

Table A-38. R&D funds per full-time equivalent (FTE) R&D scientist or engineer spent by companies that performed industrial R&D in the U.S., by industry, by size of company: 2001

Industry	NAICS codes	Total <sup>1</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
			Dollars									
Distribution by industry:												
All industries	21-23, 31-33, 42, 44-81	188,918	109,688	127,059	215,026	190,689	186,587	164,217	170,716	160,490 (S)	182,960	225,611 (S)
Manufacturing	31-33	197,125	85,355	115,980	282,580	220,190	185,146	166,833	178,011	138,887 (S)	175,737	236,168 (S)
Food	311	(D)	17,985	213,402	(D)	147,928	172,802	138,838	140,879 (S)	45,233 (S)	157,947	352,214 (S)
Beverage and tobacco products	312	106,875	0	0	0	0	37,333	0	248,555	(D)	(D)	(D)
Textiles, apparel, and leather	313-16	(D)	(D)	(D)	81,811	18,955	110,852	149,323	118,707	(D)	178,271	(D)
Wood products	321	108,375 (S)	223,844	0	(D)	73,355	(D)	(D)	177,201	(D)	(D)	0
Paper, printing and support activities	322, 323	(D)	40,970	72,950	118,476	118,404	(D)	(D)	172,869	178,877 (S)	219,981 (S)	260,259 (S)
Petroleum and coal products	324	(D)	0	0	0	0	70,919	40,189	68,400	(D)	(D)	(D)
Chemicals	325	219,787	112,221	(D)	264,015	143,361	117,840	180,783	193,601	189,471 (S)	224,512	267,972
Basic chemicals	3251	(D)	70,472	284,800	(D)	176,966	158,656	125,505	205,544	109,813	(D)	0
Resin, synthetic rubber, fibers, and filament	3252	266,773	0	0	1,390,259	0	(D)	417,760	119,285 (S)	(D)	(D)	(D)
Pharmaceuticals and medicines	3254	(D)	49,960	(D)	183,824	(D)	(D)	296,446	265,392	231,818	221,768	277,785
Other chemicals	325 minus (3251-52, 3254)	(D)	127,860	94,331 (S)	99,591	73,022	102,675	132,233	155,800	169,912 (S)	(D)	(D)
Plastics and rubber products	326	(D)	20,275 (S)	0	36,336	81,931	1,357,587	124,516	128,205	85,007 (S)	(D)	(D)
Nonmetallic mineral products	327	146,461	312,844	177,325	405	138,098	528,665	149,503	129,394	71,641 (S)	94,237 (S)	(D)
Primary metals	331	104,639 (S)	299,505	73,517	(D)	141,617	83,019	128,123	127,494	35,578 (S)	39,621 (S)	(D)
Fabricated metal products	332	160,874	116,671	0	72,083	108,021	62,044	143,129	89,236	163,748	146,441 (S)	(D)
Machinery	333	119,067	138,909	92,222	155,431	79,189	121,843	161,497	121,622	42,021 (S)	208,695	161,445
Computer and electronic products	334	187,265 (S)	(D)	183,921	600,102	298,810	110,783	174,368	207,525	155,684 (S)	135,975 (S)	188,178 (S)
Computers and peripheral equipment	3341	(D)	149,895	(D)	63,670	345,912	164,367	185,602	105,839	249,904 (S)	(D)	0
Communications equipment	3342	181,051 (S)	146,780	0	3,656,613	263,508	90,593	243,370	175,722	204,436 (S)	(D)	(D)
Semiconductor and other electronic components	3344	193,669 (S)	(D)	202,655	524,989	218,885	147,084	92,719	267,762 (S)	177,119	126,821 (S)	(D)
Navigational, measuring, electromedical, and control instruments	3345	186,733 (S)	194,309	173,325	308,218	140,678	89,865	136,684	153,255	85,041 (S)	187,555	271,546 (S)
Other computer and electronic products	334 minus (3341-42, 3344-45)	(D)	0	0	142,181	1,006,453	103,840	128,698	(D)	(D)	0	0
Electrical equipment, appliances, and components	335	(D)	29,992 (S)	354,162	96,656	286,350	42,330 (S)	149,199	150,512 (S)	209,340 (S)	157,929	(D)
Transportation equipment	336	249,499	139,182	0	56,225	31,627	126,530	212,622	115,257	166,539 (S)	196,108 (S)	273,188
Motor vehicles, trailers, and parts	3361-63	(D)	206,441	0	129,909	0	102,229	204,142	118,351	142,745 (S)	(D)	248,610
Aerospace products and parts	3364	356,549	0	0	30,050	(D)	0	(D)	103,326	(D)	(D)	366,803
Other transportation equipment	336 minus (3361-64)	(D)	5,000 (S)	0	0	0	184,785	53,143	107,724	(D)	(D)	(D)

See explanatory information and SOURCE at end of table.

Table A-38. R&D funds per full-time equivalent (FTE) R&D scientist or engineer spent by companies that performed industrial R&D in the U.S., by industry, by size of company: 2001

Industry	NAICS codes	Total <sup>1</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
[Dollars]												
Distribution by industry:												
Furniture and related products	337	131,160 (S)	0	0	10,000 (S)	74,658	142,053	110,842	129,910	170,165 (S)	145,817 (S)	(D)
Miscellaneous manufacturing	339	355,556	171,928 (S)	(D)	87,439	163,418	183,537	132,560	244,226	239,920 (S)	688,445	(D)
Medical equipment and supplies	3391	(D)	202,820	(D)	72,771	235,124	202,113	141,246	282,105 (S)	273,330 (S)	(D)	(D)
Other miscellaneous manufacturing	339 minus (3391)	(D)	88,759 (S)	121,918	99,940	75,790	125,263	110,991	155,820	(D)	(D)	(D)
Other manufacturing	31-33 minus (311-16, 321-27, 331-37, 339)	--	--	--	--	--	--	--	--	--	--	--
Nonmanufacturing	21-23, 42, 44-81	177,456	118,190	132,467	176,356	176,616	187,498	161,674	161,143	216,450	193,880	198,681
Mining, extraction, and support activities	21	(D)	(D)	148,600	0	0	(D)	101,650	156,977	202,739	(D)	(D)
Utilities	22	216,721	0	0	0	48,333	11,000	(D)	172,789	266,662	303,038	(D)
Construction	23	251,443	202,545	30,780	0	(D)	478,457 (S)	(D)	310,361	(D)	448,315	0
Trade	42, 44, 45	228,388	108,688	19,360	66,109	303,895	138,982	116,577	225,415	323,135	307,367	210,181
Transportation and warehousing	48, 49	(D)	(D)	6,245	(D)	0	0	(D)	(D)	0	(D)	(D)
Information	51	(D)	119,994	120,923	190,198	109,505	163,837	138,242	134,408	(D)	100,208	207,898
Publishing	511	158,631	172,832	104,180	190,956	100,552	167,391	127,723	135,369	(D)	(D)	(D)
Newspaper, periodical, book, and database	5111	141,812	240,570	177,313	(D)	0	(D)	(D)	(D)	(D)	(D)	(D)
Software	5112	159,568	166,617	93,796	193,113	100,552	188,891 (S)	128,054	131,885	(D)	(D)	(D)
Broadcasting and telecommunications	513	(D)	12,000	0	(D)	(D)	(D)	187,083 (S)	(D)	0	(D)	86,346 (S)
Radio and television broadcasting	5131	(D)	0	0	0	0	0	0	176,146	0	177,269	(D)
Telecommunications	5133	(D)	12,000	0	(D)	(D)	(D)	187,083 (S)	(D)	0	(D)	110,922 (S)
Other broadcasting and telecommunications	513 minus (5131, 5133)	(D)	0	0	0	0	(D)	0	0	0	0	0
Other information	51 minus (511, 513)	(D)	0	413,224	191,875	205,226	140,979	211,937	88,843 (S)	(D)	172,946	(D)
Finance, insurance, and real estate	52, 53	(D)	45,234	0	0	399,119	(D)	(D)	101,730 (S)	55,932 (S)	251,156 (S)	64,035
Professional, scientific, and technical services	54	185,626	160,967	166,436	179,900	203,335	186,612	184,383 (S)	188,287	176,641 (S)	(D)	(D)
Architectural, engineering, and related services	5413	117,377 (S)	233,925 (S)	104,054	171,710	181,377	131,725	(D)	250,143 (S)	(D)	(D)	(D)
Computer systems design and related services	5415	167,606	169,993	132,876	160,244	166,106	124,069	171,797	128,765	102,328 (S)	(D)	(D)
Scientific R&D services	5417	244,068	141,860	244,297	209,132	253,278	255,221	292,426	269,290	(D)	0	(D)
Other professional, scientific, and technical services	54 minus (5413, 5415, 5417)	123,965	145,576	115,750	23,082 (S)	92,235 (S)	(D)	(D)	136,929	88,474	(D)	(D)

See explanatory information and SOURCE at end of table.

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[Dollars]												
Distribution by industry:												
Management of companies and enterprises	55	422,433	268,427	(D)	501,564	(D)	0	(D)	(D)	0	0	0
Health care services	621-23	208,671	184,751	44,191 (S)	267,627 (S)	7,602	167,180	196,928	71,253	(D)	(D)	(D)
Other nonmanufacturing	56, 61, 624, 71, 72, 81	97,345	86,658	97,717 (S)	10,989	88,736	58,736	87,513	61,993	(D)	96,250 (S)	239,938 (S)

<sup>1</sup> Beginning with 2001, statistics for total and Federally funded industrial R&D exclude data for Federally Funded Research and Development Centers (FFRDCs).

KEY: (D) = Data have been withheld to avoid disclosing operations of individual companies.  
(S) = Indicates imputation of more than 50 percent.  
(-) = Indicates data not collected

NOTE: The number of full-time-equivalent R&D scientists and engineers used to estimate the cost per R&D scientist or engineer in 2001 is the arithmetic mean of the numbers of R&D scientists and engineers reported for January of 2001 and 2002. This number is then divided into the total R&D expenditures of 2001, and the ratio is attributed to 2001.

Starting in 1999, the frame from which the statistical samples were selected was divided into two partitions based on total company employment. In the manufacturing sector, companies with employment of 50 or more were included in the large company partition. In the nonmanufacturing sector, companies with employment of 15 or more were included in the large company partition. Companies in the respective sectors with employment below these values, but with at least 5 employees, were included in the small company partition. The purpose of partitioning the sample this way was to reduce the variability in industry estimates largely attributed to the random year-to-year selection of small companies by industry and the high sampling weights that sometimes were assigned to them. Because of this, in prior reports detailed industry statistics were published only from the large company partition; detailed industry statistics from the small company partition were not. Statistics from the small company partition were included in the manufacturing, nonmanufacturing, and all industries totals, but were aggregated into "small manufacturing" and "small nonmanufacturing" classifications instead of being included in their respective industry classifications. For this report, this practice was evaluated and discontinued because it was determined that the data for small companies are more useful if they are included in their respective industries even given the sampling concerns described above. Consequently, the "small manufacturing" and "small nonmanufacturing" stublines are no longer present. Statistics for the firms in the small company classifications are not shown separately in this table, but are included in the manufacturing, nonmanufacturing, and all industries totals. For more information, see the technical notes in Survey of Industrial Research and Development Methodology: 2001 at <http://www.nsf.gov/sbe/srs/sird/start.htm>.

SOURCE: National Science Foundation/Division of Science Resources Statistics, Survey of Industrial Research and Development: 2001