596	143	776	492	2,671	1,685	9,149
1955 <sup>a</sup>	2,460	13,125	162	864	560	2,988	1,738	9,273
1956	3,277	16,898	216	1,114	794	4,094	2,267	11,690
1957	3,396	16,949	230	1,148	992	4,951	2,174	10,850
1958	3,630	17,709	252	1,229	1,137	5,547	2,241	10,933
1959	3,983	19,195	248	1,195	1,178	5,677	2,557	12,323
1960	4,428	21,046	297	1,412	1,196	5,684	2,935	13,950
1961	4,668	21,939	314	1,476	1,165	5,475	3,189	14,988
1962	5,029	23,317	345	1,600	1,438	6,667	3,246	15,050
1963	5,360	24,589	375	1,720	1,450	6,652	3,535	16,217
1964	5,792	26,171	384	1,735	1,560	7,049	3,848	17,387
1965	6,445	28,599	406	1,802	1,620	7,189	4,419	19,609
1966	7,216	31,134	451	1,946	1,804	7,784	4,961	21,405
1967	8,020	33,566	427	1,787	1,849	7,739	5,744	24,041
1968	8,869	35,602	462	1,855	2,081	8,354	6,326	25,394
1969	9,857	37,696	458	1,752	2,272	8,689	7,127	27,256
1970	10,288	37,365	444	1,613	2,378	8,637	7,466	27,116
1971	10,654	36,852	456	1,577	2,441	8,443	7,757	26,832
1972	11,535	38,238	463	1,535	2,562	8,493	8,510	28,210
1973	13,104	41,143	499	1,567	2,832	8,892	9,773	30,685
1974	14,667	42,237	536	1,544	3,263	9,397	10,868	31,297
1975	15,582	41,004	573	1,508	3,440	9,052	11,569	30,444
1976	17,436	43,377	634	1,577	3,912	9,732	12,890	32,068
1977	19,340	45,238	701	1,640	4,311	10,084	14,328	33,515
1978 <sup>a</sup>	22,115	48,332	785	1,716	4,870	10,643	16,460	35,973
1979	25,708	51,886	893	1,802	5,670	11,444	19,145	38,640
1980 <sup>a</sup>	30,476	56,392	1,035	1,915	6,550	12,120	22,891	42,357
1981	35,428	59,926	1,313	2,221	8,359	14,139	25,756	43,566
1982 <sup>a</sup>	40,105	63,936	1,523	2,428	9,363	14,927	29,219	46,582
1983	44,588	68,379	1,760	2,699	10,286	15,774	32,542	49,906
1984	51,404	75,980	2,132	3,151	11,541	17,059	37,731	55,770
1985	57,043	81,825	2,373	3,404	12,908	18,516	41,762	59,906
1986 <sup>b</sup>	59,932	84,115	3,496	4,907	15,082	21,168	41,354	58,041
1987	61,403	83,889	3,583	4,895	15,153	20,702	42,667	58,291
1988 <sup>c</sup>	66,672	88,082	3,507	4,633	16,531	21,839	46,634	61,609
1989 <sup>c</sup>	73,501	93,564	3,832	4,878	17,993	22,905	51,676	65,782
1990 <sup>c</sup>	81,602	100,015	3,760	4,608	18,432	22,591	59,410	72,816
1991 <sup>c</sup>	90,580	107,267	6,125	7,253	21,425	25,372	63,030	74,642
1992 <sup>d</sup>	94,388	109,263	5,816	6,733	21,184	24,523	67,385	78,005
1993 <sup>d</sup>	94,591	107,027	5,961	6,745	19,956	22,580	68,678	77,707
1994 <sup>d</sup>	97,131	107,614	6,078	6,734	19,372	21,463	71,683	79,419
1995 <sup>d</sup>	108,652	117,965	5,379	5,840	23,755	25,791	79,516	86,331
1996 <sup>d</sup>	121,015	128,943	6,848	7,297	25,370	27,032	88,798	94,615
1997 <sup>d</sup>	133,611	140,033	8,766	9,187	29,782	31,214	95,064	99,634
1998 <sup>d,e</sup>	145,016	150,320	4,851	5,028	29,576	30,658	110,590	114,635
1999 <sup>d,e</sup>	160,176	163,666	5,362	5,479	33,309	34,035	121,505	124,152

TABLE 32. Trends in company and other nonfederal funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002

(Millions of dollars)

Year	All R&D		Basic research		Applied research		Development	
	Current	Constant	Current	Constant	Current	Constant	Current	Constant
	dollars	dollars	dollars	dollars	dollars	dollars	dollars	dollars
2000 <sup>d,e</sup>	180,421	180,421	6,017	6,017	36,130	36,130	138,274	138,274
2001 <sup>d,e</sup>	181,606	177,397	7,157	6,991	39,883	38,959	134,566	131,447
2002 <sup>d,e</sup>	174,408	167,789	6,536	6,288	25,620	24,648	142,252	136,853

<sup>a</sup> Character-of-work estimates were made by the National Science Foundation. See National Science Foundation, *National Patterns of R&D Resources 1998* (NSF 99-335).

<sup>b</sup> The character-of-work estimation procedure was revised for 1986 and later years and resulting statistics are not directly comparable with earlier years.

<sup>c</sup> As a result of a new sample design, statistics for 1988–91 have been revised since originally published. These statistics now better reflect R&D performance among firms in the nonmanufacturing industries and small firms in all industries.

<sup>d</sup> As a result of annual sampling, implemented to produce statistics that better reflect R&D performance among firms in nonmanufacturing industries and small firms in all industries, statistics for 1992 and later years are not directly comparable with statistics for earlier years.

<sup>e</sup> Using data collected during recent cycles of the survey, NSF investigated a potential reporting anomaly for basic research and found that several large companies, known to develop and manufacture products, reported all R&D as basic research. This phenomenon prompted a renewed effort to strengthen character-of-work estimates produced from the survey. Consequently, improved edit checks were applied during statistical processing to produce the basic research, applied research, and development estimates beginning in 2001. Also, estimates for 1998, 1999, and 2000 were recalculated.

NOTES: The R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations). Gross domestic product (GDP) implicit price deflators were used to convert current dollars to constant (2000) dollars. For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 33. Trends in federal funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002

(Millions of dollars)

Year	All R&D		Basic research		Applied research		Development	
	Current	Constant	Current	Constant	Current	Constant	Current	Constant
	dollars	2000 dollars	dollars	dollars	dollars	dollars	dollars	dollars
1953 <sup>a</sup>	1,430	7,839	19	104	288	1,579	1,123	6,156
1954 <sup>a</sup>	1,750	9,501	23	125	322	1,748	1,405	7,628
1955 <sup>a</sup>	2,180	11,631	27	144	368	1,963	1,785	9,523
1956	3,328	17,161	37	191	474	2,444	2,817	14,526
1957	4,335	21,635	41	205	678	3,384	3,616	18,046
1958	4,759	23,216	43	210	774	3,776	3,942	19,231
1959	5,635	27,156	72	347	813	3,918	4,750	22,891
1960	6,081	28,902	79	375	833	3,959	5,169	24,567
1961	6,240	29,327	81	381	812	3,816	5,347	25,130
1962	6,434	29,831	143	663	1,011	4,687	5,281	24,485
1963	7,270	33,351	147	674	1,007	4,620	6,116	28,057
1964	7,720	34,883	165	746	1,040	4,699	6,515	29,438
1965	7,740	34,346	186	825	1,038	4,606	6,516	28,914
1966	8,332	35,950	173	746	1,039	4,483	7,120	30,720
1967	8,365	35,010	202	845	1,066	4,462	7,097	29,703
1968	8,560	34,361	180	723	1,043	4,187	7,337	29,452
1969	8,451	32,319	160	612	1,015	3,882	7,276	27,826
1970	7,779	28,253	158	574	1,049	3,810	6,572	23,869
1971	7,666	26,517	134	464	974	3,369	6,558	22,684
1972	8,017	26,576	130	431	952	3,156	6,935	22,989
1973	8,145	25,573	132	414	993	3,118	7,020	22,041
1974	8,220	23,671	163	469	1,025	2,952	7,032	20,250
1975	8,605	22,644	157	413	1,130	2,974	7,318	19,257
1976	9,561	23,786	185	460	1,200	2,985	8,176	20,340
1977	10,485	24,526	210	491	1,325	3,099	8,950	20,935
1978 <sup>a</sup>	11,189	24,453	250	546	1,430	3,125	9,509	20,782
1979	12,518	25,265	265	535	1,555	3,138	10,698	21,592
1980 <sup>a</sup>	14,029	25,959	290	537	1,900	3,516	11,839	21,907
1981	16,382	27,710	301	509	2,340	3,958	13,741	23,243
1982 <sup>a</sup>	18,545	29,565	381	607	2,960	4,719	15,204	24,239
1983	20,680	31,714	463	710	3,641	5,584	16,576	25,421
1984	23,396	34,581	476	704	4,224	6,243	18,696	27,634
1985	27,196	39,011	489	701	5,347	7,670	21,360	30,640
1986 <sup>b</sup>	27,891	39,145	551	773	4,678	6,566	22,662	31,806
1987	30,752	42,013	740	1,011	4,660	6,366	25,352	34,636
1988 <sup>c</sup>	30,343	40,087	993	1,312	4,217	5,571	25,133	33,204
1989 <sup>c</sup>	28,554	36,348	1,384	1,762	4,698	5,980	22,472	28,606
1990 <sup>c</sup>	28,125	34,471	1,368	1,677	6,353	7,787	20,404	25,008
1991 <sup>c</sup>	26,372	31,230	1,712	2,027	6,021	7,130	18,639	22,073
1992 <sup>d</sup>	24,722	28,618	1,186	1,373	4,983	5,768	18,555	21,479
1993 <sup>d</sup>	22,809	25,808	958	1,084	4,730	5,352	17,118	19,369
1994 <sup>d</sup>	22,463	24,887	939	1,040	4,119	4,564	17,405	19,283
1995 <sup>d</sup>	23,451	25,461	720	782	3,699	4,016	19,031	20,662
1996 <sup>d</sup>	23,653	25,202	1,358	1,447	3,871	4,125	18,423 (S)	19,630
1997 <sup>d</sup>	23,928	25,078	1,654	1,734	2,861	2,999	19,412	20,345
1998 <sup>d, e</sup>	24,164	25,048	1,570	1,627	2,862	2,967	19,730	20,452
1999 <sup>d, e</sup>	22,535	23,026	1,755	1,793	3,383	3,457	17,397	17,776



TABLE 33. Trends in federal funds for performance of industrial basic research, applied research, and development in the United States: 1953–2002

(Millions of dollars)

Year	All R&D		Basic research		Applied research		Development	
	Current	Constant	Current	Constant	Current	Constant	Current	Constant
	dollars	dollars	dollars	dollars	dollars	dollars	dollars	dollars
2000 <sup>d, 5</sup>	19,118	19,118	1,472	1,472	2,951	2,951	14,695	14,695
2001 <sup>d, e, f</sup>	16,899	16,507	754	737	3,603	3,519	12,542	12,251
2002 <sup>d, e, f</sup>	16,401	15,779	888	854	2,452	2,359	13,061 (S)	12,565

(S) = indicates imputation of more than 50 percent.

<sup>a</sup> Character-of-work estimates were made by the National Science Foundation. See National Science Foundation, *National Patterns of R&D Resources: 1998* (NSF 99-335).

<sup>b</sup> The character-of-work estimation procedure was revised for 1986 and later years and resulting statistics are not directly comparable with earlier years.

<sup>c</sup> As a result of a new sample design, statistics for 1988–91 have been revised since originally published. These statistics now better reflect R&D performance among firms in the nonmanufacturing industries and small firms in all industries.

<sup>d</sup> As a result of annual sampling, implemented to produce statistics that better reflect R&D performance among firms in nonmanufacturing industries and small firms in all industries, statistics for 1992 and later years are not directly comparable with statistics for earlier years.

<sup>e</sup> Using data collected during recent cycles of the survey, NSF investigated a potential reporting anomaly for basic research and found that several large companies, known to develop and manufacture products, reported all R&D as basic research. This phenomenon prompted a renewed effort to strengthen character-of-work estimates produced from the survey. Consequently, improved edit checks were applied during statistical processing to produce the basic research, applied research, and development estimates beginning in 2001. Also, estimates for 1998, 1999, and 2000 were recalculated.

<sup>f</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTES: Gross domestic product (GDP) implicit price deflators were used to convert current dollars to constant (2000) dollars. For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 34. Funds for performance of and number of companies that performed industrial basic research, applied research, and development in the United States, by industry and size of company and by source of funds: 2002

(Millions of dollars)

Industry and size of company	NAICS codes	All industrial R&D				Basic research			
		Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>	Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>
Distribution by industry:									
All industries	21-23, 31-33, 42, 44-81	29,001	190,809	16,401	174,408	3,596	7,424	888	6,536
Manufacturing	31-33	14,043	108,985	10,745	98,240	2,586	4,716	187	4,529
Food	311	529	(D)	(D)	2,034	111	(D)	(D)	(D)
Beverage and tobacco products	312	57	170	-	170	1	(D)	-	(D)
Textiles, apparel, and leather	313-16	364	(D)	(D)	248	43	(D)	-	(D)
Wood products	321	90	(D)	(D)	132	14	(D)	-	(D)
Paper, printing and support activities	322, 323	396	(D)	(D)	2,620	96	(D)	-	(D)
Petroleum and coal products	324	79	(D)	(D)	1,233	37	(D)	-	(D)
Chemicals	325	1,242	20,641	246	20,395	233	(D)	(D)	2,517
Basic chemicals	3251	182	1,782	72	1,710	56	(D)	(D)	186
Resin, synthetic rubber, fibers, and filament	3252	82	2,426	13	2,413	15	221	-	221
Pharmaceuticals and medicines	3254	313	(D)	(D)	14,186	29	(D)	(D)	1,915
Other chemicals	325 minus (3251-52, 3254)	666	(D)	(D)	2,087	133	(D)	(D)	195 (S)
Plastics and rubber products	326	951	(D)	(D)	1,508	151	(D)	-	(D)
Nonmetallic mineral products	327	211	(D)	(D)	420	27	(D)	(D)	24 (S)
Primary metals	331	200	473	12	461	17	14 (S)	-	14 (S)
Fabricated metal products	332	1,382	1,355	104	1,251	366	45	(z)	45
Machinery	333	2,706	6,429	62	6,366	510	(D)	(D)	(D)
Computer and electronic products	334	2,808	35,777	5,470	30,307	497	937	35 (S)	902
Computers and peripheral equipment	3341	329	3,040	25	3,015	60	59 (S)	16 (S)	42
Communications equipment	3342	501	6,635	215	6,420	109	207 (S)	-	207 (S)
Semiconductor and other electronic components	3344	806	11,919	48	11,871	184	412	1	411
Navigational, measuring, electromedical, and control instruments	3345	1,047	13,729	5,180	8,549	124	257	17 (S)	240
Other computer and electronic products	334 minus (3341-42, 3344-45)	125	453	1	452	20	2	-	2

TABLE 34. Funds for performance of and number of companies that performed industrial basic research, applied research, and development in the United States, by industry and size of company and by source of funds: 2002

(Millions of dollars)

Industry and size of company	NAICS codes	All industrial R&D				Basic research			
		Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>	Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>
Electrical equipment, appliances, and components	335	840	2,039	61	1,978	151	(D)	(D)	18
Transportation equipment	336	785	26,145	4,692	21,452	119	(D)	(D)	(D)
Motor vehicles, trailers, and parts	3361-63	488	(D)	(D)	15,199	76	(D)	(D)	(D)
Aerospace products and parts	3364	84	9,654	4,306	5,349	11	(D)	(D)	347
Other transportation equipment	336 minus (3361-64)	213	(D)	(D)	905	32	(D)	(D)	(D)
Furniture and related products	337	267	258	7	251	7	(D)	-	(D)
Miscellaneous manufacturing	339	1,136	7,457	44	7,414	206	(D)	(D)	95
Medical equipment and supplies	3391	557	(D)	(D)	6,179	80	(D)	(D)	78
Other miscellaneous manufacturing	339 minus (3391)	579	(D)	(D)	1,235	126	(D)	(D)	17
Other manufacturing	31-33 minus (311-16, 321-27, 339)	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	14,958	81,824	5,656	76,168	1,010	2,708	701	2,007
Mining, extraction, and support activities	21	22	(D)	(D)	715	6	23	-	23
Utilities	22	285	(D)	(D)	117	3	(D)	-	(D)
Construction	23	300	164	(z)	164	11	2	(z)	2
Trade	42, 44, 45	2,837	(D)	(D)	25,014	122	(D)	(D)	837
Transportation and warehousing	48, 49	120	(D)	(D)	339	2	(D)	-	(D)
Information	51	1,726	17,870	106	17,764	128	(D)	(D)	175 (S)
Publishing	511	1,320	13,541	53	13,488	116	(D)	(D)	144 (S)
Newspaper, periodical, book, and database	5111	51	614	-	614	1	(D)	-	(D)
Software	5112	1,269	12,927	53	12,874	115	(D)	(D)	(D)
Broadcasting and telecommunications	513	112	(D)	(D)	1,637	1	(D)	-	(D)
Radio and television broadcasting	5131	4	(D)	-	(D)	0	-	-	-
Telecommunications	5133	93	(D)	(D)	1,608	1	(D)	-	(D)
Other broadcasting and telecommunications	513 minus (5131, 5133)	14	(D)	-	(D)	0	-	-	-
Other information	51 minus (511, 513)	294	(D)	(D)	2,639	10	(D)	-	(D)

TABLE 34. Funds for performance of and number of companies that performed industrial basic research, applied research, and development in the United States, by industry and size of company and by source of funds: 2002

(Millions of dollars)

Industry and size of company	NAICS codes	All industrial R&D				Basic research			
		Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>	Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>
Finance, insurance, and real estate	52, 53	463	1,903	-	1,903	10	26	-	26
Professional, scientific, and technical services	54	6,973	30,358	5,412	24,946	664	1,456	682	774
Architectural, engineering, and related services	5413	1,392	4,159	1,337	2,822	142	(D)	(D)	21
Computer systems design and related services	5415	3,304	11,983	1,590	10,394	223	(D)	(D)	185
Scientific R&D services	5417	1,364	13,034	2,299	10,735	294	940	383	556
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	913	1,182	186	996	5	12 (S)	-	12 (S)
Management of companies and enterprises	55	35	148	-	148	0	-	-	-
Health care services	621-23	1,231	(D)	(D)	4,163	8	(D)	(D)	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	966	(D)	(D)	894	56	(D)	(D)	14
Distribution by size of company (number of employees):									
Total	(na)	29,001	190,809	16,401	174,408	3,596	7,424	888	6,536
5 to 24	(na)	13,028	4,261	789	3,471	1,206	152	55 (S)	97
25 to 49	(na)	4,620	3,845	259	3,586	655	138	27	111
50 to 99	(na)	3,846	6,164	463	5,701	562	274	54	220
100 to 249	(na)	3,441	13,227	606	12,622	482	604	108	496
250 to 499	(na)	1,573	8,055	686	7,370	273	326	84 (S)	242
500 to 999	(na)	962	9,925	531	9,394	140	(D)	(D)	306
1,000 to 4,999	(na)	1,054	28,625	985	27,640	174	1,243	72 (S)	1,170
5,000 to 9,999	(na)	220	17,987	1,574	16,414	43	549 (S)	137 (S)	412
10,000 to 24,999	(na)	152	26,458	1,226	25,232	32	(D)	(D)	1,194
25,000 or more	(na)	105	72,261	9,282	62,979	29	2,539	251	2,288

TABLE 34. Funds for performance of and number of companies that performed industrial basic research, applied research, and development in the United States, by industry and size of company and by source of funds: 2002

(Millions of dollars)

Industry and size of company	NAICS codes	Applied research				Development			
		Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>	Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>
Distribution by industry:									
All industries	21-23, 31-33, 42, 44-81	6,095	28,072	2,452	25,620	22,983	155,313	13,061	(S) 142,252
Manufacturing	31-33	3,450	18,040	1,095	16,945	11,813	86,229	9,462	(S) 76,767
Food	311	121	(D)	-	(D)	428	1,625	-	1,625
Beverage and tobacco products	312	7	(D)	-	(D)	56	138	-	138
Textiles, apparel, and leather	313-16	48	26	-	26	218	(D)	(D)	(D)
Wood products	321	27	(D)	(D)	(D)	76	59	-	(D)
Paper, printing and support activities	322, 323	102	749 (S)	-	749 (S)	374	1,865 (S)	(D)	(D)
Petroleum and coal products	324	20	479 (S)	-	479 (S)	67	(D)	(D)	(D)
Chemicals	325	428	(D)	(D)	5,409	1,003	12,587	117	12,470
Basic chemicals	3251	80	(D)	(D)	557	123	981	13	968
Resin, synthetic rubber, fibers, and filament	3252	42	(D)	(D)	1,241	58	(D)	(D)	951
Pharmaceuticals and medicines	3254	65	(D)	(D)	2,994	291	(D)	(D)	9,276
Other chemicals	325 minus (3251-52, 3254)	242	(D)	(D)	617	531	(D)	(D)	1,275
Plastics and rubber products	326	244	(D)	-	(D)	883	(D)	(D)	1,200
Nonmetallic mineral products	327	32	131	-	131	133	(D)	(D)	266
Primary metals	331	25	(D)	(D)	85 (S)	172	(D)	(D)	363 (S)
Fabricated metal products	332	399	128	5	123	1,254	1,182	99 (S)	1,083
Machinery	333	782	(D)	(D)	(D)	2,295	(D)	(D)	5,425
Computer and electronic products	334	728	5,452	78 (S)	5,374	2,410	29,388 (S)	5,357 (S)	24,031
Computers and peripheral equipment	3341	76	171	4 (S)	166	294	2,811	5 (S)	2,806
Communications equipment	3342	121	534 (S)	-	534 (S)	429	5,894 (S)	215	5,679 (S)
Semiconductor and other electronic components	3344	314	3,021	33	2,988	702	8,486 (S)	14	8,472 (S)
Navigational, measuring, electromedical, and control instruments	3345	174	1,684	41 (S)	1,644	874	11,788	5,122 (S)	6,666
Other computer and electronic products	334 minus (3341-42, 3344-45)	44	42	-	42	112	409	1 (S)	408
Electrical equipment, appliances, and components	335	110	(D)	(D)	198	714	(D)	(D)	1,762
Transportation equipment	336	118	(D)	854	(D)	599	(D)	(D)	18,486

TABLE 34. Funds for performance of and number of companies that performed industrial basic research, applied research, and development in the United States, by industry and size of company and by source of funds: 2002

(Millions of dollars)

Industry and size of company	NAICS codes	Applied research				Development			
		Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>	Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>
Distribution by industry:									
Motor vehicles, trailers, and parts	3361-63	72	(D)	(D)	(D)	328	(D)	(D)	13,815
Aerospace products and parts	3364	16	(D)	(D)	1,092	63	7,268	3,358	3,910
Other transportation equipment	336 minus (3361-64)	30	(D)	(D)	(D)	208	(D)	(D)	761
Furniture and related products	337	23	(D)	-	(D)	232	250	7	244
Miscellaneous manufacturing	339	237	(D)	(D)	483	898	6,865	29	6,836
Medical equipment and supplies	3391	136	(D)	(D)	406	436	(D)	(D)	5,695
Other miscellaneous manufacturing	339 minus (3391)	101	(D)	(D)	76	462	(D)	(D)	1,141
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	2,645	10,032	1,357	8,675	11,170	69,084	3,598	65,486
Mining, extraction, and support activities	21	15	(D)	(D)	127	19	(D)	(D)	565 (S)
Utilities	22	8	(D)	-	(D)	273	(D)	(D)	(D)
Construction	23	6	40	-	40	280	122	(z)	122
Trade	42, 44, 45	510	(D)	(D)	2,367	2,223	(D)	(D)	21,810
Transportation and warehousing	48, 49	6	(D)	-	(D)	19	(D)	(D)	(D)
Information	51	265	1,365 (S)	5	1,360 (S)	1,584	(D)	(D)	16,229
Publishing	511	254	1,189 (S)	5	1,184 (S)	1,251	(D)	(D)	12,160
Newspaper, periodical, book, and database	5111	3	(D)	-	(D)	45	580	-	580
Software	5112	251	(D)	5	(D)	1,206	(D)	(D)	11,580 (S)
Broadcasting and telecommunications	513	2	(D)	-	(D)	101	(D)	(D)	(D)
Radio and television broadcasting	5131	0	-	-	-	3	(D)	-	(D)
Telecommunications	5133	2	(D)	-	(D)	84	(D)	(D)	(D)
Other broadcasting and telecommunications	513 minus (5131, 5133)	0	-	-	-	14	(D)	-	(D)
Other information	51 minus (511, 513)	8	(D)	-	(D)	232	(D)	(D)	(D)
Finance, insurance, and real estate	52, 53	40	68	-	68	442	1,809	-	1,809
Professional, scientific, and technical services	54	1,692	5,617	1,312	4,305	5,381	23,286	3,419	19,867

TABLE 34. Funds for performance of and number of companies that performed industrial basic research, applied research, and development in the United States, by industry and size of company and by source of funds: 2002

(Millions of dollars)

Industry and size of company	NAICS codes	Applied research				Development				
		Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>	Number of companies <sup>a</sup>	Total	Federal	Company and other <sup>b</sup>	
Distribution by industry:										
Architectural, engineering, and related services	5413	180	(D)	(D)	152	771	3,529	880	(S)	2,649
Computer systems design and related services	5415	489	(D)	(D)	431	2,996	11,245	1,467		9,778
Scientific R&D services	5417	672	4,655	997	3,659	956	7,439	919		6,520
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	351	97	33	64	(S)	658	1,073	153	920 (S)
Management of companies and enterprises	55	0	-	-	-	34	148	-		148
Health care services	621-23	14	(D)	(D)	313	(S)	325	3,723	(S)	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	90	(D)	(D)	29		588	(D)	(D)	852
Distribution by size of company (number of employees):										
Total	(na)	6,095	28,072	2,452	25,620	22,983	155,313	13,061	(S)	142,252
5 to 24	(na)	2,285	467	141	326	9,997	3,642	593		3,048
25 to 49	(na)	1,209	681	106	575	4,000	3,027	126		2,900
50 to 99	(na)	672	948	103	845	3,152	4,942	305		4,636
100 to 249	(na)	629	1,980	142	1,838	2,603	10,643	355		10,288
250 to 499	(na)	477	1,097	247	851	1,309	6,632	355		6,277
500 to 999	(na)	288	(D)	(D)	1,364	715	8,054	330		7,724
1,000 to 4,999	(na)	354	4,222	250	3,973	850	23,160	663	(S)	22,497
5,000 to 9,999	(na)	76	3,904	549	(S)	3,355	172	13,535	888	(S)
10,000 to 24,999	(na)	58	(D)	(D)	4,176	106	20,991	1,129		19,862
25,000 or more	(na)	49	9,033	715	8,318	78	60,689	8,316	(S)	52,373

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

<sup>a</sup> The estimates in the "number of companies" columns are the numbers of companies that actually distributed total R&D among the three character-of-work categories, (basic research, applied research, and development) when responding to the survey. During subsequent statistical processing, when undistributed amounts of R&D were allocated among the three categories for this table, it was not possible to similarly allocate the associated number of companies among the three categories. See table A-7 for the amount of undistributed R&D and the number of companies that reported undistributed R&D.

<sup>b</sup> The company R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

NOTES: Excludes data for federally funded research and development centers. For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 35. Funds for industrial R&amp;D performance in the United States, by state: Selected years 1987–2002

(Millions of dollars)

State	1987	1989 <sup>a</sup>	1991 <sup>a</sup>	1993 <sup>b</sup>	1995 <sup>b</sup>	1997 <sup>b</sup>	1998 <sup>b,c,d</sup>	1999 <sup>b,c,d</sup>	2000 <sup>b,c,d</sup>	2001 <sup>b,c,d,e</sup>	2002 <sup>b,d,e</sup>	Percent change 2002/2001
United States	92,155	102,055	116,952	117,400	132,103	157,539	169,180	182,711	199,539	198,505	190,809	-4
Alabama	1,523	430	596	557 (S)	686	589 (S)	845	823	821 (S)	905	846	-7
Alaska	10	9	21	14	30	24 (S)	37 (E)	82 (E)	48 (E)	68	51 (E)	-25
Arizona	809	921	1,080	1,039	1,356 (S)	1,854	1,801	2,109 (S)	2,182 (S)	2,707	3,201	18
Arkansas	129	51	(S)	179	181	118	213 (E)	326	400	254 (E)	225 (E)	-12
California	18,636	23,781	(S)	21,975	28,710	34,011	32,856	36,991	43,459	41,745	39,664	-5
Colorado	1,207	1,167	(S)	1,966	1,865	2,248	3,180	3,266	3,143	3,117	2,823	-9
Connecticut	2,121	2,421	1,756	2,228	3,906	3,014	3,346	4,145 (S)	4,132 (S)	4,686	6,077	30
Delaware	(D)	(D)	(D)	913 (S)	1,077 (S)	1,009 (S)	1,356 (S)	1,295 (S)	1,468 (S)	1,232	1,219	-1
District of Columbia	(D)	(D)	46	515 (S)	672 (S)	(D)	598 (S)	268 (E)	196 (E)	242	194	-20
Florida	2,041	2,352	(S)	2,386	4,101	3,442	3,265	3,482	3,773 (S)	3,755	3,707	-1
Georgia	958	722	993	792	1,175	1,273	1,617	1,904	2,159 (S)	1,912	2,107	10
Hawaii	70	9	13	255	14	87	55 (E)	68 (E)	93 (E)	93	103	11
Idaho	467	(D)	(S)	686	827	1,181 (S)	1,103 (S)	1,239	1,363	884	992	12
Illinois	4,099	4,068	5,750	5,023	5,776 (S)	6,248	7,318	8,102	8,393 (S)	8,232	7,616	-7
Indiana	1,860	1,823	2,274	2,141	2,721 (S)	2,677	2,922	2,863 (S)	2,888 (S)	3,583	3,572	0
Iowa	328	365	527	505	998	578	750	730	762	817	753	-8
Kansas	1,128	406	(S)	280 (S)	569	1,136 (S)	1,384 (S)	1,448 (S)	1,327 (S)	1,299 (S)	1,427 (S)	10
Kentucky	238	227	176	282	452	359	606	777	762	636	656	3
Louisiana	128	169	(S)	106	61	172	377 (E)	516 (E)	364 (E)	316 (E)	248 (E)	-22
Maine	39	33	(S)	(D)	286	83	137	208	255	249	250 (S)	0
Maryland	1,292	1,093	1,376	1,296	1,075	1,425	1,905	2,020	2,213	3,682	3,800	3
Massachusetts	5,255	5,851	(S)	5,960	7,416	8,300	10,367	9,626	10,595	11,378	10,279	-10
Michigan	7,095	8,506	9,283	18,845	12,388	13,009	12,554	16,877	17,489 (S)	14,283	13,565	-5
Minnesota	2,145	2,075	2,070	2,341	2,636 (S)	3,116	3,367	3,695	3,971	4,355	4,460	2
Mississippi	42	56	(S)	51	66	73	183 (E)	224 (E)	242 (E)	219 (E)	224	2
Missouri	1,823	2,391	(S)	1,339 (S)	2,028 (S)	1,290 (S)	1,505	1,664	1,978	1,792	1,592	11
Montana	7	(D)	(S)	(D)	17	92	63	92 (E)	78 (E)	70 (E)	66	-5
Nebraska	59	64	67	93	150	71	195 (E)	217 (E)	335 (E)	306	342	12
Nevada	55	29	95	65	322	380	476	490	433	290	339	17
New Hampshire	90	(D)	(D)	247	472	652	1,138	1,157	722	1,339	1,153	-14
New Jersey	5,876	6,410	8,933	8,009	8,200	11,069	11,107	10,145	10,580	10,164	11,566	14
New Mexico	950	1,039	1,217	(D)	1,461	1,310 (S)	1,450 (S)	1,352 (S)	1,203 (S)	231	331	43
New York	6,276	8,107	9,457	8,597	8,651	9,939 (S)	10,283	12,260	11,622	10,884	9,234	-15
North Carolina	1,666	1,311	1,470	1,886	2,226	3,590	3,483	3,632	4,328	4,138	3,443	-17
North Dakota	57	(S)	(S)	(D)	12	33	46 (E)	95 (E)	83 (E)	347	154	-56



TABLE 35. Funds for industrial R&amp;D performance in the United States, by state: Selected years 1987–2002

(Millions of dollars)

State	1987	1989 <sup>a</sup>	1991 <sup>a</sup>	1993 <sup>b</sup>	1995 <sup>b</sup>	1997 <sup>b</sup>	1998 <sup>b,c,d</sup>	1999 <sup>b,c,d</sup>	2000 <sup>b,c,d</sup>	2001 <sup>b,c,d,e</sup>	2002 <sup>b,d,e</sup>	Percent change 2002/2001
Ohio	3,415	3,964	5,406	4,494	4,001	5,608	5,742	6,531	6,245	6,694	6,230	-7
Oklahoma	367	333	448	299	288	428	369	562 (E)	463	543 (E)	412	-24
Oregon	281	357	(S)	455	741	1,102	1,345	1,408	1,533	2,677	2,320	-13
Pennsylvania	4,430	4,653	(S)	4,652	5,331	6,609 (S)	7,393	7,474	8,473	8,967	7,064	-21
Rhode Island	224	140	174	154	520	704 (S)	1,332 (S)	1,317 (S)	1,167 (S)	1,134 (S)	1,121 (S)	-1
South Carolina	500	388	479	461	739	783 (S)	996	922	1,059	921	1,054	14
South Dakota	4	4	6	(D)	19	26	40 (E)	57 (E)	89 (E)	87 (E)	53	-40
Tennessee	621	934	843	788	1,003	1,089	2,440	2,205	1,644	1,503	1,289	-14
Texas	4,077	5,051	5,439	4,562	6,211 (S)	7,265	8,984	8,661	10,048	9,839	10,744	9
Utah	774	389	407	279	803	1,027	1,119	1,028	1,063	1,173	1,116	-5
Vermont	236	(D)	(D)	(D)	248	246	114	346	389	339	286	-15
Virginia	1,284	1,131	1,275	1,046	1,577	1,767	2,540	2,662	2,683	2,957	2,920	-1
Washington	2,939	2,728	3,677	4,575 (S)	4,294 (S)	6,610 (S)	7,072 (S)	7,093 (S)	8,235 (S)	8,933 (S)	8,579 (S)	-4
West Virginia	83	(D)	(D)	100 (S)	243	(D)	335	351	329	211	264	25
Wisconsin	1,165	1,035	1,304	1,296	1,706	1,707	1,929	2,194	2,415	2,469 (S)	2,649	7
Wyoming	4	(D)	2	15	25	28	20 (E)	65 (E)	37 (E)	28 (E)	21 (E)	-26
Undistributed funds <sup>f</sup>	2,281	2,945	772	683	1,773 (S)	7,211 (S)	5,521 (S)	5,647 (S)	9,804 (S)	9,819 (S)	8,406	-14

(D) = data have been withheld to avoid disclosing information about individual companies; (S) = indicates imputation of more than 50 percent. For years prior to 1993, data have been withheld; (T) = data are not separately available but included in total; (E) = indicates imputation of more than 50 percent due to raking of state data.

<sup>a</sup> As a result of a new sample design, statistics for 1989–91 have been revised since originally published. These statistics now better reflect R&D performance among firms in the nonmanufacturing industries and small firms in all industries.

<sup>b</sup> As a result of the new sample design, statistics for 1991 and later years are not directly comparable with statistics for years prior to 1991.

<sup>c</sup> Some statistics for 1998, 1999, 2000, and 2001 have been revised since originally published.

<sup>d</sup> Beginning with 2001, the methodology to produce statistics by state was modified from previous years to address the recurring problem of large year-to-year variation in many state estimates. This variability was caused by many factors including the potential inefficiency of the sample at state levels, the rarity of R&D expenditures, and the large weights often associated with companies that report R&D in the survey for the first time. Under the new methodology, a portion of the amount of R&D reported by some companies not selected for the sample with certainty is allocated among all the states in which there was industrial activity. Note that there was no change to the methodology for estimating the number of R&D performers in each state. This estimate continued to be calculated by summing the weights of the companies that actually reported R&D activity in a given state.

<sup>e</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

<sup>f</sup> Includes data reported on Form RD-1 that were not allocated to a specific state. Data reported on form RD-1A were allocated to the state in the address on the company's survey form which is usually the company's headquarters.

NOTE: For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 36. Funds for industrial R&D performance in the United States and number of companies that performed R&D in the United States, by state and source of funds: 2002

(Millions of dollars)

State	Number of companies <sup>a</sup>	All funds	Federal	Company and other <sup>b</sup>
United States	29,001	190,809	16,401	174,408
Alabama	242	846	258	588
Alaska	65	51 (E)	3 (S)	48 (E)
Arizona	604	3,201	470	2,731
Arkansas	64	225 (E)	4 (E)	221
California	5,588	39,664	2,975	36,689
Colorado	1,050	2,823	169 (S)	2,654
Connecticut	516	6,077	317	5,761
Delaware	146	1,219	10	1,208
District of Columbia	33	194	92	102 (E)
Florida	1,038	3,707	858	2,848
Georgia	460	2,107	71	2,036
Hawaii	53	103	37	66 (E)
Idaho	366	992	3 (E)	990
Illinois	1,483	7,616	996	6,620
Indiana	566	3,572	123 (S)	3,450
Iowa	228	753	6 (E)	748
Kansas	228	1,427 (S)	(D)	(D)
Kentucky	127	656	6 (E)	650
Louisiana	174	248 (E)	14 (E)	233 (E)
Maine	168	250 (S)	21	229 (S)
Maryland	553	3,800	1,165 (S)	2,635
Massachusetts	1,057	10,279	1,995 (S)	8,284
Michigan	1,159	13,565	133	13,432
Minnesota	1,006	4,460	137	4,323
Mississippi	91	224	14	210
Missouri	923	1,592	151	1,441
Montana	48	66	1 (E)	65
Nebraska	76	342	7 (S)	335
Nevada	151	339	7 (E)	333
New Hampshire	289	1,153	(D)	(D)
New Jersey	1,011	11,566	238	11,328
New Mexico	253	331	92	239
New York	2,198	9,234	539	8,695
North Carolina	738	3,443	50 (E)	3,393
North Dakota	68	154	1 (E)	153
Ohio	1,568	6,230	823	5,407
Oklahoma	276	412	15	397
Oregon	670	2,320	17 (E)	2,302
Pennsylvania	2,020	7,064	114	6,950
Rhode Island	74	1,121 (S)	(D)	(D)
South Carolina	187	1,054	24	1,031
South Dakota	102	53	1 (E)	52
Tennessee	542	1,289	216	1,073
Texas	1,540	10,744	534	10,209
Utah	378	1,116	201 (S)	915

TABLE 36. Funds for industrial R&D performance in the United States and number of companies that performed R&D in the United States, by state and source of funds: 2002

(Millions of dollars)

State	Number of companies <sup>a</sup>	All funds	Federal	Company and other <sup>b</sup>
Vermont	80	286	7 (S)	279
Virginia	815	2,920	719	2,201
Washington	719	8,579 (S)	460	8,120 (S)
West Virginia	99	264	4	260
Wisconsin	914	2,649	19 (E)	2,630
Wyoming	35	21 (E)	1	20 (E)
Undistributed funds <sup>c</sup>	149	8,406	277	8,129

(D) = data have been withheld to avoid disclosing operations of individual companies.

(S) = indicates imputation of more than 50 percent.

(E) = indicates imputation of more than 50 percent due to raking of state data.

<sup>a</sup> Detail does not add to total because multi-establishment companies may perform R&D in more than one state.

<sup>b</sup> The company R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

<sup>c</sup> Includes data reported on Form RD-1 that were not allocated to a specific state.

NOTES: Beginning with 2001, the methodology to produce estimates of total, federal, and company R&D expenditures by state was modified from previous years to address the recurring problem of large year-to-year variation in many state estimates. This variability was caused by many factors including the potential inefficiency of the sample at state levels, the rarity of R&D expenditures, and the large weights often associated with companies that report R&D in the survey for the first time. Under the new methodology, a portion of the amount of R&D reported by some companies not selected for the sample with certainty is allocated among all the states in which there was industrial activity. Note that there was no change to the methodology for estimating the number of R&D performers in each state. This estimate continued to be calculated by summing the weights of the companies that actually reported R&D activity in a given state.

For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002

TABLE 37. Funds for industrial R&D performance in the United States and number of R&D-performing companies in the United States, by industry and size of company, for the United States and top 10 R&D-performing states: 2002  
(Millions of dollars)

Industry and size of company	NAICS codes	Number of companies	United States	California	Michigan	New Jersey	Texas	Massachusetts	New York	Washington	Illinois	Pennsylvania	Ohio	All other states and undistributed
Distribution by industry:														
All industries	21-23, 31-33, 42, 44-81	29,001	190,809	39,664	13,565	11,566	10,744	10,279	9,234	8,579 (S)	7,616	7,064	6,230	66,267
Manufacturing	31-33	14,043	108,985	17,975	12,319	6,408	6,264	5,754 (S)	4,438	1,983	5,894	4,199	4,085	39,667
Food	311	529	(D)	101	107	186	76	(D)	405 (S)	17	272	73	19	774
Beverage and tobacco products	312	57	170	15	2 (S)	(z) (E)	2 (S)	(D)	1 (E)	(D)	1 (E)	(z) (E)	(z) (E)	145
Textiles, apparel, and leather	313-16	364	(D)	20	2	(D)	4	31	16	1 (S)	1 (E)	6	2	166
Wood products	321	90	(D)	10	4	1 (S)	1	(z) (E)	(z) (E)	2 (S)	(z) (E)	(D)	(D)	62
Paper, printing and support activities	322, 323	396	(D)	(D)	14	5 (E)	61	20	137	40	(D)	18	(D)	1,354
Petroleum and coal products	324	79	(D)	(D)	(z) (E)	(D)	585	(z) (E)	19	(z) (E)	(D)	(D)	34	125
Chemicals	325	1,242	20,641	1,721	532	5,023	533	723	1,750	173	1,439	2,092	407	6,250
Basic chemicals	3251	182	1,782	72	30	235	111	42	72	2 (S)	180	247	155	638
Resin, synthetic rubber, fibers, and filament	3252	82	2,426	29	387	104	284	(D)	(D)	1	20	257 (S)	32	1,218
Pharmaceuticals and medicines	3254	313	(D)	1,494	45	4,371	98	(D)	761	168	1,184	1,432	133	3,992
Other chemicals	325 minus (3251-52, 3254)	666	(D)	126 (S)	69	313	40	76 (S)	(D)	2 (E)	54	155	86 (S)	403
Plastics and rubber products	326	951	(D)	69	126	53	26 (S)	(D)	25 (S)	5 (S)	53	75	432 (S)	640
Nonmetallic mineral products	327	211	(D)	35	72	10	14	(D)	14	(z) (E)	56 (S)	25	67	91 (S)
Primary metals	331	200	473	2 (E)	27 (S)	16	7 (S)	10 (S)	9 (S)	12	12 (S)	259 (S)	26	92
Fabricated metal products	332	1,382	1,355	252	64	9 (E)	22 (E)	39	36	20 (S)	76	84	163	592
Machinery	333	2,706	6,429	1,774	209	163 (S)	216 (S)	120 (S)	249	88	777	133	241	2,460
Computer and electronic products	334	2,808	35,777	9,573	314	372	3,786	3,814 (S)	695	605	1,445 (S)	854 (S)	195	14,125
Computers and peripheral equipment	3341	329	3,040	1,315	3 (S)	10	(D)	181 (S)	33 (S)	90 (S)	129 (S)	(D)	20	790
Communications equipment	3342	501	6,635	1,139	109	58	1,034 (S)	457 (S)	48	26	(D)	(D)	10	2,260 (S)
Semiconductor and other electronic components	3344	806	11,919	4,202	103	90	2,100	505	325	221	61	136	28	4,147
Navigational, measuring, electromedical, and control instruments	3345	1,047	13,729	2,851	99	212	194	2,533 (S)	287	250	220	207	133	6,742

TABLE 37. Funds for industrial R&D performance in the United States and number of R&D-performing companies in the United States, by industry and size of company, for the United States and top 10 R&D-performing states: 2002  
(Millions of dollars)

Industry and size of company	NAICS codes	Number of companies	United States	California	Michigan	New Jersey	Texas	Massachusetts	New York	Washington	Illinois	Pennsylvania	Ohio	All other states and undistributed
Distribution by industry:														
Other computer and electronic products	334 minus (3341-42, 3344-45)	125	453	65	(z) (E)	2 (S)	(D)	137	1 (S)	18 (S)	(D)	20	4	186
Electrical equipment, appliances, and components	335	840	2,039	239	173	49	51	146	123 (S)	3 (E)	184	84	148	839
Transportation equipment	336	785	26,145	3,206 (S)	10,444	106	582	(D)	765	(D)	1,272	263	1,342	6,843
Motor vehicles, trailers, and parts	3361-63	488	(D)	2,197 (S)	10,297	12	33	14 (S)	194	17	244	87	(D)	1,757
Aerospace products and parts	3364	84	9,654	969	102	86	545	(D)	566	(D)	(D)	122	915	4,131
Other transportation equipment	336 minus (3361-64)	213	(D)	40	45	8	4	(D)	5	14 (S)	(D)	54	(D)	955
Furniture and related products	337	267	258	11	81	1 (E)	2 (E)	2 (S)	4	2	19 (S)	4 (E)	6 (S)	127
Miscellaneous manufacturing	339	1,136	7,457	716	148	167	297	442	191	47	193 (S)	170	105	4,981 (S)
Medical equipment and supplies	3391	557	(D)	503	39	138	270	393	144	(D)	24 (E)	132 (S)	54	4,487 (S)
Other miscellaneous manufacturing	339 minus (3391)	579	(D)	212 (S)	109	30 (E)	27 (E)	49	47 (E)	(D)	169 (S)	37	51 (S)	494
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	14,958	81,824	21,689	1,246	5,159	4,480	4,526	4,797	6,597 (S)	1,722	2,865	2,145	26,600
Mining, extraction, and support activities	21	22	(D)	(D)	(z) (E)	(z) (E)	195 (S)	(z) (E)	(D)	(D)	9 (S)	(D)	(D)	361
Utilities	22	285	(D)	(D)	2 (E)	5	9 (S)	(z) (E)	32	1 (E)	1 (E)	1	11	67
Construction	23	300	164	(D)	3 (S)	12	7	(z) (E)	1 (E)	(z) (E)	9	2	(D)	87 (S)
Trade	42, 44, 45	2,837	(D)	6,921	114 (E)	1,358	1,932	982	2,065	(D)	225	1,460	285	9,128
Transportation and warehousing	48, 49	120	(D)	10 (E)	2 (E)	10	11 (E)	1 (E)	(D)	1 (E)	4 (E)	(D)	11	281 (S)
Information	51	1,726	17,870	4,421	411	374 (S)	907	940	1,293 (S)	4,848 (S)	191	216	172	4,096
Publishing	511	1,320	13,541	3,604	54 (S)	189	487 (S)	698	994 (S)	4,764 (S)	126	97	102	2,427
Newspaper, periodical, book, and database	5111	51	614	82	(D)	(D)	(D)	58	244	2	28	9	(D)	94
Software	5112	1,269	12,927	3,522	(D)	(D)	(D)	640	750 (S)	4,762 (S)	98	87 (S)	(D)	2,334

TABLE 37. Funds for industrial R&D performance in the United States and number of R&D-performing companies in the United States, by industry and size of company, for the United States and top 10 R&D-performing states: 2002  
(Millions of dollars)

Industry and size of company	NAICS codes	Number of companies	United States	California	Michigan	New Jersey	Texas	Massachusetts	New York	Washington	Illinois	Pennsylvania	Ohio	All other states and undistributed
Distribution by industry:														
Broadcasting and telecommunications	513	112	(D)	223	(D)	155 (S)	114 (E)	106 (S)	171 (S)	57 (S)	31 (E)	38 (E)	25 (E)	708 (E)
Radio and television broadcasting	5131	4	(D)	(z) (S)	(D)	(z) (E)	(z) (E)	(z) (E)	(z) (E)	(z) (E)	(z) (E)	(z) (S)	(z) (E)	(z) (E)
Telecommunications	5133	93	(D)	222	(D)	154 (S)	114 (E)	106 (S)	168 (S)	57 (S)	31 (E)	30 (E)	24 (E)	692 (E)
Other broadcasting and telecommunications	513 minus (5131, 5133)	14	(D)	1 (E)	(D)	(z) (E)	(z) (E)	(z) (E)	3 (E)	(z) (E)	(z) (E)	8 (S)	(z) (E)	15 (S)
Other information	51 minus (511, 513)	294	(D)	595	(D)	31	307	136	128	28	34	81	45	961
Finance, insurance, and real estate	52, 53	463	1,903	265	17 (E)	150	94	71	191	8 (E)	43 (E)	103	22 (E)	940
Professional, scientific, and technical services	54	6,973	30,358	9,367	560	3,049 (S)	975 (E)	2,306	925	1,073	1,063	729	1,394	8,916
Architectural, engineering, and related services	5413	1,392	4,159	1,178	122 (E)	92 (E)	166 (E)	130	99 (E)	50 (E)	64 (E)	76 (E)	102 (E)	2,080
Computer systems design and related services	5415	3,304	11,983	3,017	180	2,566 (S)	297 (E)	627	269 (E)	163	865	172 (E)	287	3,540
Scientific R&D services	5417	1,364	13,034	5,042	239	333	473	1,502	434	839	89 (E)	430	987	2,665
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	913	1,182	129 (E)	19 (E)	58	40 (E)	47	123 (E)	20	46 (E)	51	18 (E)	630
Management of companies and enterprises	55	35	148	81 (S)	1 (E)	9 (S)	5 (E)	7	5 (E)	1 (E)	2 (E)	2 (E)	4 (S)	32 (E)
Health care services	621-23	1,231	(D)	437 (E)	122 (E)	141 (E)	304 (E)	126 (E)	249 (E)	(D)	155 (E)	288 (E)	158 (E)	2,136 (E)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	966	(D)	76 (E)	14 (E)	51 (S)	40 (E)	92 (S)	28 (E)	(D)	18 (E)	20 (E)	45	557

TABLE 37. Funds for industrial R&D performance in the United States and number of R&D-performing companies in the United States, by industry and size of company, for the United States and top 10 R&D-performing states: 2002  
(Millions of dollars)

Industry and size of company	NAICS codes	Number of companies	United States	California	Michigan	New Jersey	Texas	Massachusetts	New York	Washington	Illinois	Pennsylvania	Ohio	All other states and undistributed
Distribution by size of company (number of employees):														
Total	(na)	29,001	190,809	39,664	13,565	11,566	10,744	10,279	9,234	8,579 (S)	7,616	7,064	6,230	66,267
5 to 24	(na)	13,028	4,261	798 (E)	132 (E)	181 (E)	300 (E)	242 (E)	283 (E)	82 (E)	206 (E)	182 (E)	144 (E)	1,710 (E)
25 to 49	(na)	4,620	3,845	981 (E)	95 (E)	184 (E)	239 (E)	252 (E)	264 (E)	81 (E)	153 (E)	149 (E)	120 (E)	1,326 (E)
50 to 99	(na)	3,846	6,164	1,536	169 (E)	262 (E)	419 (E)	450	286 (E)	138 (E)	215 (E)	267 (E)	201 (E)	2,221 (E)
100 to 249	(na)	3,441	13,227	3,623	334 (E)	512 (E)	698 (E)	907	685 (E)	388	374 (E)	563 (E)	339 (E)	4,804 (E)
250 to 499	(na)	1,573	8,055	2,612	278	172	332	755	379	240	182	183	168	2,754
500 to 999	(na)	962	9,925	2,731	175	355	505	1,036	464	382	390	220	182	3,485
1,000 to 4,999	(na)	1,054	28,625	9,500	725	1,505	838	1,603	890	636 (S)	954	1,090	924	9,958
5,000 to 9,999	(na)	220	17,987	5,478	362	2,236	1,167	731 (S)	770 (S)	502	329 (S)	525	847	5,041
10,000 to 24,999	(na)	152	26,458	2,117	1,069	2,761 (S)	2,689	810	1,162	117	641 (S)	1,459	653	12,981
25,000 or more	(na)	105	72,261	10,289	10,228	3,398	3,556	3,493 (S)	4,050	6,013 (S)	4,171	2,426	2,652	21,985

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (E) = indicates imputation of more than 50 percent due to raking of state data;

(z) = indicates data less than half the unit shown; (-) = indicates data not collected; (na) = not applicable.

NOTES: Beginning with 2001, the methodology to produce estimates of total, federal, and company R&D expenditures by state was modified from previous years to address the recurring problem of large year-to-year variation in many state estimates. This variability was caused by many factors including the potential inefficiency of the sample at state levels, the rarity of R&D expenditures, and the large weights often associated with companies that report R&D in the survey for the first time. Under the new methodology, a portion of the amount of R&D reported by some companies not selected for the sample with certainty is allocated among all the states in which there was industrial activity.

Note that there was no change to the methodology for estimating the number of R&D performers in each state. This estimate continued to be calculated by summing the weights of the companies that actually reported R&D activity in a given state.

For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 38. Domestic employment of companies that performed industrial R&D in the United States, by industry and by size of company: 2002  
(Thousands)

Industry	NAICS codes	Total	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
All industries	21-23, 31-33, 42, 44-81	15,415	144	162	280	535	546	690	2,326	1,498	2,414	682
Manufacturing	31-33	9,089	55	80	157	320	368	435	1,594	969	1,496	361
Food	311	991	2	-	6	18	25	37	102	90	207	50
Beverage and tobacco products	312	57	(z)	(D)	(z)	(D)	1	-	19	(D)	(D)	-
Textiles, apparel, and leather	313-16	186	2	1	(D)	15	12	19	56	35	(D)	(D)
Wood products	321	94	-	(D)	1	6	6	(D)	(D)	21	40	-
Paper, printing and support activities	322, 323	585	1	2	3	10	13	12	63	66	66	34
Petroleum and coal products	324	179	(z)	(D)	1	(D)	2	(D)	(D)	-	56	11
Chemicals	325	837	5	7	14	26	29	33	192	135	151	24
Basic chemicals	3251	154	1	1	(D)	5	4	8	66	40	(D)	-
Resin, synthetic rubber, fibers, and filament	3252	122	(z)	(z)	1	1	6	5	22	(D)	(D)	(D)
Pharmaceuticals and medicines	3254	355	(D)	1	(D)	7	8	7	48	46	72	(D)
Other chemicals	325 minus (3251-52, 3254)	207	(D)	5	8	13	11	13	55	(D)	(D)	(D)
Plastics and rubber products	326	468	(D)	3	25	25	35	38	162	47	65	(D)
Nonmetallic mineral products	327	145	1	2	1	6	(D)	4	52	(D)	(D)	(D)
Primary metals	331	260	(z)	2	2	9	(D)	10	47	54	78	(D)
Fabricated metal products	332	477	(D)	6	11	36	45	34	114	70	83	(D)
Machinery	333	740	11	19	32	50	72	86	157	83	80	15
Computer and electronic products	334	1,259	14	18	28	44	45	65	218	93	193	54
Computers and peripheral equipment	3341	83	(D)	2	2	3	3	12	18	(D)	(D)	-
Communications equipment	3342	175	3	3	5	9	11	14	31	(D)	(D)	(D)
Semiconductor and other electronic components	3344	404	2	7	7	14	15	16	102	(D)	53	(D)
Navigational, measuring, electromedical, and control instruments	3345	574	6	6	12	15	14	20	57	37	81	32
Other computer and electronic products	334 minus (3341-42, 3344-45)	23	(D)	1	1	2	2	3	9	(D)	-	-
Electrical equipment, appliances, and components	335	324	2	8	9	16	14	25	87	37	125	-
Transportation equipment	336	1,907	2	3	8	26	27	38	151	104	175	137
Motor vehicles, trailers, and parts	3361-63	987	1	(z)	(D)	20	20	32	110	(D)	(D)	68
Aerospace products and parts	3364	785	-	1	(z)	3	(D)	3	23	31	(D)	68
Other transportation equipment	336 minus (3361-64)	135	1	2	(D)	4	(D)	4	18	(D)	86 (S)	-
Furniture and related products	337	200	1	1	(D)	7	11	6	43	39	46	(D)
Miscellaneous manufacturing	339	379	(D)	7	10	24	21	26	113	58	68	(D)
Medical equipment and supplies	3391	227	3	4	5	12	10	11	69	34	(D)	(D)
Other miscellaneous manufacturing	339 minus (3391)	152	(D)	3	5	13	11	15	44	24	(D)	-



TABLE 38. Domestic employment of companies that performed industrial R&amp;D in the United States, by industry and by size of company: 2002

(Thousands)

Industry	NAICS codes	Total	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	6,326	89	82	123	215	178	255	732	529	918	320
Mining, extraction, and support activities	21	85	-	-	-	-	2	5	14	(D)	(D)	(D)
Utilities	22	270	(z)	-	-	-	(D)	(D)	26	88	126	(D)
Construction	23	91	4	(D)	1	4	2	18	15	(D)	(D)	-
Trade	42, 44, 45	1,487	17	25	19	35	44	27	198	146	279	69
Transportation and warehousing	48, 49	707	-	-	-	-	(D)	89 (S)	(D)	(D)	46	55
Information	51	1,399	9	11	14	33	31	39	160	38	123	94
Publishing	511	450	8	8	12	(D)	18	29	90	(D)	74	(D)
Newspaper, periodical, book, and database	5111	140	-	1	(z)	1	(D)	-	19	(D)	(D)	(D)
Software	5112	311	8	7	11	(D)	(D)	29	71	(D)	(D)	(D)
Broadcasting and telecommunications	513	728 (S)	(D)	-	(D)	(D)	7	2	7	(D)	-	69 (S)
Radio and television broadcasting	5131	2	-	-	-	(D)	-	-	(D)	-	-	-
Telecommunications	5133	725 (S)	-	-	-	8	(D)	(D)	(D)	(D)	-	69 (S)
Other broadcasting and telecommunications	513 minus (5131, 5133)	1	(D)	-	(D)	(D)	(D)	(D)	-	-	-	-
Other information	51 minus (511, 513)	220	(D)	3	2	(D)	6	9	62	(D)	50	(D)
Finance, insurance, and real estate	52, 53	711	(D)	4	(D)	3	12	(D)	52	38	120	47
Professional, scientific, and technical services	54	956	43	39	42	81	71	56	116	99	86	32
Architectural, engineering, and related services	5413	250	10	(D)	10	16	16	8	45	36	37	(D)
Computer systems design and related services	5415	333	20	21	19	29	22	30	37	(D)	(D)	10
Scientific R&D services	5417	159	(D)	(D)	13	27	30	12	16	(D)	-	(D)
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	213	(D)	(z)	(z)	8	4	6	18	30	(D)	12
Management of companies and enterprises	55	13	(D)	(D)	(D)	(z)	7	(D)	(D)	-	-	-
Health care services	621-23	158	12	(z)	5	43	1	(D)	19	(D)	(D)	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	450	1	3	41	15	3	(D)	118	80	48	(D)

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero.

NOTE: For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002

TABLE 39. R&D funds per employee spent by companies that performed industrial R&D in the United States, by size of company 1999–2002

(Dollars)

Size of company (number of employees)	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Total	10,028	11,297	11,852	12,378	4
5 to 24	34,057	37,703	30,366	29,559	-3
25 to 49	19,590	27,786	21,040	23,695	13
50 to 99	20,460	22,381	22,801	22,019	-3
100 to 249	11,892	15,190	20,206	24,721	22
250 to 499	11,861	12,915	16,736	14,755	-12
500 to 999	9,031	12,550	12,981	14,384	11
1,000 to 4,999	9,276	9,819	11,465	12,307	7
5,000 to 9,999	7,881	9,160	9,866	12,009	22
10,000 to 24,999	8,031	10,497	11,292	10,961	-3
25,000 or more	10,047	10,646	10,327	10,595	3
Company and other <sup>c</sup>	8,791	10,215	10,843	11,314	4
5 to 24	31,087	32,637	26,260	24,083	-8
25 to 49	18,072	26,552	19,911	22,096	11
50 to 99	18,754	20,797	21,277	20,366	-4
100 to 249	10,781	14,063	18,792	23,589	26
250 to 499	11,132	11,775	15,660	13,499	-14
500 to 999	8,272	11,866	12,211	13,614	11
1,000 to 4,999	8,942	9,570	11,204	11,883	6
5,000 to 9,999	6,825	8,273	8,935	10,958	23
10,000 to 24,999	7,903	10,249	10,915	10,453	-4
25,000 or more	7,955	8,949	8,975	9,234	3

<sup>a</sup> Some statistics for 1999 have been revised since originally published.

<sup>b</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

<sup>c</sup> The company-funded R&D in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside organizations such as other companies, research institutions, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

NOTES: Averages were derived by dividing total and company R&D funds spent during a calendar year by total employment in March of that year. For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 40. Distribution of total employment in companies that performed industrial R&D in the United States, ranked by size of R&D program: 1992–2002

(Percent distribution)

Companies ranked by size of R&D program	1992 <sup>a</sup>	1993	1994	1995	1996	1997 <sup>a</sup>	1998	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>
Total	100	100	100	100	100	100	100	100	100	100	100
First 4 (1–4)	6	6	6	6	6	5	5	4	2	2	3
Next 4 (5–8)	3	2	2	2	2	2	3	2	2	4	2
Next 12 (9–20)	5	5	4	4	4	3	4	5	6	3	5
Next 20 (21–40)	4	4	4	4	4	4	4	4	4	4	5
Next 60 (41–100)	8	8	7	7	7	6	7	6	8	4	8
Next 100 (101–200)	10	9	8	7	8	6	8	7	7	8	10
Next 200 (201–400)	10	10	9	9	9	11	11	14	13	12	10
All others	54	55	59	61	59	63	60	58	57	63	56

<sup>a</sup> Some percentages for 1992, 1997 and 1999 have been revised since originally published.

<sup>b</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTES: This table shows the percentage of total employment in the top R&D-performing companies. The companies are grouped for analysis. For example, if you like to know the percentage of total employment accounted for by the top 20 R&D-performing companies in 1999, you would add the percentages shown for the categories "first 4," "next 4," and "next 12." The result is 11%. For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 41. Full-time equivalent R&D scientists and engineers in companies that performed industrial R&D in the United States, by industry and size of company and by source of R&D funds: January 2003

(Thousands)

Industry and size of company	NAICS codes	All sources	Federal	Company and other <sup>a</sup>
Distribution by industry:				
All industries	21-23, 31-33, 42, 44-81	1,066.1	67.2	998.8
Manufacturing	31-33	585.8	41.0 (S)	544.8
Food	311	12.9	(D)	(D)
Beverage and tobacco products	312	1.0	-	1.0
Textiles, apparel, and leather	313-16	2.5	(D)	(D)
Wood products	321	(D)	(D)	0.8
Paper, printing and support activities	322, 323	17.9	(z)	17.6
Petroleum and coal products	324	4.3 (S)	-	4.3 (S)
Chemicals	325	86.9	2.5	84.5
Basic chemicals	3251	8.5	(D)	(D)
Resin, synthetic rubber, fibers, and filament	3252	12.8	(z)	12.7
Pharmaceuticals and medicines	3254	51.8	(z)	51.7
Other chemicals	325 minus (3251-52, 3254)	13.9	(D)	(D)
Plastics and rubber products	326	11.0	(D)	(D)
Nonmetallic mineral products	327	(D)	(D)	3.6
Primary metals	331	4.0 (S)	(z) (S)	4.0 (S)
Fabricated metal products	332	13.1	0.5	12.6
Machinery	333	56.5	0.5 (S)	56.0
Computer and electronic products	334	209.6	25.6 (S)	184.1
Computers and peripheral equipment	3341	15.1	(z)	15.0
Communications equipment	3342	40.9 (S)	1.7	39.2 (S)
Semiconductor and other electronic components	3344	73.3	(z)	73.1
Navigational, measuring, electromedical, and control instruments	3345	75.9	23.4 (S)	52.5
Other computer and electronic products	334 minus (3341-42, 3344-45)	4.4	(z)	4.3
Electrical equipment, appliances, and components	335	14.0	(z)	13.8
Transportation equipment	336	123.1	10.9	112.2
Motor vehicles, trailers, and parts	3361-63	83.2	1.1	82.2
Aerospace products and parts	3364	32.5	9.5	23.0
Other transportation equipment	336 minus (3361-64)	7.3 (S)	(z)	7.0 (S)
Furniture and related products	337	2.0	(z)	1.8
Miscellaneous manufacturing	339	22.6	(z)	22.3
Medical equipment and supplies	3391	14.4	(D)	(D)
Other miscellaneous manufacturing	339 minus (3391)	8.2	(D)	(D)
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--
Nonmanufacturing	21-23, 42, 44-81	480.3	26.2	454.1
Mining, extraction, and support activities	21	(D)	(D)	4.2
Utilities	22	(z)	(D)	(D)
Construction	23	1.0	(z)	1.0
Trade	42, 44, 45	134.5	(z)	134.2
Transportation and warehousing	48, 49	(D)	(D)	1.0
Information	51	117.0	1.0	116.1
Publishing	511	85.1	(z)	84.7
Newspaper, periodical, book, and database	5111	4.3	-	4.3
Software	5112	80.8	(z)	80.4

TABLE 41. Full-time equivalent R&D scientists and engineers in companies that performed industrial R&D in the United States, by industry and size of company and by source of R&D funds: January 2003  
(Thousands)

Industry and size of company	NAICS codes	All sources	Federal	Company and other <sup>a</sup>
Broadcasting and telecommunications	513	8.6 (S)	(D)	(D)
Radio and television broadcasting	5131	(z)	-	(z)
Telecommunications	5133	8.5 (S)	(D)	(D)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(z)	-	(z)
Other information	51 minus (511, 513)	23.3	(D)	(D)
Finance, insurance, and real estate	52, 53	18.9	(D)	(D)
Professional, scientific, and technical services	54	181.8	24.4	157.5
Architectural, engineering, and related services	5413	32.2	7.5	24.7
Computer systems design and related services	5415	90.8	4.5	86.3
Scientific R&D services	5417	50.0	11.2	38.7
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	8.9	1.1	7.7
Management of companies and enterprises	55	1.5	-	1.5
Health care services	621-23	9.1	(z) (S)	9.0
Other nonmanufacturing	56, 61, 624, 71, 72, 81	10.8	(z)	10.5
Distribution by size of company (number of employees):				
Total	(na)	1,066.1	67.2	998.8
5 to 24	(na)	60.0	6.6	53.4
25 to 49	(na)	26.6	1.4	25.2
50 to 99	(na)	38.4	2.0	36.5
100 to 249	(na)	61.4	3.3	58.1
250 to 499	(na)	46.4	3.8	42.5
500 to 999	(na)	61.3	4.7	56.6
1,000 to 4,999	(na)	165.5	2.3	163.2
5,000 to 9,999	(na)	104.0	13.4 (S)	90.6
10,000 to 24,999	(na)	158.3	5.3 (S)	153.0
25,000 or more	(na)	344.2	24.5 (S)	319.8

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (z) = indicates data less than half the unit shown; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero; (na) = not applicable.

<sup>a</sup> The company R&D referred to in this table is the industrial R&D performed within company facilities funded from all sources except the federal government. The funds predominantly are the company's own, but also include funds from outside company facilities funded from all sources except the federal government, universities and colleges, nonprofit organizations, and state governments. Excluded from this table are company-funded R&D not performed within the company (e.g., R&D contracted out to other organizations) and company-funded R&D not performed within the 50 U.S. states or DC (e.g., R&D not performed on U.S. soil by foreign subsidiaries or other foreign organizations).

NOTES: Excludes data for federally funded research and development centers. For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 42. R&D funds per full-time equivalent (FTE) R&D scientist or engineer spent by companies that performed industrial R&D in the United States, by industry and by size of company: 2002  
(Dollars)

Industry	NAICS codes	Total	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
All industries	21-23, 31-33, 42, 44-81	189,060	122,065	168,466	174,496	243,910	193,257	178,741	180,665	172,502	174,666	206,129
Manufacturing	31-33	193,166	124,394	133,341	131,539	164,593	169,389	180,452	177,794	178,917 (S)	159,405	230,515
Food	311	(D)	59,877	-	-	194,146	143,062	107,204	180,091	240,981	146,046	212,912
Beverage and tobacco products	312	183,002	200,000	-	-	(D)	(D)	-	213,388	(D)	(D)	-
Textiles, apparel, and leather	313-16	(D)	(D)	-	40,009 (S)	79,638	146,257	151,983	120,959	122,148	(D)	(D)
Wood products	321	(D)	-	-	61,318	119,487	(D)	(D)	145,514	(D)	(D)	-
Paper, printing and support activities	322, 323	(D)	88,712	-	-	193,207	28,667	-	195,929	260,389 (S)	183,537	164,443
Petroleum and coal products	324	(D)	246,828	-	-	-	45,542	(D)	(D)	-	274,543 (S)	(D)
Chemicals	325	249,272	114,221	42,859	115,355	277,102	214,037	258,174	211,938	273,914	246,027	282,101
Basic chemicals	3251	213,209	225,656	-	42,377	177,149	217,816	339,931	217,514	197,025 (S)	(D)	-
Resin, synthetic rubber, fibers, and filament	3252	205,166	(D)	-	-	-	(D)	99,378	166,795 (S)	(D)	(D)	(D)
Pharmaceuticals and medicines	3254	(D)	567,463	15,201	166,080	451,399	-	346,007	289,895	345,130	262,319	303,912
Other chemicals	325 minus (3251-52, 3254)	(D)	50,310	(D)	126,786	188,324	95,872	191,179	137,904	117,044 (S)	(D)	(D)
Plastics and rubber products	326	(D)	142,581	-	128,148	141,564	123,125	157,268	126,334	148,907	114,395 (S)	(D)
Nonmetallic mineral products	327	(D)	126,605	46,614	8,614	31,899	289,111	103,079	128,889	192,431	(D)	(D)
Primary metals	331	120,493 (S)	68,656	(D)	55,822	184,571	39,537	101,421	115,002 (S)	29,376 (S)	280,683	(D)
Fabricated metal products	332	110,940	54,812	86,614	120,475	90,784	178,936	162,406	86,762	116,017	160,357 (S)	(D)
Machinery	333	120,204	117,978	131,648	119,588	188,357	149,530	137,506	128,290	84,535 (S)	96,755	162,277
Computer and electronic products	334	170,650	143,134	266,707	92,867	162,617	180,275	177,656	200,127	172,109 (S)	140,151 (S)	174,329 (S)
Computers and peripheral equipment	3341	215,115	183,027	338,425	124,291	151,323	173,973	185,039	167,648	(D)	(D)	-
Communications equipment	3342	142,987 (S)	91,073 (S)	(D)	29,730	187,774	185,334	155,317	200,745	(D)	(D)	(D)
Semiconductor and other electronic components	3344	164,262	177,768	290,255	239,029	185,945	259,679	203,693	206,382 (S)	237,372	(D)	(D)
Navigational, measuring, electromedical, components	3345	189,255 (S)	141,189	-	170,098	122,544	143,107	180,615	212,428	95,551 (S)	172,868	254,072 (S)
Other computer and electronic products	334 minus (3341-42, 3344-45)	113,042	151,805	188,937	92,953	225,882	45,079	168,636	137,554	(D)	-	-
Electrical equipment, appliances, and components	335	156,049	144,796	162,413	303,849	96,655	246,793	208,241	141,672	182,421 (S)	133,790	-
Transportation equipment	336	226,078	186,249	-	-	223,776	115,227	146,087	167,972	185,206	115,411	255,304
Motor vehicles, trailers, and parts	3361-63	(D)	198,097	-	-	-	55,432	140,872	146,533	213,716	44,711	240,550
Aerospace products and parts	3364	(D)	-	-	-	337,350	-	(D)	287,520	154,998 (S)	(D)	283,010 (S)
Other transportation equipment	336 minus (3361-64)	(D)	107,430	-	-	-	103,941	272,576	113,141	(D)	198,406 (S)	-

TABLE 42. R&D funds per full-time equivalent (FTE) R&D scientist or engineer spent by companies that performed industrial R&D in the United States, by industry and by size of company: 2002  
(Dollars)

Industry	NAICS codes	Total	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
Furniture and related products	337	144,168	198,188	-	610,098	76,444	105,429	74,202	130,738	133,535	304,067 (S)	(D)
Miscellaneous manufacturing	339	362,370	114,216	310,584	259,586	202,762	221,736	256,018	172,446	398,070	336,100	(D)
Medical equipment and supplies	3391	(D)	107,018	-	(D)	195,672	234,094	123,156	187,564 (S)	474,839	(D)	(D)
Other miscellaneous manufacturing	339 minus (3391)	(D)	126,435	179,495	59,672	218,342	202,186	341,206	136,104	151,092	(D)	-
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	183,855	121,565	184,091	196,633	280,156	209,238	177,227	184,037	157,027	200,613	162,688
Mining, extraction, and support activities	21	(D)	-	-	-	-	(D)	194,035	233,376 (S)	(D)	(D)	(D)
Utilities	22	(D)	-	-	-	-	(D)	(D)	79,787 (S)	375,171	238,294	(D)
Construction	23	182,183	82,298	-	-	-	(D)	87,425	210,923	(D)	(D)	-
Trade	42, 44, 45	(D)	164,696	130,230	108,724	226,432	164,261	205,464	264,548	147,720 (S)	229,983	184,429
Transportation and warehousing	48, 49	(D)	-	-	-	-	- (S)	(D)	(D)	(D)	(D)	1,293,663
Information	51	157,908	236,140	279,273	183,075	181,675	228,539	148,048	136,861	127,501	157,816	157,477
Publishing	511	167,944	246,547	264,385	147,178	160,992	123,837	143,768	143,353	(D)	(D)	(D)
Newspaper, periodical, book, and database	5111	135,512	-	-	-	-	(D)	-	110,233	(D)	1,048,671 (S)	(D)
Software	5112	169,873	246,547	261,703	147,140	157,171	124,144	143,768	147,598	(D)	(D)	(D)
Broadcasting and telecommunications	513	(D)	631,333	-	(D)	(D)	(D)	79,063 (S)	(D)	(D)	-	81,312 (S)
Radio and television broadcasting	5131	(D)	-	-	-	-	-	-	(D)	-	-	-
Telecommunications	5133	(D)	-	-	-	(D)	-	80,875 (S)	(D)	(D)	-	81,312 (S)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	631,333	-	(D)	(D)	(D)	(D)	-	-	-	-
Other information	51 minus (511, 513)	(D)	(D)	-	247,982	263,973	121,181	203,091	121,607	(D)	89,294	(D)
Finance, insurance, and real estate	52, 53	112,124	346,222	-	(D)	(D)	95,471	(D)	140,152 (S)	123,965 (S)	162,177 (S)	44,637
Professional, scientific, and technical services	54	182,295	89,147	200,160	251,660	217,444	214,716	187,656	201,626	166,833 (S)	(D)	165,211 (S)
Architectural, engineering, and related services	5413	159,104	181,175	211,113	310,532	164,270	178,486	129,487	213,132	85,233	(D)	221,723 (S)
Computer systems design and related services	5415	138,805 (S)	37,094	164,845	183,277	159,379	155,370	123,170	146,883	(D)	(D)	(D)
Scientific R&D services	5417	271,133	209,251	250,449	286,858	264,242	268,339	302,679	391,466	(D)	-	(D)
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	197,390	229,758	(D)	67,407	204,057 (S)	(D)	(D)	176,145	98,804	(D)	(D)

TABLE 42. R&D funds per full-time equivalent (FTE) R&D scientist or engineer spent by companies that performed industrial R&D in the United States, by industry and by size of company: 2002 (Dollars)

Industry	NAICS codes	Total	Size of company (number of employees)									
			5 to 24	25 to 49	50 to 99	100 to 249	250 to 499	500 to 999	1,000 to 4,999	5,000 to 9,999	10,000 to 24,999	25,000 or more
Management of companies and enterprises	55	174,633	(D)	(D)	(D)	(D)	-	(D)	(D)	-	-	-
Health care services	621-23	(D)	646,779 (S)	11,322 (S)	(D)	1,134,157	-	204,495	187,251 (S)	(D)	(D)	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	(D)	80,731	-	23,841	225,840	265,416	109,677	102,573	177,469	(D)	(D)

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent; (-) = indicates data not collected; (-) = indicates a value of zero or a value rounded to zero.

NOTES: The number of full-time-equivalent R&D scientists and engineers used to estimate the cost per R&D scientist or engineer in 2002 is the arithmetic mean of the numbers of R&D scientists and engineers reported for January 2002 and 2003. This number is then divided into the total R&D expenditures of 2002, and the ratio is attributed to 2002. For information on sampling for 2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.



TABLE 43. R&D funds per full-time equivalent R&D scientist or engineer spent by companies that performed industrial R&D in the United States, ranked by size of R&D program: 1992–2002  
(Dollars)

Companies ranked by size of R&D program	1992 <sup>a</sup>	1993 <sup>a</sup>	1994 <sup>a</sup>	1995 <sup>a</sup>	1996 <sup>a</sup>	1997 <sup>a</sup>	1998 <sup>a</sup>	1999 <sup>b</sup>	2000	2001 <sup>c</sup>	2002 <sup>c</sup>	Percent change 2002/2001
First 4 (1–4)	202,492	252,629	218,906	234,791	231,784	229,602 (S)	242,408	289,072 (S)	283,219 (S)	229,610 (S)	270,753	18
Next 4 (5–8)	238,950	199,559	245,626 (S)	188,928 (S)	185,032 (S)	180,389	193,597	192,657	199,586	221,857	198,522	-11
Next 12 (9–20)	170,276	199,118	188,437	190,548	202,670	238,022 (S)	239,162	266,117 (S)	265,044 (S)	245,756 (S)	223,358	-9
Next 20 (21–40)	(S)	(S)	182,699	204,159	210,552	213,496	196,276	208,682 (S)	251,340 (S)	250,910	225,623	-10
Next 60 (41–100)	181,760	193,925	181,163	196,023	202,405	206,350	208,144	203,559	224,965	223,650	212,780	-5
Next 100 (101–200)	173,101	138,227	174,524	162,707	160,560	155,255	162,965	162,654	176,239	182,360	158,657	-13
Next 200 (201–400)	126,545	140,292	156,025	152,977	151,812	157,347	154,395	161,664	238,522	180,908	207,624	15
All others	158,098	154,814	174,536	167,339	168,362	171,495	173,585	179,880	232,405	219,058 (S)	211,253	-4

(S) = indicates imputation of more than 50 percent. Prior to 1994, data have been withheld.

<sup>a</sup> As a result of annual sampling, implemented to produce statistics that better reflect R&D performance among firms in nonmanufacturing industries and small firms in all industries, statistics for 1992 and later years are not directly comparable with statistics for earlier years. For more information, see the technical notes in Survey of Industrial Research and Development Methodology: 2002 at <http://www.nsf.gov/sbe/srs/sird/start.htm>.

<sup>b</sup> Some statistics for 1999 have been revised since originally published.

<sup>c</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTES: This table shows the average R&D funds spent per each full-time equivalent R&D scientist and engineer by the top R&D-performing companies. The companies are grouped for analysis. For example, if you would like to know the average amount spent on R&D by the top 4 R&D-performing companies in 1999, you would look at the category "first 4." The result is \$289,072. The number of full-time-equivalent R&D scientists and engineers used to estimate the cost per R&D scientist or engineer is the arithmetic mean of the numbers of R&D scientists and engineers reported for January in two consecutive years. This number is then divided into the total R&D expenditures of the earlier year, and the ratio is attributed to the earlier year. For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.

TABLE 44. Full-time equivalent R&D scientists and engineers per 1,000 employees in companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Distribution by industry:						
All industries	21–23, 31–33, 42, 44–81	57	59	63	65	4
Manufacturing	31–33	55	55	62	62	0
Food	311	8	6	8	12	44
Beverage and tobacco products	312	25	23	25	16	-36
Textiles, apparel, and leather	313–16	31	9	10	11	11
Wood products	321	10	18 (S)	20 (S)	(D)	(na)
Paper, printing and support activities	322, 323	20 (S)	19 (S)	19 (S)	29	50
Petroleum and coal products	324	26	15 (S)	17 (S)	20 (S)	20
Chemicals	325	84	98	98	99	1
Basic chemicals	3251	60	71	64	54	-16
Resin, synthetic rubber, fibers, and filament	3252	65	77	89	97	9
Pharmaceuticals and medicines	3254	133	136	143	137	-4
Other chemicals	325 minus (3251–52, 3254)	61 (S)	77 (S)	75 (S)	68 (S)	-9
Plastics and rubber products	326	24	24	27	22	-18
Nonmetallic mineral products	327	15	30	27	(D)	(na)
Primary metals	331	13 (S)	13 (S)	15 (S)	15 (S)	1
Fabricated metal products	332	13	15	20	26	28
Machinery	333	60	69	72	72	0
Computer and electronic products	334	147 (S)	152 (S)	180 (S)	167	-7
Computers and peripheral equipment	3341	127	135	175	170	-3
Communications equipment	3342	217 (S)	195 (S)	309 (S)	264 (S)	-15
Semiconductor and other electronic components	3344	141 (S)	132 (S)	148 (S)	180	21
Navigational, measuring, electromedical, and control instruments	3345	133	146	144 (S)	126 (S)	-13
Other computer and electronic products	334 minus (3341–42, 3344–45)	112	86	92	171	85
Electrical equipment, appliances, and components	335	37	44	53	40	-24
Transportation equipment	336	65	53	59	61	3
Motor vehicles, trailers, and parts	3361–63	64	60	70	76	8
Aerospace products and parts	3364	72 (S)	43	41 (S)	43 (S)	5
Other transportation equipment	336 minus (3361–64)	40	38 (S)	49 (S)	50 (S)	3
Furniture and related products	337	10	9 (S)	11	9	-14
Miscellaneous manufacturing	339	43	50	45	54	21
Medical equipment and supplies	3391	53	58	57	61	7
Other miscellaneous manufacturing	339 minus (3391)	29	35	28	45	59
Other manufacturing	31–33 minus (311–16, 321–27, 331–37, 339)	--	--	--		(na)
Nonmanufacturing	21–23, 42, 44–81	60	65	64	70	9
Mining, extraction, and support activities	21	16	29	46	(D)	(na)
Utilities	22	2	1	2	2	-3
Construction	23	52	8	15	10	-33
Trade	42, 44, 45	92	76	69	84	22
Transportation and warehousing	48, 49	1	3	2	(D)	(na)
Information	51	68	75	80	81	2
Publishing	511	230	248	222	179	-19
Newspaper, periodical, book, and database	5111	26	31	32	32	1
Software	5112	344	358	334	245	-27

TABLE 44. Full-time equivalent R&D scientists and engineers per 1,000 employees in companies that performed industrial R&D in the United States, by industry and size of company: 1999–2002

Industry and size of company	NAICS codes	1999 <sup>a</sup>	2000	2001 <sup>b</sup>	2002 <sup>b</sup>	Percent change 2002/2001
Distribution by industry:						
Broadcasting and telecommunications	513	14 (S)	12 (S)	(D)	15 (S)	(na)
Radio and television broadcasting	5131	(D)	(D)	(D)	318	(na)
Telecommunications	5133	(D)	(D)	11 (S)	(D)	(na)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	356	(D)	(D)	(na)
Other information	51 minus (511, 513)	114	95	(D)	98	(na)
Finance, insurance, and real estate	52, 53	20	25	26	24	-6
Professional, scientific, and technical services	54	173	201	181	174	-4
Architectural, engineering, and related services	5413	180	207 (S)	135	104	-23
Computer systems design and related services	5415	162	174	216	259 (S)	20
Scientific R&D services	5417	348	366	378	302	-20
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	40	61	35	28	-21
Management of companies and enterprises	55	65	110	34	66	93
Health care services	621–23	84	20	40	43	6
Other nonmanufacturing	56, 61, 624, 71, 72, 81	7	8	18	22	23
Distribution by size of company (number of employees):						
Total	(na)	57	59	63	65	4
5 to 24	(na)	249	295	277	242	-13
25 to 49	(na)	144	179	166	141	-15
50 to 99	(na)	163	111	106	126	19
100 to 249	(na)	81	94	106	101	-5
250 to 499	(na)	68	79	90	76	-15
500 to 999	(na)	82	92	79	80	1
1,000 to 4,999	(na)	58	49	67	68	1
5,000 to 9,999	(na)	58	59 (S)	61 (S)	70	14
10,000 to 24,999	(na)	37	56	62	63	2
25,000 or more	(na)	45	46 (S)	46 (S)	51	11

(D) = data have been withheld to avoid disclosing operations of individual companies; (S) = indicates imputation of more than 50 percent;

(--) = indicates data not collected; (na) = not applicable.

<sup>a</sup> Some statistics for 1999 have been revised since originally published.

<sup>b</sup> Beginning with 2001, statistics for total and federally funded industrial R&D exclude data for federally funded research and development centers.

NOTE: For information on sampling for 1999–2002, see appendix A, Technical Notes.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2002.