

TABLE 63

## R&amp;D costs paid for by the company and others projected for 2018, by industry and company size: 2017

(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	493,548	84,029	396,799	37,782	359,017	65,503	24,997	i	40,506	96,749
Manufacturing industries	31-33	340,221	52,182	268,204	34,302	233,902	43,047	18,798	i	24,249	72,017
Food	311	5,584	i 253	4,608	i 178	4,430	i 245	1		244	976
Beverage and tobacco products	312	2,105	105	1,273	221	1,053	105	0		105	831
Textile, apparel, and leather products	313-16	1,217	1	1,016	24	i 992	1	*	i	1	201
Wood products	321	171	5	170	10	160	5	*	i	5	1
Paper	322	1,521	36	1,248	39	1,209	36	*	i	36	273
Printing and related support activities	323	237	i 7	i 228	i 4	i 225	i 7	*	i	7	i 8
Petroleum and coal products	324	465	16	379	58	321	16	*		15	86
Chemicals	325	122,745	18,932	97,919	26,357	71,562	13,755	279		13,476	24,826
Basic chemicals	3251	3,195	160	2,540	82	i 2,458	156	10	i	146	655
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,005	17	667	17	650	16	*	i	16	338
Pesticide, fertilizer, and other agricultural chemicals	3253	1,898	2 - 431	1,386	130	i 1,256	i 2 - 392	3		0 - 389	512
Pharmaceuticals and medicines	3254	111,071	18,183	89,110	25,823	63,286	i 13,050	254		12,796	21,961
Soap, cleaning compound, and toilet preparation	3256	3,647	131 - 176	2,707	259	2,448	132	*	i	132	941
Paint, coating, adhesive, and other chemicals	3255, 3259	1,930	11 - 440	1,510	46	i 1,464	11 - 401	12	i	0 - 389	420
Plastics and rubber products	326	5,040	158	4,050	197	3,853	133	1	i	133	990
Nonmetallic mineral products	327	1,669	i 34	i 1,463	i 21	1,443	i 32	7		26	i 206
Primary metals	331	917	10	i 773	161	612	9	i 6	i	3	i 143
Fabricated metal products	332	2,416	82	i 2,227	148	2,080	78	i 41	i	38	i 188
Machinery	333	16,663	1,037	12,710	351	12,359	1,012	171		840	3,952
Agricultural implement	33311	2,674	73	i 1,780	60	i 1,720	71	i 3		67	i 894
Semiconductor machinery	333242	4,006	528	3,115	*	i 3,115	515	16		499	891
Engine, turbine, and power transmission equipment	3336	2,396	157	1,931 - 2,224	0 - 292	i 1,932	157	0 - 153		3 - 158	171 - 465
Other machinery	other 333	7,587	279	i 5,592 - 5,885	0 - 292	5,593	269	i 0 - 153	i	115 - 270	i 1,701 - 1,995
Computer and electronic products	334	105,319	9,200	80,766	1,631	79,135	8,625	3,774		4,851	24,553

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Communications equipment	3342	15,336	1,707	11,817	489	11,327	1,691	807	883	3,519			
Semiconductor and other electronic components	3344	41,130	2,640	29,985	390	29,596	2,471	80	2,392	11,145			
Navigational, measuring, electromedical, and control instruments	3345	15,287	4,683	11,125	380	10,745	4,302	2,822	1,480	4,162			
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,873	174	2,697	75	2,622	144	26	118	1,176			
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	4,534	4,293	3,564	171	3,393	3,964	2,738	1,226	970			
Other measuring and controlling device	other 3345	6,880	216	4,865	134	4,731	193	58	135	2,015			
Other computer and electronic products	other 334	33,566	169	27,839	372	27,467	161	65	96	5,727			
Electrical equipment, appliances, and components	335	6,380	194	4,376	264	4,112	185	53	131	2,004			
Transportation equipment	336	47,283	21,730	37,670	3,591	34,079	18,480	14,407	4,074	9,614			
Automobiles, bodies, trailers, and parts	3361-63	31,570	3,286	23,921	2,892	21,029	2,663	88-1,520	1,142-2,574	7,649			
Aerospace products and parts	3364	13,740	16,982	11,967	655	11,312	14,385	12,887	1,498	1,773			
Aircraft, aircraft engine, and aircraft parts	336411-13	13,278	15,671	11,505	523	10,982	13,080	11,599	1,481	1,772			
Guided missile, space vehicle, and related parts	336414-15, 336419	462	1,311	462	132	330	1,306	1,289	17	1			
Military armored vehicle, tank, and tank component	336992	3	2-1,464	3	1	2	2-1,433	0-1,431	3	0			
Other transportation	other 336	1,970	0-1,461	1,779	44	1,735	0-1,431	0-1,431	0-1,431	191			
Furniture and related products	337	468	4	427	13	414	3	1	3	42			
Miscellaneous manufacturing	339	20,020	378	16,897	1,034	15,863	320	59	262	3,123			
Medical equipment and supplies	3391	17,368	329	14,606	899	13,706	272	53	219	2,762			
Other miscellaneous manufacturing	3399	2,652	49	2,292	135	2,157	49	6	43	360			
Nonmanufacturing industries	21-23, 42-81	153,327	31,846	128,595	3,480	125,116	22,456	6,199	16,257	24,732			
Mining, extraction, and support activities	21	3,766	333	3,289	523	2,766	304	0	304	477			
Utilities	22	467	81	455	154	301	67	27	40	12			
Wholesale trade	42	655	64	582	84	497	62	0	62	73			
Electronic shopping and electronic auctions	454111-12	12,142	0	8,941	4	8,938	0	0	0	3,201			

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Transportation and warehousing	48-49	910	46	903	26	877	46	0	46	6
Information	51	101,467	1,464	85,105	1,451	83,654	1,420	123	1,297	16,362
Publishing	511	46,132	1,112	36,369	769	35,600	1,090	83	1,006	9,763
Newspaper, periodical, book, and directory publishers	5111	96	*	87	14	73	0	0	0	9
Software publishers	5112	46,036	1,112	36,282	755	35,527	1,090	83	1,006	9,754
Telecommunications	517	3,471	0 - 203	3,355	123	3,232	0 - 202	1	0 - 201	116
Data processing, hosting, and related services	518	20,962	151	18,064	276	17,788	130	38	91	2,898
Other information	other 51	30,902	0 - 202	27,317	284	27,034	0 - 201	*	0 - 201	3,585
Finance and insurance	52	9,282	54	8,131	314	7,817	30 - 55	0	30 - 55	1,151
Real estate and rental and leasing	53	1,013	17	806	3	803	17	0	17	208
Lessors of nonfinancial intangible assets (except copyrighted works)	533	337	0	147	2	145	0	0	0	190
Other real estate and rental and leasing	other 53	677	17	659	1	657	17	0	17	18
Professional, scientific, and technical services	54	20,720	29,455	17,973	811	17,162	20,245	6,033	14,212	2,746
Architectural, engineering, and related services	5413	1,877	1,715	1,722	138	1,584	1,700	1,243	457	155
Computer systems design and related services	5415	11,541	1,780	9,524	195	9,329	1,661	991	670	2,017
Scientific research and development services	5417	3,871	25,066	3,662	401	3,261	16,089	3,462	12,627	208
Biotechnology research and development	541711	1,104	7,123	1,030	183	847	4,523	135	4,388	74
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,679	16,812	2,545	218	2,327	10,599	2,388	8,211	134
Social sciences and humanities research and development	541720	88	1,130	88	*	87	966	939	27	0
Other professional, scientific, and technical services	other 54	3,431	894	3,065	77	2,988	796	337	459	366
Health care services	621-23	1,237	214	999	27	972	143	9	134	238
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,669	117	1,410	82	1,329	93 - 118	7	86 - 111	259
All companies (number of domestic employees)	-	493,548	84,029	396,799	37,782	359,017	65,503	24,997	40,506	96,749
Small companies										
10-19 <sup>a</sup>	-	3,485	1,129	3,161	525	2,636	1,028	573	455	325

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20-49	-	11,556	2,406	10,414	1,714	8,700	2,077	697	1,380	1,142
Medium companies										
50-99	-	11,551	2,731	10,780	1,470	9,310	2,507	833	1,674	771
100-249	-	21,098	5,215	19,094	3,054	16,040	4,633	1,373	3,260	2,004
Large companies										
250-499	-	17,102	3,170	14,515	1,556	12,959	2,669	645	2,024	2,587
500-999	-	24,184	2,055	20,053	1,758	18,295	1,710	239	1,471	4,131
1,000-4,999	-	78,726	17,528	61,714	4,838	56,875	13,932	1,403	12,529	17,012
5,000-9,999	-	49,071	14,396	37,479	3,067	34,412	7,956	1,599	6,357	11,592
10,000-24,999	-	91,175	12,592	73,376	11,003	62,373	10,396	3,522	6,874	17,799
25,000 or more	-	185,600	22,806	146,214	8,796	137,418	18,594	14,113	4,482	39,386

\* = amount &lt; \$500,000; i = &gt; 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

<sup>a</sup> Business 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. Statistics are representative of companies located in the United States that performed or funded R&D. 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 U.S. Census Bureau, Business Research and Development Survey, 2017.