

TABLE 51

Domestic R&D performance by source of funds and performer, by industry and company size: 2019

(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/ 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	466,504	37,537	428,968	72,331	8,342	63,989	21,941		42,048			
Manufacturing industries	31-33	281,995	33,886	248,109	44,239	6,675	37,564	16,023	i	21,542			
Food	311	4,127	190	3,937	246	3	243	*	i	242			
Beverage and tobacco products	312	1,146	176	971	114	i	3	111	i	0	111	i	
Textile, apparel, and leather products	313-16	890	16	873	31	0	31	7	i	24	i		
Wood products	321	191	11	180	6	*	6	0		6			
Paper	322	1,068	4	1,064	*	0	*	*	i	*	i		
Printing and related support activities	323	426	i	6	i	420	i	0		0			
Petroleum and coal products	324	1,450 - 1,550	248 - 347	1,203	102 - 106	0 - 3	103	*	i	103			
Chemicals	325	112,954	25,666	87,288	14,675	4,901	9,775	289		9,485			
Basic chemicals	3251	2,261	63	2,198	163	1	162	2	i	160			
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,117	25	1,092	79 - 128	0 - 47	80	*	i	80			
Pesticide, fertilizer, and other agricultural chemicals	3253	1,693	192	1,501	341 - 345	0 - 24	320 - 345	0 - 8	i	312 - 345			
Pharmaceuticals and medicines	3254	103,704	25,052	78,652	13,789	4,823	8,966	269		8,698			
Soap, cleaning compound, and toilet preparation	3256	2,887	291	2,596	195	31	164	*	i	163			
Paint, coating, adhesive, and other chemicals	3255, 3259	1,292	42	1,249	56 - 109	0 - 47	56 - 84	11 - 20		37 - 72			
Plastics and rubber products	326	2,823	53	2,770	114	29	85	*	i	85	i		
Nonmetallic mineral products	327	1,496	i	23	1,473	i	35	*		35	2	i	33
Primary metals	331	663	15	649	19	3	16	2		14			
Fabricated metal products	332	2,666	35	2,632	274	21	254	4		250			
Machinery	333	14,345	415	13,930	1,312	58	1,254	193		1,061			
Agricultural implement	33311	2,111	199	1,913	9	0	9	1	i	8			
Semiconductor machinery	333242	3,859	5	3,854	643	38	604	*	i	604			

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Engine, turbine, and power transmission equipment	3336	1,114	18	1,096	219	14	205	155	51	
Other machinery	other 333	7,260	194	7,067	441	5	436	37	399	
Computer and electronic products	334	77,590	2,021	75,570	11,749	590	11,159	5,802	5,357	
Communications equipment	3342	12,431	936	11,495	1,133 - 1,136 i	32 - 35 i	1,100 i	320 - 453 i	647 - 780 i	
Semiconductor and other electronic components	3344	32,338	363	31,975 i	3,263	56	3,208	468	2,740	
Navigational, measuring, electromedical, and control instruments	3345	11,292	380	10,912	7,141	490	6,650	4,852	1,799	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,235	118	3,117	234	9	225	11 i	214	
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	3,558	158	3,400	6,701	439	6,262	4,813	1,450	
Other measuring and controlling device	other 3345	4,499	104	4,395	205	42	163	28	135	
Other computer and electronic products	other 334	21,530	342	21,188	210 - 213	10 - 13	201	31 - 161	40 - 170	
Electrical equipment, appliances, and components	335	5,010	124	4,886	378	1	377	27	349	
Transportation equipment	336	35,560	4,055	31,505	14,897 i	1,027 i	13,870 i	9,652 i	4,218 i	
Motor vehicles, bodies, trailers, and parts	3361-63	24,254	3,371	20,883	3,398 i	165	3,233 i	38 - 481	2,753 - 3,195 i	
Aerospace products and parts	3364	9,532	632	8,900	10,317 i	859 i	9,458 i	8,454 i	1,005	
Aircraft, aircraft engine, and aircraft parts	336411-13	8,855	514	8,341	9,409 i	859 i	8,550 i	7,558 i	992	
Guided missile, space vehicle, and related parts	336414-15, 336419	677	118	559	908	0	908	896	13	
Military armored vehicle, tank, and tank component	336992	25	0	25	10	0	10	0 - 11	0 - 11	

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Other transportation	other 336	1,749	51	1,697	1,171	3	1,168	706 - 1,160	9 - 461	
Furniture and related products	337	430	23	407	2	*	2	0 - 3	0 - 2	
Miscellaneous	339	19,059 - 19,153	708 - 800	18,352	277 - 284	33 - 40	244	36 - 48	195 - 208	
Medical equipment and supplies	3391	16,520	708	15,812	235	33	202	25	177	
Other miscellaneous manufacturing	3399	2,539 - 2,632	0 - 92	2,540	42 - 48	0 - 7	42	11 - 24	18 - 32	
Nonmanufacturing industries	21-23, 42-81	184,509	3,651	180,858	28,092	1,667	26,425	5,918	20,507	
Mining, quarrying, oil and gas extraction, and support activities	21	2,657	123	2,535	183	*	183	1	181	
Utilities	22	408	171	237	49	11	38	27 - 34	4 - 11	
Wholesale trade	42	1,151	47	1,104	90	3	87	0	87	
Electronic shopping and electronic auctions	454111-12	3,212 - 15,901	125	3,088 - 15,775	43 - 61	0	43 - 61	0 - 8	35 - 61	
Transportation and warehousing	48-49	9,547	43	9,504	386	0	386	2	384	
Information	51	111,123	2,061	109,062	1,236	72	1,165	185	980	
Publishing	511	33,448	1,001	32,447	616	44	572	57	515	
Newspaper, periodical, book, and directory publishers	5111	64	4	61	*	0	*	*	*	
Software publishers	5112	33,384	998	32,386	616	44	572	57	515	
Telecommunications	517	4,116	416	3,700	34	2	33	4	29	
Data processing, hosting, and related services	518	30,403	249	30,154	424	20	404	116	288	
Other information	other 51	43,156	395	42,761	161	6	155	8	148	
Finance and insurance	52	9,208	319	8,890	28	0	28	0	28	
Real estate and rental and leasing	53	1,378	7	1,371	0	0	0	0	0	
Lessors of nonfinancial intangible assets (except copyrighted works)	533	45	*	45	0	0	0	0	0	
Other real estate and rental and leasing	other 53	1,333	7	1,326	0	0	0	0	0	
Professional, scientific, and technical services	54	29,734	603	29,131	25,681	1,579	24,103	5,685	18,418	

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Architectural, engineering, and related services	5413	2,382	95	2,288	2,289	370	1,919	1,214	705			
Computer systems design and related services	5415	18,524	128	18,395	2,697	46	2,651	454	2,197			
Scientific research and development services	5417	3,581	316	3,265	19,484	1,081	18,403	3,343	15,060	i		
Research and development in biotechnology	541711	1,201	118	1,083	5,491	118	5,374	108	5,266			
Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	2,353	198	2,155	13,132	i	841	12,291	i	2,571	9,720	i
Research and development in the social sciences and humanities	541720	27	*	27	860	122	738	664	74			
Other professional, scientific, and technical services	other 54	5,247	64	5,182	1,211	82	1,129	674	455			
Health care services	621-23	1,994	66	1,928	341	4	337	2	335			
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,407 - 14,098	86	1,322 - 14,012	34 - 58	0	34 - 58	9 - 19	19 - 49			
All companies (number of domestic employees)	-	466,504	37,537	428,968	72,331	8,342	63,989	21,941	42,048			
Small companies												
10-19 ^a	-	4,946	514	4,432	1,212	143	1,070	502	568	i		
20-49	-	11,254	1,214	10,040	2,731	353	2,378	811	1,567			
Medium companies												
50-99	-	13,668	2,176	11,492	2,901	372	2,529	697	1,832			
100-249	-	18,432	1,912	16,520	3,621	348	3,274	988	2,285			
Large companies												
250-499	-	17,075	1,719	15,356	3,929	402	3,527	1,393	2,133			
500-999	-	23,667	2,118	21,549	2,613	193	2,420	248	i	2,171		
1,000-4,999	-	68,986	4,512	64,475	13,418	2,221	11,196	1,710	9,487			
5,000-9,999	-	50,362	5,634	44,728	6,642	559	6,083	977	5,106	i		
10,000-24,999	-	83,235	8,850	74,385	16,025	2,147	13,878	i	1,717	i	12,161	

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25,000 or more	-	174,879	8,888	165,991	19,239	1,604	17,635	12,897	i	4,738

* = 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.