

TABLE 65

R&D costs paid for by the company and others projected for 2020, by industry and company size: 2019

(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						Projected foreign R&D cost paid for by the company
		Paid for by the company	Paid for by others	Paid for by the company			Paid for by others			
				Total	Purchased and collaborative R&D	R&D performed by the company	Total	U.S. government	Non-U.S. government sources	
All industries	21-23, 31-33, 42-81	606,520	85,666	499,435	38,256	461,179	66,881	21,811	45,070	107,085
Manufacturing industries	31-33	368,158	47,582	294,784	33,882	260,902	39,632	15,117	24,516	73,373
Food	311	5,672	251	4,800	166	4,634	241	*	241	871
Beverage and tobacco products	312	1,987	124	1,115	149	965	124	0	124	873
Textile, apparel, and leather products	313-16	1,094	31	892	32	861	31	5	26	202
Wood products	321	200	7	194	7	187	7	0	7	6
Paper	322	1,506	1	1,396	7	1,389	*	*	*	110
Printing and related support activities	323	372	0	362	3	358	0	0	0	10
Petroleum and coal products	324	1,365	111	1,178	196	981	108	*	108	187
Chemicals	325	146,932	15,854	120,656	25,215	95,441	10,936	450	10,486	26,276
Basic chemicals	3251	3,080	168	2,303	58	2,245	165	2	164	777
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,669	120	1,132	92	1,039	74	*	74	538
Pesticide, fertilizer, and other agricultural chemicals	3253	1,175	0 - 395	856	71	785	0 - 385	1	0 - 384	318
Pharmaceuticals and medicines	3254	135,729	14,974	112,225	24,667	87,558	10,157	428	9,729	23,504
Soap, cleaning compound, and toilet preparation	3256	3,722	181	2,838	291	2,546	138	*	138	884
Paint, coating, adhesive, and other chemicals	3255, 3259	1,557	18 - 413	1,302	35	1,267	18 - 403	19	0 - 384	255
Plastics and rubber products	326	3,517	167	2,939	38	2,901	143	6	137	579
Nonmetallic mineral products	327	1,702	37	1,483	25	1,458	37	3	35	219
Primary metals	331	841	16	754	17	737	15	*	15	87
Fabricated metal products	332	2,645	270	2,410	82	2,328	175	7	168	234
Machinery	333	19,095	1,344	14,366	419	13,947	1,308	190	1,119	4,729
Agricultural implement	33311	3,008	10	1,971	186	1,786	9	4	6	1,036
Semiconductor machinery	333242	4,986	768	4,095	5	4,090	749	*	749	891
Engine, turbine, and power transmission equipment	3336	2,168	228	1,267	13	1,254	219	153	66	901
Other machinery	other 333	8,933	338	7,032	216	6,816	331	33	298	1,901
Computer and electronic products	334	108,549	12,864	82,301	1,747	80,554	11,583	5,248	6,335	26,249
Communications equipment	3342	15,401	1,442	12,096	762	11,334	1,302	152	1,151	3,305
Semiconductor and other electronic components	3344	48,625	3,477	34,883	437	34,446	3,101	576	2,525	13,742

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Navigational, measuring, electromedical, and control instruments	3345	15,030	7,690	11,316	290	11,026	6,953	4,433	2,520	3,715
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	4,432	248	3,227	106	3,121	238	10	229	1,205
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	4,102	7,207	3,474	93	3,381	6,521	4,392	2,129	628
Other measuring and controlling device	other 3345	6,497	235	4,615	91	4,524	193	32	162	1,882
Other computer and electronic products	other 334	29,493	254	24,006	258	23,748	227	87	140	5,487
Electrical equipment, appliances, and components	335	6,977	426	5,190	175	5,016	402	32	370	1,787
Transportation equipment	336	42,594	15,801	35,167	4,693	30,474	14,298	9,133	5,164	7,427
Motor vehicles, bodies, trailers, and parts	3361-63	30,443	4,218	23,738	3,847	19,891	3,759 - 4,219	0 - 1,188	2,572 - 3,774	6,706
Aerospace products and parts	3364	9,728	10,373	9,325	797	8,528	9,328	7,938	1,390	404
Aircraft, aircraft engine, and aircraft parts	336411-13	9,053	9,392	8,650	663	7,987	8,346	7,007	1,339	403
Guided missile, space vehicle, and related parts	336414-15, 336419	675	982	675	134	541	982	931	51	*
Military armored vehicle, tank, and tank component	336992	23	11	23	0	23	11	9	2	0
Other transportation	other 336	2,399	1,198	2,081	49	2,033	739 - 1,199	0 - 1,188	0 - 1,199	318
Furniture and related products	337	457	2	420	17	403	2	1	1	38
Miscellaneous	339	22,652	278	19,162	895	18,267	223	40	183	3,490
Medical equipment and supplies	3391	19,706	231	16,610	772	15,838	176	18	159	3,097
Other miscellaneous manufacturing	3399	2,945	47	2,552	123	2,429	46	22	24	393
Nonmanufacturing industries	21-23, 42-81	238,363	38,084	204,651	4,374	200,277	27,249	6,695	20,554	33,712
Mining, quarrying, oil and gas extraction, and support activities	21	3,031	155	2,416	118	2,298	147	39	108	615
Utilities	22	382	49	373	149	225	49	43	6	9
Wholesale trade	42	1,287	83	1,174	49	1,125	81	0	81	113
Electronic shopping and electronic auctions	454111-12	23 - 25,450	*	23 - 20,431	24	0 - 20,408	*	*	0	0 - 5,023
Transportation and warehousing	48-49	10,452	208	10,375	30	10,345	208	0	208	77
Information	51	148,502	1,255	126,797	2,536	124,260	1,194	121	1,074	21,705
Publishing	511	44,391	661	37,251	1,175	36,076	611	74	536	7,140
Newspaper, periodical, book, and directory publishers	5111	59	*	58	3	55	*	*	*	1

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Software publishers	5112	44,332	661	37,193	1,172	36,021	610	74	536	7,139
Telecommunications	517	4,338	41	4,178	419	3,760	41	12	29	159
Data processing, hosting, and related services	518	39,687	396	32,969	512	32,458	386	26	360	6,718
Other information	other 51	60,086	157	52,399	431	51,967	157	8	149	7,688
Finance and insurance	52	10,797	3	9,581	347	9,233	1	0	1	1,217
Real estate and rental and leasing	53	1,876	0	1,713	*	1,713	0	0	0	163
Lessors of nonfinancial intangible assets (except copyrighted works)	533	56	0	40	*	40	0	0	0	16
Other real estate and rental and leasing	other 53	1,820	0	1,673	*	1,672	0	0	0	148
Professional, scientific, and technical services	54	34,193	35,892	29,422	965	28,456	25,148	6,465	18,683	4,772
Architectural, engineering, and related services	5413	2,552	1,984	2,480	195	2,285	1,937	1,315	622	73
Computer systems design and related services	5415	21,429	2,496	17,238	256	16,982	2,395	601	1,794	4,191
Scientific research and development services	5417	4,163	30,029	3,975	421	3,554	19,481	3,710	15,771	188
Research and development in biotechnology	541711	1,290	8,647	1,248	149	1,099	5,628	138	5,489	42
Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	2,844	20,525	2,699	272	2,427	13,077	2,865	10,212	146
Research and development in the social sciences and humanities	541720	29	856	29	*	29	776	707	70	*
Other professional, scientific, and technical services	other 54	6,049	1,384	5,729	94	5,635	1,335	839	496	320
Health care services	621-23	2,311	389	2,288	70	2,218	374	16	358	23
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	85-25,512	50	85-20,493	86	0-20,408	47	11	36	0-5,023
All companies (number of domestic employees)	-	606,520	85,666	499,435	38,256	461,179	66,881	21,811	45,070	107,085
Small companies										
10-19 ^a	-	5,312	1,161	4,911	434	4,476	1,122	458	664	402
20-49	-	13,559	2,707	12,640	1,561	11,079	2,297	1,030	1,267	919
Medium companies										
50-99	-	15,033	2,947	13,787	2,272	11,515	2,607	911	1,696	1,246
100-249	-	23,287	3,722	20,109	2,138	17,972	3,427	1,166	2,261	3,178
Large companies										
250-499	-	20,623	4,182	17,603	1,793	15,810	3,923	1,600	2,323	3,020

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500–999	–	31,319	3,383	28,117	2,761	i	25,355	2,993	455	i	2,537	3,202
1,000–4,999	–	91,228	14,576	72,823	5,595		67,228	11,850	1,938	i	9,913	18,405
5,000–9,999	–	61,740	9,696	51,198	3,439		47,759	6,648	901	i	5,747	10,542
10,000–24,999	–	106,911	21,790	86,851	8,530		78,322	14,414	750	i	13,663	20,060
25,000 or more	–	237,509	21,500	191,397	9,734		181,663	17,602	12,602	i	5,000	46,112

* = 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.