

TABLE 31

Domestic R&D paid for and performed by the company, by type of cost, industry, and company size: 2019

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Royalties and licensing fees	Other purchased services (except R&D)	Other
All industries	21-23, 31-33, 42-81	428,968	231,648	38,284	19,261	6,738	26,298	7,405	17,058	8,894	12,400	60,981
Manufacturing industries	31-33	248,109	123,559	11,417	9,448	3,267	23,249	3,771	11,368	8,553	9,560	43,918
Food	311	3,937	2,433	67	85	13	455	55	169	1	181	479
Beverage and tobacco products	312	971	500	10	39	2	83	8	43	0	59	227
Textile, apparel, and leather products	313-16	873	547	17	22	10	196	4	14	*	12	52
Wood products	321	180	139	0	4	*	21	9	2	0	2	4 i
Paper	322	1,064	434	*	6 i	1 i	485	7 i	8 i	1 i	11 i	108
Printing and related support activities	323	420 i	285 i	0	4 i	1	64	8 i	5	* i	7	46
Petroleum and coal products	324	1,203	569 - 628	*	11 - 18	7	19 - 42	0 - 5	41	*	283 - 296	166 - 239
Chemicals	325	87,288	34,544	4,222	5,096	585	8,051	1,359	3,475	7,322	4,509	18,125
Basic chemicals	3251	2,198	1,272	4	22 - 44	14	229	42	152	23	142	273 - 295
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,092	727	1	46	2	98	12	62	3	53	89
Pesticide, fertilizer, and other agricultural chemicals	3253	1,501	758 - 826	*	152 - 177	0 - 3 i	143	100 - 110	105	27	60 - 65	61 - 157
Pharmaceuticals and medicines	3254	78,652	29,357	4,205	4,773	559	7,331	1,169	3,028	7,269	4,215	16,746
Soap, cleaning compound, and toilet preparation	3256	2,596	1,540	12	68	1	154	18	86	*	19	698
Paint, coating, adhesive, and other chemicals	3255, 3259	1,249	824 - 888	*	13	5 - 11	95	6 - 16	43	*	14 - 19	163 - 234
Plastics and rubber products	326	2,770	1,597	22	48	42	444	20	83	6	97	411
Nonmetallic mineral products	327	1,473 i	827 i	6	9 - 16	20 i	225 i	18 i	59 i	0	35 - 48 i	253 - 266 i
Primary metals	331	649	365	4	5	3	151	0 - 2	27	4	39	48 - 52
Fabricated metal products	332	2,632	1,722	58	86	30	400	14	40	9	32 - 45	225 - 243 i
Machinery	333	13,930	7,944	261	562	123	1,884	177	556	31	287	2,105
Agricultural implement	33311	1,913	1,034	0	136	4	255	6	35	*	41	402
Semiconductor machinery	333242	3,854	1,844	201	26	4	452	118	308	*	145	755
Engine, turbine, and power transmission equipment	3336	1,096	651	5	21	10	99	12	46	11	12 i	230

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Other machinery	other 333	7,067	4,416	56	379	104	1,079	41	166	20	88	718
Computer and electronic products	334	75,570	38,899	6,186	1,263	1,498	4,575	1,663	5,066	716	2,240	13,465
Communications equipment	3342	11,495	6,636	703	363	182	265	916	556	12	166	1,696
Semiconductor and other electronic components	3344	31,975	15,927	1,714	378	294	2,163	258	2,613	407	408	7,814
Navigational, measuring, electromedical, and control instruments	3345	10,912	6,975	321	340	150	960	116	229	7	314	1,502
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,117	1,767	191	117	45	178	71	68	2	175	504
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,400	2,316	42	135	26	403	15	68	1	38	355
Other measuring and controlling device	other 3345	4,395	2,892	88	88	78	379	30	93	3	101	643
Other computer and electronic products	other 334	21,188	9,361	3,447	182	873	1,188	374	1,668	290	1,352	2,453
Electrical equipment, appliances, and components	335	4,886	3,129	105	182	58	432	100	118	3	172	585
Transportation equipment	336	31,505	18,890	18	1,187	510	4,271	202	990	337	533	4,566
Motor vehicles, bodies, trailers, and parts	3361-63	20,883	13,529	1 - 4	950	478	2,531 - 2,960	177	861	304 - 334	120	1,501 - 1,897
Aerospace products and parts	3364	8,900	4,192	4	154 - 223	17 - 21	1,275	0 - 19	107	4	382	2,669 - 2,766
Aircraft, aircraft engine, and aircraft parts	336411-13	8,341	3,883	3	154	18	1,185	0 - 14	100	4	366	2,613 - 2,632
Guided missile, space vehicle, and related parts	336414-15, 336419	559	309	1	0 - 69	0 - 3	91	0 - 6	7	1	16	55 - 137
Military armored vehicle, tank, and tank component	336992	25	21	*	*	0 - 1	2	*	0	*	*	0 - 3
Other transportation	other 336	1,697	1,148	9 - 13	12 - 83	9 - 16	35 - 462	4 - 25	23	0 - 29	31	0 - 304
Furniture and related products	337	407	288	3	11	1	49	2	8	3	6	35
Miscellaneous	339	18,352	10,395 - 10,440	438	815	363	1,414 - 1,435	119	664	119	1,027	2,929 - 2,979
Medical equipment and supplies	3391	15,812	8,639	422	727	313	1,171	98	620	69	997	2,756
Other miscellaneous manufacturing	3399	2,540	1,757 - 1,801	15	88	51	242 - 264	21	44	50	30	174 - 223
Nonmanufacturing industries	21-23, 42-81	180,858	108,089	26,867	9,814	3,471	3,049	3,634	5,690	342	2,840	17,063

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Mining, quarrying, oil and gas extraction, and support activities	21	2,535	1,567	0 - 292	158	17	312	33	86	1	73	0 - 292
Utilities	22	237	103	0 - 1	9	1	7	1	0 - 96	3	21	0 - 96
Wholesale trade	42	1,104	713	3	24	1	65	23	16	*	7	252
Electronic shopping and electronic auctions	454111-12	3,088 - 15,775	0 - 9,404	0 - 2,447	117	0 - 192	57	0 - 228	0 - 793	0	5	0 - 4,141
Transportation and warehousing	48-49	9,504	3,240	4,683	514	34	153	93	71	34	206	475
Information	51	109,062	64,708	18,424	5,745	2,552	776	2,787	3,075	229	1,763	9,003
Publishing	511	32,447	20,646	3,956	1,567	263	415	327	372	91	1,251	3,560
Newspaper, periodical, book, and directory publishers	5111	61	55	0	2	1	*	*	*	0	1	2
Software publishers	5112	32,386	20,590	3,956	1,565	263	415	327	371	91	1,250	3,557
Telecommunications	517	3,700	2,720	39	609	13 - 16	78	30 - 41	33	1	118 - 129	35 - 46
Data processing, hosting, and related services	518	30,154	20,294	3,985 - 4,006	723 - 737	381	210	605	492	120	307	3,000 - 3,021
Other information	other 51	42,761	21,049	10,422 - 10,444	2,831 - 2,845	1,892 - 1,895	72	1,813 - 1,824	2,179	16	75 - 89	2,377 - 2,401
Finance and insurance	52	8,890	5,625	357	1,778	114	41	43	534	11	72	315
Real estate and rental and leasing	53	1,371	887	102	53	49	3	2	2 - 258	0	0	19 - 275
Lessors of nonfinancial intangible assets (except copyrighted works)	533	45	17	2	1	1	1	*	3	0	0	20
Other real estate and rental and leasing	other 53	1,326	870	100	53	48	2	2	0 - 255	0	0	0 - 255
Professional, scientific, and technical services	54	29,131	20,745	799 - 826	945	485	1,258	395	1,081	57	629	2,705 - 2,737
Architectural, engineering, and related services	5413	2,288	1,936	4	27	6	133	12	11	4	90	66
Computer systems design and related services	5415	18,395	13,125	611	689	340	448	161	707	19	297	1,997
Scientific research and development services	5417	3,265	1,826	81	144	46	345	121	161	25	107	410
Research and development in biotechnology	541711	1,083	578	36	39	8	149	53	60	17	49	95

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Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	2,155	1,229	45	105	38	196	67	101	8	58	308
Research and development in the social sciences and humanities	541720	27	19	0	0	0	*	1	*	0	0	6
Other professional, scientific, and technical services	other 54	5,182	3,859	102 - 129	85	93	331	100	203	10	135	234 - 266
Health care services	621-23	1,928	1,102	55	213	30	272	34	34	1	32	155
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,322 - 14,012	0 - 9,404	0 - 2,447	257 i	0 - 192	108	0 - 228	0 - 793	5	32	0 - 4,141 i
All companies (number of domestic employees)	-	428,968	231,648	38,284	19,261	6,738	26,298	7,405	17,058	8,894	12,400	60,981
Small companies												
10-19 ^a	-	4,432	2,521	57 i	297	42	623	74	102	5 - 43	288	382 - 426 i
20-49	-	10,040	6,420	163	366	76	998	257	187	55	352	1,167
Medium companies												
50-99	-	11,492	6,676	401	397	112	1,137	264	221	315	677	1,293
100-249	-	16,520	10,338	640	591	183	1,588	296	397	116	750	1,621
Large companies												
250-499	-	15,356	9,168	859	616	348	1,309	297	336	105	501	1,817
500-999	-	21,549	12,025	1,156	1,011	215	1,480	426	662	1,289	548	2,738
1,000-4,999	-	64,475	36,976	6,934	2,098	878	3,336	894	2,191	687	2,165	8,316
5,000-9,999	-	44,728	22,633	2,749	1,958	394	2,490	704	1,969	4,291	679	6,860
10,000-24,999	-	74,385	37,886	7,121	3,500	812	5,704	698	3,673	692	2,626 i	11,674
25,000 or more	-	165,991	87,006	18,204	8,427	3,679	7,634	3,495	7,320	1,297 - 1,335	3,816	25,072 - 25,116

* = amount < \$500,000; i = > 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 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&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Beginning in survey year 2018, statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D. This change has affected the comparability of these estimates 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, 2019.