

TABLE 68

## Domestic R&amp;D paid for by others and performed by the company, depreciation, capital expenditures, and adjusted domestic R&amp;D, by industry and company size: 2022

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

Industry and company size	NAICS code	Domestic R&D paid for by others and performed by the company	Depreciation			Capital expenditures related to R&D <sup>a</sup>	Adjusted domestic R&D paid for by the company and others	Change	
								Amount	Percent
All industries	21-23, 31-33, 42-81	83,489	2,325		0	81,164	-2,325	-2.8	
Manufacturing industries	31-33	45,461	1,079		0	44,382	-1,079	-2.4	
Food	311	D	D		0	336	D	D	
Beverage and tobacco products	312	107	7		0	100	-7	-6.2	
Textile, apparel, and leather products	313-16	D	D		0	13	D	D	
Wood products	321	5	*		0	5	*	-0.8	
Paper	322	*	0		0	*	0	0.0	
Printing and related support activities	323	1	* r		0	1	*	-4.8	
Petroleum and coal products	324	4	0		0	4	0	0.0	
Chemicals	325	12,210	513		0	11,697	-513	-4.2	
Basic chemicals	3251	D	D		0	190	D	D	
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	80 i	D		0	D	D	D	
Pesticide, fertilizer, and other agricultural chemicals	3253	D	D		0	D	D	D	
Pharmaceuticals and medicines	3254	11,353	456		0	10,897	-456	-4.0	
Soap, cleaning compound, and toilet preparations	3256	D	D		0	221	D	D	
Paint, coating, adhesive, and other chemicals	3255, 3259	29	*		0	28	*	-1.5	
Plastics and rubber products	326	219	6		0	213	-6	-2.9	
Nonmetallic mineral products	327	29	1		0	28	-1	-3.8	
Primary metals	331	20 r	*		0	20 r	*	-0.1	
Fabricated metal products	332	222 i	10 i		0	212 i	-10 i	-4.3	
Machinery	333	1,218	70 r		0	1,147	-70	-5.8	
Agricultural implement	33311	D	D		0	128	D	D	
Semiconductor machinery	333242	48	2		0	46	-2	-4.9	
Engine, turbine, and power transmission equipment	3336	D	D		0	299	D	D	
Other machinery	other 333	725	51 r		0	674	-51	-7.0	
Computer and electronic products	334	5,483	162		0	5,321	-162	-2.9	
Communications equipment	3342	795 i	11 i		0	784 i	-11 i	-1.4	
Semiconductor and other electronic components	3344	1,950	84		0	1,865	-84	-4.3	
Navigational, measuring, electromedical, and control instruments	3345	2,671	62		0	2,609	-62	-2.3	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	619 i	8 i		0	611 i	-8 i	-1.2	
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	1,976	53		0	1,923	-53	-2.7	

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			Amount	Percent			Amount	Percent
Other measuring and controlling devices	other 3345	77	1		0	76	-1	-1.7
Other computer and electronic products	other 334	67	5		0	62	-5	-7.0
Electrical equipment, appliances, and components	335	429	i 13	i	0	417	i -13	i -3.0
Transportation equipment	336	24,790	276		0	24,514	-276	-1.1
Motor vehicles, bodies, trailers, and parts	3361-63	2,159	60		0	2,100	-60	-2.8
Aerospace products and parts	3364	21,570	192		0	21,378	-192	-0.9
Aircraft, aircraft engine, and aircraft parts	336411-13	15,268	i 48		0	15,221	i -48	-0.3
Guided missile, space vehicle, and related parts	336414-15, 336419	6,302	145		0	6,157	-145	-2.3
Military armored vehicle, tank, and tank components	336992	4	0		0	4	0	0.0
Other transportation	other 336	1,057	24	i	0	1,033	i -24	i -2.3
Furniture and related products	337	5	*		0	5	*	-1.5
Miscellaneous	339	350	3		0	347	-3	-0.7
Medical equipment and supplies	3391	282	2		0	280	-2	-0.7
Other miscellaneous manufacturing	3399	68	1		0	67	-1	-0.8
Nonmanufacturing industries	21-23, 42-81	38,028	i 1,245	i	0	36,783	i -1,245	i -3.3
Mining, quarrying, oil and gas extraction, and support activities	21	D	D		0	D	D	D
Utilities	22	D	0		0	D	0	0.0
Wholesale trade	42	41	1		0	40	i -1	-1.4
Electronic shopping and electronic auctions	454111-12	0	0		0	0	0	NA
Transportation and warehousing	48-49	D	*		0	D	*	D
Information	51	947	43		0	905	-43	-4.5
Publishing	511	693	36		0	657	-36	-5.2
Newspaper, periodical, book, and directory publishers	5111	1	0		0	1	0	0.0
Software publishers	5112	693	36		0	657	-36	-5.2
Telecommunications	517	76	1		0	75	-1	-1.1
Data processing, hosting, and related services	518	137	5	r	0	132	-5	-3.6
Other information	other 51	42	1	i	0	40	i -1	-2.8
Finance and insurance	52	49	0		0	49	0	0.0
Real estate and rental and leasing	53	0	0		0	0	0	NA
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0		0	0	0	NA
Other real estate and rental and leasing	other 53	0	0		0	0	0	NA

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			Amount	Percent			Amount	Percent			
Professional, scientific, and technical services	54	36,139	i	1,198	i	0	34,942	i	-1,198	i	-3.3
Architectural, engineering, and related services	5413	971		7		0	965		-7		-0.7
Computer systems design and related services	5415	3,656		51		0	3,605		-51		-1.4
Scientific research and development services	5417	30,328	i	1,135	i	0	29,193	i	-1,135	i	-3.7
Research and development in nanotechnology	541713	102		1		0	101		-1		-1.3
Research and development in biotechnology (except nanobiotechnology)	541714	7,310		134		0	7,176		-134		-1.8
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	22,244	i	999	i	0	21,245	i	-999	i	-4.5
Research and development in the social sciences and humanities	541720	672		*		0	671		*		*
Other professional, scientific, and technical services	other 54	1,184		5		0	1,179		-5		-0.4
Health care services	621-23	D		D		0	68		D		D
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	94		D		0	D		D		D
All companies (number of domestic employees)	-	83,489		2,325		0	81,164		-2,325		-2.8
Small companies											
10-19 <sup>b</sup>	-	1,269		14		0	1,255		-14		-1.1
20-49	-	1,907		39		0	1,868		-39		-2.0
Medium companies											
50-99	-	1,990		36		0	1,954		-36		-1.8
100-249	-	3,003		97		0	2,906		-97		-3.2
Large companies											
250-499	-	3,080		75		0	3,005		-75		-2.4
500-999	-	2,795		70		0	2,725		-70		-2.5
1,000-4,999	-	9,890		461		0	9,430		-461		-4.7
5,000-9,999	-	4,692		38		0	4,654		-38		-0.8
10,000-24,999	-	25,072	i	985	i	0	24,087	i	-985	i	-3.9
25,000 or more	-	29,792		511		0	29,281	i	-511	i	-1.7

\* = -\$500,000 < amount < \$500,000 (or -0.05% < amount < 0.05%); 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; r = relative standard error is more than 50%; NA = not available.

NAICS = 2017 North American Industry Classification System.

<sup>a</sup> Capital expenditures related to R&D are assumed to be \$0 for domestic R&D paid for by others and performed by the company.

<sup>b</sup> The Business Enterprise Research and Development (BERD) Survey does 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 \$50,000 or more of R&D. To enable comparisons between U.S. statistics from the BERD Survey and statistics from other nations, in this table an internationally comparable adjusted domestic R&D estimate is calculated by subtracting depreciation relating to R&D operations, which is included in U.S. R&D from the BERD Survey, and adding capital expenditures relating to R&D operations, which is excluded from U.S. R&D from the BERD Survey.

**Source(s):**

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2022.