

TABLE 49

## Domestic R&amp;D performance by source of funds and performer, by industry and company size: 2017

(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others						
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted or passed-through R&D costs)	R&D performed by the company				
							Total	Paid for by the U.S. government	Paid for by non-U.S. government sources		
All industries	21-23, 31-33, 42-81	381,739	42,704	339,036	70,854	9,789	i	61,065	24,277	i	36,787
Manufacturing industries	31-33	255,339	39,185	216,155	48,691	7,619	i	41,072	18,889	i	22,183
Food	311	4,603	i 150	4,453	i 252	7		244	1		243
Beverage and tobacco products	312	1,186	218	968	107	0		107	0		107
Textile, apparel, and leather products	313-16	941	22	919	1	*		1	*	i	1
Wood products	321	179	9	170	5	0		5	*	i	5
Paper	322	1,334	42	1,292	30	1		29	*	i	29
Printing and related support activities	323	222	4	218	11	*		11	0 - 2	i	9 - 12
Petroleum and coal products	324	364	63	301	17	2		15	0		15
Chemicals	325	94,580	31,294	63,285	16,451	4,759		11,692	205		11,487
Basic chemicals	3251	2,469 - 2,483	77 - 90	2,393	180 - 217	0 - 36		181	6		174
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	629	17	612	16	*		16	*	i	16
Pesticide, fertilizer, and other agricultural chemicals	3253	1,208	116	1,092	284 - 418	0 - 36		284 - 383	0 - 14		271 - 383
Pharmaceuticals and medicines	3254	85,983	30,755	55,229	15,697	4,723		10,973	186		10,788
Soap, cleaning compound, and toilet preparation	3256	2,752	264	2,488	118 - 249	0 - 36		118 - 213	*	i	117 - 213
Paint, coating, adhesive, and other chemicals	3255, 3259	1,526 - 1,539	55 - 68	1,471	23 - 60	0 - 36		23	0 - 14		9 - 24
Plastics and rubber products	326	3,798	160	3,637	129	13		117	1		116
Nonmetallic mineral products	327	1,323	19	1,303	30	*		30	i	2	i 28
Primary metals	331	795	54	741	10	2		8	5	i	3
Fabricated metal products	332	2,190	91	2,099	112	5		107	59	i	48
Machinery	333	12,739	482	12,257	974	34		940	170		770
Agricultural implement	33311	1,687 - 1,705	176 - 193	1,511	58 - 62	i 0 - 3	i	59	i	3	56
Semiconductor machinery	333242	3,228 - 3,250	0 - 22	3,228	465 - 487	0 - 21		465	7	i	458

TABLE 49

## Domestic R&amp;D performance by source of funds and performer, by industry and company size: 2017

(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others					
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted or passed-through R&D costs)	R&D performed by the company			
							Total	Paid for by the U.S. government	Paid for by non-U.S. government sources	
Engine, turbine, and power transmission equipment	3336	1,972 - 1,991	51 - 69	1,921	169	10	159	75 - 151		8 - 84
Other machinery	other 333	5,810 - 5,851	215 - 254	5,596	256 - 283	0 - 25	257	7 - 86	i	170 - 249
Computer and electronic products	334	71,828	1,886	69,942	8,798	166	8,633	3,937		4,695
Communications equipment	3342	11,726	754	10,972	1,727	12	1,715	805	i	910
Semiconductor and other electronic components	3344	28,254	394	27,859	2,309	20	2,289	80		2,209
Navigational, measuring, electromedical, and control instruments	3345	10,434	345	10,089	4,546	126	4,420	2,963		1,456
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,643	97	2,545	152 - 162	1 - 12	150	27		123
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,345 - 3,368	131 - 154	3,214	4,190 - 4,200	107 - 118	4,083	2,880		1,203
Other measuring and controlling device	other 3345	4,423 - 4,447	95 - 117	4,329	193	6	187	56		131
Other computer and electronic products	other 334	21,414	392	21,022	216	7	209	89		120
Electrical equipment, appliances, and components	335	4,320	210	4,110	188	7	181	38		143
Transportation equipment	336	38,056	3,427	34,629	21,251	2,588	18,663	14,433	i	4,230
Automobiles, bodies, trailers, and parts	3361-63	23,851	2,714	21,137	2,869	124	2,745	0 - 2,745		0 - 2,745
Aerospace products and parts	3364	12,573	670	11,903	16,940	2,460	14,480	11,259 - 13,070	i	1,410 - 3,221
Aircraft, aircraft engine, and aircraft parts	336411-13	12,032	559	11,473	15,563	2,460	13,103	9,905 - 11,715	i	1,388 - 3,198
Guided missile, space vehicle, and related parts	336414-15, 336419	541	111	430	1,378	1	1,377	1,355		23
Military armored vehicle, tank, and tank component	336992	5	1	4	5	0	5	2		3
Other transportation	other 336	1,627	43	1,585	1,437	3	1,433	0 - 1,434		0 - 1,434
Furniture and related products	337	439	19	419	3	*	3	1	i	2
Miscellaneous manufacturing	339	16,444	1,034	15,410	319	35	285	27 - 42		242 - 258
Medical equipment and supplies	3391	14,257	909	13,348	273	33	240	7 - 38		202 - 233

TABLE 49

## Domestic R&amp;D performance by source of funds and performer, by industry and company size: 2017

(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others				
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted or passed-through R&D costs)	R&D performed by the company		
							Total	Paid for by the U.S. government	Paid for by non-U.S. government sources
Other miscellaneous manufacturing	3399	2,187	125	2,062	46	2	44	0 - 35	10 - 45
Nonmanufacturing industries	21-23, 42-81	126,400	3,519	122,881	22,163	2,170	19,993	5,388	14,604
Mining, extraction, and support activities	21	3,141	300	2,841	308 - 315	0 - 6	309	0	309
Utilities	22	481	200	281	81	45	36	27	9
Wholesale trade	42	611	108	503	42	11	31	0	31
Electronic shopping and electronic auctions	454111-12	9,320	3	9,318	0	0	0	0	0
Transportation and warehousing	48-49	1,161	44	1,116	31	*	31	0	31
Information	51	80,711	1,814	78,898	1,437	83	1,354	98	1,256
Publishing	511	34,363	1,088	33,276	1,142	80	1,062	62	1,001
Newspaper, periodical, book, and directory publishers	5111	84	10	74	*	*	0	0	0
Software publishers	5112	34,279	1,078	33,201	1,142	80	1,062	62	1,001
Telecommunications	517	3,880	237	3,643	42 - 165	3	40 - 163	0 - 3	37 - 163
Data processing, hosting, and related services	518	16,276	239	16,037	120	1	119	35	84
Other information	other 51	26,193	250	25,943	11 - 134	0	11 - 134	0 - 3	9 - 134
Finance and insurance	52	7,927	362	7,565	51	0	51	0	51
Real estate and rental and leasing	53	712	4	708	11	1	10	0	10
Lessors of nonfinancial intangible assets (except copyrighted works)	533	141	2	138	0	0	0	0	0
Other real estate and rental and leasing	other 53	571	1	570	11	1	10	0	10
Professional, scientific, and technical services	54	19,529	557	18,972	19,943	1,992	17,951	5,256	12,695
Architectural, engineering, and related services	5413	1,646	85	1,561	1,462	315	1,147	788	359
Computer systems design and related services	5415	11,789	120	11,669	1,695	37	1,658	995	663
Scientific research and development services	5417	3,150	332	2,817	16,035	1,531	14,504	3,200	11,304
Biotechnology research and development	541711	912	117	795	3,699	46	3,653	113	3,540
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,151	216	1,936	11,306	1,328	9,978	2,258	7,720

TABLE 49

## Domestic R&amp;D performance by source of funds and performer, by industry and company size: 2017

(Millions of U.S. dollars)

Industry and company size	NAICS code	Paid for by the company			Paid for by others					
		Total	R&D performed by others (purchased and collaborative R&D)	R&D performed by the company	Total	R&D performed by others (subcontracted or passed-through R&D costs)	R&D performed by the company			
							Total	Paid for by the U.S. government	Paid for by non-U.S. government sources	
Social sciences and humanities research and development	541720	86	*	86	1,030	157	873	830	43	
Other professional, scientific, and technical services	other 54	2,945	20	2,925	751	109	641	272	369	
Health care services	621-23	991	34 i	958 i	143 - 150 i	0 - 6	144	5 i	139 i	
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,815	93	1,722	111	35	76	2	74	
All companies (number of domestic employees)	-	381,739	42,704	339,036	70,854	9,789 i	61,065	24,277 i	36,787	
Small companies										
10-19 <sup>a</sup>	-	2,852	449	2,402	1,036	127	909	485	424	
20-49	-	8,838	1,245	7,593	2,156	314	1,842	605	1,237	
Medium companies										
50-99	-	9,538	1,468	8,070	2,493	422	2,071	659	1,413	
100-249	-	16,561	3,048	13,514	4,681	978	3,703	1,241	2,462	
Large companies										
250-499	-	12,962	1,189	11,773	2,647	317	2,331	592	1,739	
500-999	-	18,532	2,237	16,295	1,822	246	1,576	221	1,355	
1,000-4,999	-	60,698	8,357	52,341	14,705	1,933 i	12,771	1,461	11,311	
5,000-9,999	-	35,915	3,213	32,701	8,637	1,140 i	7,497	1,525	5,972	
10,000-24,999	-	75,231	11,816	63,415	11,753	1,683 i	10,070	3,514	6,556	
25,000 or more	-	140,612	9,681	130,931	20,924 i	2,629 i	18,295 i	13,976 i	4,320	

\* = 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.