

TABLE 63

R&D costs paid for by the company and others projected for 2017, by industry and company size: 2016

(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	455,995	77,612	372,897	34,846	338,051	61,937	25,411	36,525	83,098
Manufacturing industries	31-33	315,357	49,465	252,899	31,230	221,669	42,604	20,397	22,206	62,458
Food	311	5,947	243	4,712	177	4,536	240	2	238	1,235
Beverages and tobacco products	312	1,979	D	1,200	171	1,029	D	0	D	780
Textiles, apparel, and leather products	313-16	1,270	i 8	1,179	i 12	i 1,167	i 8	5	3	91
Wood products	321	205	10 i	185	11	175	9 i	* i	9 i	20
Paper	322	922	D	837	2 i	835	D	D	D	86
Printing and related support activities	323	203	i D	199	i 2	198	i D	D	D	4
Petroleum and coal products	324	503	14	432	57	375	14	0	14	71
Chemicals	325	112,892	16,152	93,292	24,352	68,940	11,833	290	11,543	19,600
Basic chemicals	3251	2,887	219	2,282	130	i 2,152	216	14	i 203	605
Resins, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,117	D	743	11	731	D	1	i D	374
Pesticides, fertilizers, and other agricultural chemicals	3253	1,500	i D	1,066	i 31	1,035	i D	2	D	434
Pharmaceuticals and medicines	3254	101,485	15,371	84,625	23,792	60,833	i 11,098	259	10,839	16,860
Soaps, cleaning compounds, and toilet preparations	3256	3,950	180	2,998	345	2,653	145	0	145	952
Paints, coatings, adhesives, and other chemicals	3255, 3259	1,953	31	1,577	42	1,536	26	i 15	i 10	376
Plastics and rubber products	326	4,788	197	i 3,873	148	3,725	192	i 3	i 189	i 915
Nonmetallic mineral products	327	1,987	18	1,773	62	1,711	17	6	11	213
Primary metals	331	620	8	553	26	i 527	8	6	2	i 67
Fabricated metal products	332	2,479	178	i 2,224	79	2,145	130	i 17	113	i 255
Machinery	333	15,992	955	12,588	447	12,141	922	188	734	3,405
Agricultural implements	33311	2,518	i 14	1,781	i 165	1,616	i 13	D	D	737
Semiconductor machinery	333242	3,820	426	3,043	7	3,036	419	* i	419	777
Engines, turbines, and power transmission equipment	3336	2,216	78	i 1,881	8	1,874	78	i D	D	335
Other machinery	other 333	7,438	437	5,882	267	5,615	i 413	125	288	i 1,556

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Computer and electronic products	334	98,650	i 9,147	76,492	1,481	i 75,010	8,716	4,100	4,616	22,158	i	
Communications equipment	3342	15,128	i 1,829	11,758	360	11,398	1,790	i 794	i 996	i 3,370		
Semiconductors and other electronic components	3344	43,293	i 2,309	31,948	i 391	31,557	i 2,257	252	2,005	11,346	i	
Navigational, measuring, electromedical, and control instruments	3345	13,024	4,886	10,091	209	9,882	4,549	3,026	1,523	2,933	i	
Electromedical, electrotherapeutic, and irradiation apparatuses	334510, 334517	3,016	i 180	2,250	i 57	2,193	i 179	1	i 179	766	i	
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	3,515	4,507	2,989	45	2,944	4,190	2,973	1,217	526		
Other measuring and controlling devices	other 3345	6,494	i 199	4,852	i 107	i 4,744	i 179	52	127	1,642	i	
Other computer and electronic products	other 334	27,204	123	22,695	522	i 22,174	120	29	92	4,509		
Electrical equipment, appliances, and components	335	5,971	503	4,449	97	4,352	488	i 47	i 441	i 1,522		
Transportation equipment	336	42,165	21,600	33,306	3,035	i 30,270	19,642	15,674	3,968	8,859		
Automobiles, bodies, trailers, and parts	3361-63	28,379	3,480	21,288	1,815	i 19,473	2,852	D	D	7,090		
Aerospace products and parts	3364	12,319	16,875	10,678	1,153	i 9,525	15,545	14,120	1,425	1,642		
Aircraft, aircraft engines, and aircraft parts	336411-13	11,907	15,810	10,268	1,046	i 9,222	14,485	13,069	1,416	1,639		
Guided missiles, space vehicles, and related parts	336414-15, 336419	412	i 1,064	410	106	303	1,060	i 1,051	i 9	i 2		
Military armored vehicles, tanks, and tank components	336992	3	D	3	0	3	D	D	D	0		
Other transportation	other 336	1,464	D	1,337	68	1,269	D	D	D	127		
Furniture and related products	337	394	* i	352	12	i 340	* i	* i	0	42		
Miscellaneous manufacturing	339	18,390	329	15,253	1,060	14,193	280	58	223	i 3,136	i	
Medical equipment and supplies	3391	15,339	283	12,626	951	11,675	241	48	192	i 2,712	i	

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Other miscellaneous manufacturing	3399	3,051	46	2,627	109	2,518	40	9	30	424			
Nonmanufacturing industries	21-23, 42-81	140,638	28,147	119,998	3,616	116,382	19,333	5,014	14,319	20,641			
Mining, extraction, and support activities	21	4,435	563	4,199	62	4,137	394	2	391	236			
Utilities	22	509	40	502	180	322	39	D	D	7			
Wholesale trade	42	580	12	D	58	D	10	0	10	D			
Electronic shopping and electronic auctions	454111-12	2,390	0	D	15	D	0	0	0	D			
Transportation and warehousing	48-49	597	3	589	22	568	3	3	0	8			
Information	51	91,921	880	76,894	1,924	74,970	812	38	774	15,027			
Publishing	511	44,396	547	34,801	1,113	33,687	496	15	482	9,596			
Newspaper, periodical, book, and directory publishers	5111	92	3	88	6	82	3	*	3	5			
Software publishers	5112	44,304	544	34,713	1,108	33,605	494	15	479	9,591			
Telecommunications	517	3,858	D	3,761	195	3,565	D	1	D	97			
Data processing, hosting, and related services	518	15,112	145	13,140	394	12,747	130	20	110	1,972			
Other information	other 51	28,554	D	25,192	221	24,970	D	2	D	3,362			
Finance and insurance	52	9,694	62	8,080	94	7,986	62	0	62	1,615			
Real estate and rental and leasing	53	552	0	550	*	550	0	0	0	3			
Lessors of nonfinancial intangible assets (except copyrighted works)	533	30	0	30	0	30	0	0	0	*			
Other real estate and rental and leasing	other 53	522	0	520	*	519	0	0	0	3			
Professional, scientific, and technical services	54	23,096	26,419	20,249	1,130	19,119	17,873	4,930	12,943	2,848			
Architectural, engineering, and related services	5413	1,952	1,601	1,925	108	1,816	1,532	1,034	498	28			
Computer systems design and related services	5415	12,971	2,766	10,851	89	10,762	2,588	649	1,939	2,120			
Scientific research and development services	5417	4,660	21,431	4,454	917	3,537	13,160	2,949	10,211	205			
Biotechnology research and development	541711	1,587	6,854	1,488	423	1,065	3,885	107	3,778	99			

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Physical, engineering, and life sciences (except biotechnology) research and development	541712	3,039	13,691	i	2,933	494	2,439	8,484	i	2,166	6,318	i	106
Social sciences and humanities research and development	541720	34	886		34	*	34	791		676	115		*
Other professional, scientific, and technical services	other 54	3,513	i	620	3,018	i	16	3,003	i	593	298	295	495
Health care services	621-23	1,101	i	87	855	i	47	809	i	87	D	D	245
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	5,764	i	81	5,537	i	85	5,451	i	54	5	50	227
All companies (number of domestic employees)	-	455,995		77,612	372,897		34,846	338,051		61,937	25,411	36,525	83,098
Micro companies ^a													
5-9	-	1,662	i	1,828	1,475	i	275	1,200	i	568	274	295	187
Small companies													
10-19	-	5,125	i	1,182	4,915	i	667	4,248	i	1,063	419	644	210
20-49	-	11,697		2,386	11,075		1,485	9,590		2,151	923	1,227	623
Medium companies													
50-99	-	10,637		2,024	9,993		1,715	8,278		1,898	532	1,366	644
100-249	-	16,342		4,209	14,545		2,055	12,490		3,649	1,017	2,632	1,797
Large companies													
250-499	-	15,827		2,040	13,715		1,209	12,506		1,732	600	1,131	2,112
500-999	-	18,486		1,394	15,815		1,404	14,411		1,135	279	856	2,671
1,000-4,999	-	83,938		14,850	66,188		5,537	60,652		11,457	1,275	10,182	17,750
5,000-9,999	-	55,302	i	6,989	43,825		1,700	42,125	i	4,980	1,239	3,741	11,477
10,000-24,999	-	81,941		18,648	67,033		10,276	56,757		14,229	4,090	10,139	14,908
25,000 or more	-	155,038		22,061	124,318		8,522	115,795		19,075	14,763	4,311	30,720

* = amount < \$500,000; D = data withheld to avoid disclosing operations of individual companies; i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

^a Business R&D and Innovation Survey does not include companies with fewer than five 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.

Source(s)

National Science Foundation, National Center for Science and Engineering Statistics, and U.S. Census Bureau, Business R&D and Innovation Survey, 2016.