

TABLE 12

## Domestic R&amp;D paid for by the company and others and performed by the company, by type of R&amp;D, industry, and company size: 2021

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Basic research	Applied research	Development
All industries	21–23, 31–33, 42–81	602,499	40,130	86,485	475,884
Manufacturing industries	31–33	326,060	28,607	49,870	247,583
Food	311	5,266	478	1,052	3,735
Beverage and tobacco products	312	1,247	78	182	987
Textile, apparel, and leather products	313–16	829	73	92	664
Wood products	321	444	21	29	394
Paper	322	1,139	137	322	680
Printing and related support activities	323	204	8	32	164
Petroleum and coal products	324	957	268	290	398
Chemicals	325	109,490	18,290	20,650	70,550
Basic chemicals	3251	2,713	287	775	1,651
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,389	224	351	813
Pesticide, fertilizer, and other agricultural chemicals	3253	1,157	212	443	501
Pharmaceuticals and medicines	3254	100,220	17,335	18,529	64,356
Soap, cleaning compound, and toilet preparations	3256	2,740	137	288	2,315
Paint, coating, adhesive, and other chemicals	3255, 3259	1,271	94	264	913
Plastics and rubber products	326	3,144	218	590	2,337
Nonmetallic mineral products	327	1,533	248	329	956
Primary metals	331	912	31	78	803
Fabricated metal products	332	4,291	224	807	3,260
Machinery	333	17,730	1,383	2,269	14,078
Agricultural implement	33311	1,867	134	212	1,520
Semiconductor machinery	333242	5,349	605	709	4,035
Engine, turbine, and power transmission equipment	3336	1,374	30	201	1,143
Other machinery	other 333	9,140	614	1,146	7,379
Computer and electronic products	334	101,063	2,995	10,874	87,194
Communications equipment	3342	12,557	359	1,127	11,071
Semiconductor and other electronic components	3344	47,396	1,504	3,255	42,638
Navigational, measuring, electromedical, and control instruments	3345	13,644	587	2,671	10,386
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,087	117	1,174	1,796
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	5,301	57	625	4,619
Other measuring and controlling devices	other 3345	5,256	414	871	3,971
Other computer and electronic products	other 334	27,465	545	3,821	23,099
Electrical equipment, appliances, and components	335	5,494	344	616	4,533
Transportation equipment	336	50,760	2,938	9,020	38,803
Motor vehicles, bodies, trailers, and parts	3361–63	26,391	1,100	6,673	18,618

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Aerospace products and parts	3364	21,468	1,778	2,056	17,634
Aircraft, aircraft engine, and aircraft parts	336411-13	19,845	1,758	1,974	16,112
Guided missile, space vehicle, and related parts	336414-15, 336419	1,623	20	82	1,522
Military armored vehicle, tank, and tank components	336992	21 - 25	4	3	13 - 19
Other transportation	other 336	2,875 - 2,880	55	288	2,531 - 2,538
Furniture and related products	337	426	35	126	266
Miscellaneous	339	21,133	839	2,514	17,780
Medical equipment and supplies	3391	18,438	650	2,216	15,572
Other miscellaneous manufacturing	3399	2,695	189	298	2,208
Nonmanufacturing industries	21-23, 42-81	276,439	11,522	36,615	228,301
Mining, quarrying, oil and gas extraction, and support activities	21	1,260 - 1,334	89	185	987 - 1,061
Utilities	22	168 - 17,997	13	4 - 1,510	27 - 17,980
Wholesale trade	42	1,745 - 1,855	193	375	1,176 - 1,288
Electronic shopping and electronic auctions	454111-12	5,936 - 24,040	175	3,999 - 5,510	252 - 19,865
Transportation and warehousing	48-49	7,208	103	483	6,622
Information	51	147,855	4,210	9,043	134,602
Publishing	511	39,152	1,306	1,986	35,861
Newspaper, periodical, book, and directory publishers	5111	103	3	6	95
Software publishers	5112	39,049	1,303	1,980	35,766
Telecommunications	517	3,835	294	832	2,708
Data processing, hosting, and related services	518	45,192	1,553	3,366	40,273
Other information	other 51	59,676	1,057	2,859	55,760
Finance and insurance	52	20,947	423	2,193	18,332
Real estate and rental and leasing	53	2,096	0 - 583	380 - 965	1,132
Lessors of nonfinancial intangible assets (except copyrighted works)	533	5 - 8	1	4	0 - 4
Other real estate and rental and leasing	other 53	2,088 - 2,091	0 - 583	376 - 961	1,128 - 1,133
Professional, scientific, and technical services	54	66,496	5,567	17,895	43,034
Architectural, engineering, and related services	5413	4,560	293	710	3,557
Computer systems design and related services	5415	20,409	1,891	4,384	14,134
Scientific research and development services	5417	34,142	2,842	11,072	20,229
Research and development in nanotechnology	541713	228	23	59	146

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Research and development in biotechnology (except nanobiotechnology)	541714	9,039	1,145	633	7,261 i
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	24,312 i	1,192	10,357 i	12,764 i
Research and development in the social sciences and humanities	541720	563	482	24	58 i
Other professional, scientific, and technical services	other 54	7,385	542 i	1,729 i	5,114
Health care services	621–23	2,060 - 2,138	166	510	1,383 - 1,463
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	2,564 - 3,199	4 - 587	21 - 1,546	1,012 - 3,156
All companies (number of domestic employees)	–	602,499	40,130	86,485	475,884
Small companies					
10–19 <sup>a</sup>	–	5,477	496	1,172	3,810
20–49	–	15,061	1,281	3,287	10,493
Medium companies					
50–99	–	14,540	1,361	3,256	9,923
100–249	–	24,023	2,160	4,344	17,519
Large companies					
250–499	–	23,932	2,621	4,534	16,778
500–999	–	27,432	2,224	4,077	21,131
1,000–4,999	–	94,615	6,893	12,973	74,749
5,000–9,999	–	62,817	4,338	11,658 i	46,821
10,000–24,999	–	104,607	8,354	16,366	79,888
25,000 or more	–	229,995	10,403	24,819	194,772

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.

<sup>a</sup> The Business Enterprise Research and Development 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&amp;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&amp;D and are not comparable with estimates published for years prior to 2018. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies.

**Source(s):**

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