

TABLE 72

Domestic R&D paid for by the company and others and performed by the company, depreciation, capital expenditures, and adjusted domestic R&D, by industry and company size: 2017

(Millions of U.S. dollars and percent change)

Industry and company size	NAICS code	Domestic R&D paid for by the company and others	Depreciation		Capital expenditures related to R&D		Adjusted domestic R&D paid for by the company and others	Change	
								Amount	Percent
All industries	21-23, 31-33, 42-81	400,100	15,072		25,882	410,910	10,810	2.7	
Manufacturing industries	31-33	257,227	10,815		15,158	261,569	4,343	1.7	
Food	311	4,697	216	i	578	5,059	362	7.7	
Beverage and tobacco products	312	1,076	58		133	1,151	75	7.0	
Textile, apparel, and leather products	313-16	920	18		108 - 250	1,011 - 1,153	91 - 232	D	
Wood products	321	175	3		11	184	9	5.0	
Paper	322	1,322	40		120	1,402	81	6.1	
Printing and related support activities	323	229	10	i	21	240	11	4.8	
Petroleum and coal products	324	316	12		70 - 219	373 - 522	57 - 206	D	
Chemicals	325	74,977	3,677		5,082	76,383	1,406	1.9	
Basic chemicals	3251	2,574	153		221	2,641	68	2.6	
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	628	26		71	672	44	7.1	
Pesticide, fertilizer, and other agricultural chemicals	3253	1,376 - 1,475	161		201	1,215 - 1,627	40	D	
Pharmaceuticals and medicines	3254	66,202	3,180		4,353	67,374	1,172	1.8	
Soap, cleaning compound, and toilet preparation	3256	2,605 - 2,701	89		143	2,549 - 2,960	54	D	
Paint, coating, adhesive, and other chemicals	3255, 3259	1,495	67		95	1,522	27	1.8	
Plastics and rubber products	326	3,754	198		305	3,862	108	2.9	
Nonmetallic mineral products	327	1,334	104	i	70	1,300	-34	-2.5	
Primary metals	331	749	37		36 - 82	748 - 794	0 - 45	D	
Fabricated metal products	332	2,206	32		188	2,362	156	7.1	
Machinery	333	13,197	534		675 - 846	13,338 - 13,509	141 - 312	D	
Agricultural implement	33311	1,570	40		49 - 187	1,579 - 1,717	9 - 147	D	
Semiconductor machinery	333242	3,694	290		290 - 339	3,693 - 3,742	0 - 48	D	
Engine, turbine, and power transmission equipment	3336	2,080	79		90	2,090	10	0.5	
Other machinery	other 333	5,853	125		246 - 389	5,974 - 6,117	121 - 264	D	
Computer and electronic products	334	78,575	4,266	i	4,622	78,930	355	0.5	
Communications equipment	3342	12,687	576		755	12,866	179	1.4	
Semiconductor and other electronic components	3344	30,148	1,956	i	2,273	30,465	317	1.1	
Navigational, measuring, electromedical, and control instruments	3345	14,509	295		565	14,778	270	1.9	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,696	68		115	2,743	47	1.8	
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	7,297	130		302	7,469	173	2.4	

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Other measuring and controlling device	other 3345	4,516	98		147		4,566	50	1.1	
Other computer and electronic products	other 334	21,231	1,439		1,028		20,821	-410	i -1.9	
Electrical equipment, appliances, and components	335	4,291	115	i	194		4,370	79	1.8	
Transportation equipment	336	53,292	923		1,781		54,149	857	1.6	
Motor vehicles, bodies, trailers, and parts	3361-63	23,881	657		1,186		24,411	529	2.2	
Aerospace products and parts	3364	26,383	208		486		26,661	278	1.1	
Aircraft, aircraft engine, and aircraft parts	336411-13	24,576	206	i	483		24,853	277	1.1	
Guided missile, space vehicle, and related parts	336414-15, 336419	1,807	2		3		1,808	1	0.1	
Military armored vehicle, tank, and tank component	336992	9	*	i	*		9	0	-0.3	
Other transportation	other 336	3,018	58	i	108		3,068	50	i 1.7	
Furniture and related products	337	422	4		37 - 49		455 - 467	33 - 45	D	
Miscellaneous	339	15,695	570		960		16,084	389	2.5	
Medical equipment and supplies	3391	13,589	535		819		13,873	284	2.1	
Other miscellaneous manufacturing	3399	2,106	35		140		2,211	105	5.0	
Nonmanufacturing industries	21-23, 42-81	142,874	4,257		10,724		149,341	6,467	i 4.5	
Mining, quarrying, oil and gas extraction, and support activities	21	3,150	98		403 - 410		3,455 - 3,462	305 - 312	i D	
Utilities	22	317	56		444	i	706	388	i 122.3	
Wholesale trade	42	534	5	i	32 - 46		560 - 575	26 - 41	i D	
Electronic shopping and electronic auctions	454111-12	9,318	544		213	i	8,987	-331	i -3.5	
Transportation and warehousing	48-49	1,147	32		291		1,407	260	22.6	
Information	51	80,252	2,214		5,135		83,172	2,921	3.6	
Publishing	511	34,338	571		1,209		34,976	638	1.9	
Newspaper, periodical, book, and directory publishers	5111	74	5		5	i	74	*	-0.4	
Software publishers	5112	34,264	566		1,204		34,902	638	1.9	
Telecommunications	517	3,682 - 3,806	15		595 - 989	i	4,391 - 4,617	580 - 974	i D	
Data processing, hosting, and related services	518	16,155	281		1,332 - 1,557		17,207 - 17,431	1,052 - 1,276	D	
Other information	other 51	25,954 - 26,077	1,347		1,604 - 1,775		26,373	257 - 427	i D	
Finance and insurance	52	7,616	156		1,182	i	8,642	1,026	i 13.5	
Real estate and rental and leasing	53	718	24		35		729	11	1.6	
Lessors of nonfinancial intangible assets (except copyrighted works)	533	138	*	i	1	i	139	1	i 0.7	
Other real estate and rental and leasing	other 53	579	24		34		590	10	1.8	
Professional, scientific, and technical services	54	36,922	1,083		2,662		38,501	1,579	4.3	
Architectural, engineering, and related services	5413	2,708	18		62		2,752	44	i 1.6	

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						Amount	Percent
Computer systems design and related services	5415	13,327	451	1,683	14,558	1,231	9.2
Scientific research and development services	5417	17,321	579	665	17,408	87	0.5
Research and development in biotechnology	541711	4,449	156	238 - 244	4,531 - 4,537	82 - 88	D
Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	11,913	411	417	11,920	7	0.1
Research and development in the social sciences and humanities	541720	959	12	5 - 9	951 - 956	-7 - -3	D
Other professional, scientific, and technical services	other 54	3,566	35	252	3,784	217	6.1
Health care services	621-23	1,101	29	147 - 175	1,219 - 1,247	118 - 146	D
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,799	16	155	1,938	139	7.7
All companies (number of domestic employees)	-	400,100	15,072	25,882	410,910	10,810	2.7
Small companies							
10-19 ^a	-	3,311	49	313	3,576	265	8.0
20-49	-	9,435	231	847	10,050	616	6.5
Medium companies							
50-99	-	10,141	220	845	10,767	626	6.2
100-249	-	17,216	407	1,672	18,481	1,265	7.3
Large companies							
250-499	-	14,103	324	924	14,703	600	4.3
500-999	-	17,871	541	1,645	18,975	1,104	6.2
1,000-4,999	-	65,112	2,477	4,385	67,020	1,908	2.9
5,000-9,999	-	40,198	1,616	2,741	41,324	1,126	2.8
10,000-24,999	-	73,485	3,524	5,127	75,088	1,603	2.2
25,000 or more	-	149,227	5,686	7,384	150,925	1,699	1.1

* = -\$500,000 < amount < \$500,000; D = data withheld to avoid disclosing operations of individual companies; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

^a The Business Research and Development Survey (BRDS) did not include companies with fewer than 10 domestic employees.

Note(s):

Detail may not add to total because of rounding. Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Statistics are representative of companies located in the United States that performed or funded R&D. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies. To enable comparisons between U.S. BRDS statistics and those of other nations, in this table an internationally comparable adjusted domestic R&D estimate is calculated by subtracting depreciation relating to R&D operations, which was included in U.S. BRDS domestic R&D, and adding capital expenditures relating to R&D operations, which was excluded from U.S. BRDS domestic R&D.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Business Research and Development Survey, 2017.