

TABLE 66

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: 2021

(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	602,499	21,180	52,844	634,163 i	31,664 i	5.3
Manufacturing industries	31-33	326,060	13,686	28,450	340,825	14,764	4.5
Food	311	5,266	250	946	5,962 i	696	13.2
Beverage and tobacco products	312	1,247	68	297 i	1,476	229 i	18.4
Textile, apparel, and leather products	313-16	829	15	69	883 i	54 i	6.5
Wood products	321	444	2	15	456	13	2.8
Paper	322	1,139	7	511	1,643 i	504 i	44.2
Printing and related support activities	323	204 i	11 i	39	233 i	29 i	14.0
Petroleum and coal products	324	957	43	171 i	1,084	127 i	13.3
Chemicals	325	109,490	4,349	8,291	113,432	3,942	3.6
Basic chemicals	3251	2,713	178	317	2,852	140	5.1
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,389 i	99	62	1,352 i	-37 i	-2.7
Pesticide, fertilizer, and other agricultural chemicals	3253	1,157	79 i	170 i	1,248 i	91 i	7.9
Pharmaceuticals and medicines	3254	100,220	3,825	7,504	103,899	3,679	3.7
Soap, cleaning compound, and toilet preparations	3256	2,740	121	174	2,793	53	1.9
Paint, coating, adhesive, and other chemicals	3255, 3259	1,271	48	64	1,287	16	1.3
Plastics and rubber products	326	3,144	117	353 i	3,380	235 i	7.5
Nonmetallic mineral products	327	1,533	89	193	1,637 i	104	6.8
Primary metals	331	912	21	172	1,063 i	151	16.6
Fabricated metal products	332	4,291	92	397	4,595	305	7.1
Machinery	333	17,730	714	1,295	18,311	582	3.3
Agricultural implement	33311	1,867	59	216	2,024	157	8.4
Semiconductor machinery	333242	5,349	390	314	5,273 i	-77 i	-1.4
Engine, turbine, and power transmission equipment	3336	1,374	46	115	1,443	69	5.0
Other machinery	other 333	9,140	219	651	9,572	432	4.7
Computer and electronic products	334	101,063	5,582	9,468	104,948	3,885	3.8
Communications equipment	3342	12,557	502	731	12,787	229 i	1.8
Semiconductor and other electronic components	3344	47,396	2,477	5,014 i	49,934 i	2,537 i	5.4
Navigational, measuring, electromedical, and control instruments	3345	13,644	467	952	14,130 i	486	3.6
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,087	67	78 i	3,098 i	11	0.4
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	5,301	224	357	5,435 i	134 i	2.5
Other measuring and controlling devices	other 3345	5,256	176	517	5,597	341	6.5
Other computer and electronic products	other 334	27,465	2,137	2,770	28,098	633	2.3
Electrical equipment, appliances, and components	335	5,494	134	389	5,749	255	4.6
Transportation equipment	336	50,760	1,534	3,652	52,878 i	2,118 i	4.2
Motor vehicles, bodies, trailers, and parts	3361-63	26,391	1,085	2,813 i	28,119 i	1,728 i	6.5

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Aerospace products and parts	3364	21,468	i	385	i	704	21,787	i	318	i	1.5
Aircraft, aircraft engine, and aircraft parts	336411-13	19,845	i	380	i	603	20,069	i	224	i	1.1
Guided missile, space vehicle, and related parts	336414-15, 336419	1,623		6		101	1,718		95		5.8
Military armored vehicle, tank, and tank components	336992	21 - 25		2	r	0 - 3	19 - 26	i	-2 - 1		D
Other transportation	other 336	2,875 - 2,880		61	i	133 - 137	2,947 - 2,956	i	72 - 76	i	D
Furniture and related products	337	426		10		29	445		19		4.4
Miscellaneous	339	21,133		647		2,164	22,650		1,517		7.2
Medical equipment and supplies	3391	18,438		599		1,936	19,775		1,337		7.3
Other miscellaneous manufacturing	3399	2,695		48		228	2,876		180		6.7
Nonmanufacturing industries	21-23, 42-81	276,439		7,494	i	24,394	293,338	i	16,900	i	6.1
Mining, quarrying, oil and gas extraction, and support activities	21	1,260 - 1,334		20	i	263 - 344	1,503 - 1,658	i	243 - 324		D
Utilities	22	168 - 17,997		9		1,003	1,161 - 18,991	i	994	i	D
Wholesale trade	42	1,745 - 1,855	i	33		693 - 816	2,405 - 2,638	i	660 - 783	i	D
Electronic shopping and electronic auctions	454111-12	5,936 - 24,040	i	1,224	i	1,087	5,799 - 23,904	i	-137	i	D
Transportation and warehousing	48-49	7,208		223		261	7,247		38		0.5
Information	51	147,855		2,924		10,768	155,699	i	7,844	i	5.3
Publishing	511	39,152		486		2,887	41,553		2,401		6.1
Newspaper, periodical, book, and directory publishers	5111	103		*		11	114	i	10	i	9.9
Software publishers	5112	39,049		486		2,877	41,439		2,391		6.1
Telecommunications	517	3,835		9		239	4,065	i	231	i	6.0
Data processing, hosting, and related services	518	45,192		551		3,821	48,462		3,270		7.2
Other information	other 51	59,676		1,878	i	3,820	61,618	i	1,942	i	3.3
Finance and insurance	52	20,947		643		3,491	23,796	i	2,849		13.6
Real estate and rental and leasing	53	2,096		20		243	2,319		223		10.6
Lessors of nonfinancial intangible assets (except copyrighted works)	533	5 - 8		0		4 - 11	10 - 19		4 - 11		D
Other real estate and rental and leasing	other 53	2,088 - 2,091		20		231 - 239	2,300 - 2,310		211 - 219		D
Professional, scientific, and technical services	54	66,496		2,349	i	5,028	69,175		2,680	i	4.0
Architectural, engineering, and related services	5413	4,560		14		249	4,795		235		5.2
Computer systems design and related services	5415	20,409		660		2,367	22,115		1,706	i	8.4
Scientific research and development services	5417	34,142	i	1,388	i	1,467	34,222	i	79	i	0.2
Research and development in nanotechnology	541713	228		6		18	240	i	12		5.2

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Research and development in biotechnology (except nanobiotechnology)	541714	9,039	236		535	9,337	299	3.3	
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	24,312	i 1,141	i	904	24,076	i -237	i -1.0	
Research and development in the social sciences and humanities	541720	563	5		10	569	6	1.0	
Other professional, scientific, and technical services	other 54	7,385	286		945	8,043	659	i 8.9	
Health care services	621-23	2,060 - 2,138	40		345 - 436	2,365 - 2,534	305 - 396	i D	
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	2,564 - 3,199	10		914 - 1,215	3,468 - 4,404	904 - 1,205	D	
All companies (number of domestic employees)	-	602,499	21,180		52,844	634,163	i 31,664	i 5.3	
Small companies									
10-19 ^a	-	5,477	99		474	5,852	375	i 6.9	
20-49	-	15,061	255		1,719	16,525	1,464	i 9.7	
Medium companies									
50-99	-	14,540	295		1,733	15,978	1,438	9.9	
100-249	-	24,023	530		3,102	26,595	2,572	10.7	
Large companies									
250-499	-	23,932	512		2,835	26,255	2,323	9.7	
500-999	-	27,432	903		3,012	29,541	2,109	7.7	
1,000-4,999	-	94,615	2,911		8,427	100,131	5,516	5.8	
5,000-9,999	-	62,817	2,629		5,864	66,053	3,236	5.2	
10,000-24,999	-	104,607	4,680		7,891	107,818	i 3,211	i 3.1	
25,000 or more	-	229,995	8,367		17,787	239,414	i 9,419	i 4.1	

* = 0 < 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; r = relative standard error is more than 50%.

NAICS = 2017 North American Industry Classification System.

^a 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. 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. BERD 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 is included in U.S. BERD domestic R&D, and adding capital expenditures relating to R&D operations, which is excluded from U.S. BERD domestic R&D.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2021.