

TABLE 43

## Domestic R&amp;D performance by source of funds and performer, by industry and company size: 2021

(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		
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All industries	21-23, 31-33, 42-81	577,661	49,856	527,804	81,797	7,103	74,695	23,582	51,113
Manufacturing industries	31-33	331,953	44,287	287,666	42,967	4,572	38,394	16,374	22,020
Food	311	5,233	265 - 270	4,963 - 4,968	302	0 - 4	297 - 302	0	297 - 302
Beverage and tobacco products	312	1,403	175	1,228	22	4	19	0	19
Textile, apparel, and leather products	313-16	829	11	818	11	*	11	1	10
Wood products	321	445 - 454	12	433 - 442	2 - 10	0	2 - 10	0	2 - 10
Paper	322	1,145	6	1,139	*	*	0	0	0
Printing and related support activities	323	208	3 - 12	196 - 205	0 - 7	0	0 - 7	0	0 - 7
Petroleum and coal products	324	1,153	201	952	6	1	5	0	5
Chemicals	325	130,325	33,228	97,097	15,558	3,165	12,393	1,223	11,170
Basic chemicals	3251	2,621	63	2,559	166	12	154	6	148
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,330	11 - 40	1,291 - 1,320	90 - 127	2 - 40	69 - 98	3 - 23	46 - 92
Pesticide, fertilizer, and other agricultural chemicals	3253	1,011 - 1,045	93 - 99	915 - 946	211 - 245	0 - 6	211 - 241	0	211 - 241
Pharmaceuticals and medicines	3254	121,242	32,718	88,524	14,806	3,110	11,697	1,194	10,502
Soap, cleaning compound, and toilet preparations	3256	2,821	290	2,531	214	4	209	0	209
Paint, coating, adhesive, and other chemicals	3255, 3259	1,264 - 1,298	17 - 46	1,242 - 1,252	19 - 65	0 - 37	19 - 28	1 - 21	2 - 27
Plastics and rubber products	326	3,021	60	2,961	187	3	183	3	180
Nonmetallic mineral products	327	1,516	14	1,503	33	3	31	4	27
Primary metals	331	899	9 - 13	887 - 890	22 - 26	*	22 - 26	*	22 - 26
Fabricated metal products	332	3,959	80	3,879	421	9	412	13	399
Machinery	333	17,031	304	16,726	1,036	33	1,003	503	501
Agricultural implement	33311	1,922	114 - 123	1,799 - 1,807	60 - 82	0 - 15	60 - 68	0 - 6	54 - 68
Semiconductor machinery	333242	5,183	1	5,182	169	2	167	14	154
Engine, turbine, and power transmission equipment	3336	1,252 - 1,259	13	1,239 - 1,246	141 - 147	13	128 - 134	93	36 - 42

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Other machinery	other 333	8,666 - 8,675	166 - 177	8,499	644 - 661	4 - 20	641	391 - 397	243 - 251	
Computer and electronic products	334	98,022	3,811	94,211	7,017	165	6,852	2,828	4,024	
Communications equipment	3342	12,424	1,085	11,339	1,233	15	1,218	421 - 504	714 - 797	
Semiconductor and other electronic components	3344	45,816	300	45,516	1,937	57	1,880	81	1,800	
Navigational, measuring, electromedical, and control instruments	3345	10,265	252	10,014	3,721	90	3,630	2,223	1,407	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	2,913	77	2,837	258	8	250	3 - 17	234 - 248	
Search, detection, navigation, guidance, aeronautical, and nautical system and instruments	334511	2,161	53	2,109	3,269	76	3,193	2,086 - 2,197	995 - 1,107	
Other measuring and controlling devices	other 3345	5,191	123	5,068	194	6	187	23 - 121	67 - 164	
Other computer and electronic products	other 334	29,516	2,174	27,342	126	3	123	19 - 102	21 - 104	
Electrical equipment, appliances, and components	335	5,078	71	5,007	491	5	486	25	461	
Transportation equipment	336	39,068	4,663	34,405	17,521	1,165	16,356	11,670	4,685	
Motor vehicles, bodies, trailers, and parts	3361-63	26,877	4,124	22,754	3,867	229	3,637	48	3,589	
Aerospace products and parts	3364	10,380	479	9,900	12,503	936	11,568	10,527	1,041	
Aircraft, aircraft engine, and aircraft parts	336411-13	9,710	418	9,293	11,483	931	10,552	9,719	833	
Guided missile, space vehicle, and related parts	336414-15, 336419	669	62	608	1,021	5	1,016	808	207	
Military armored vehicle, tank, and tank components	336992	20 - 24	*	20 - 24	1	0	1	1	*	
Other transportation	other 336	1,786 - 1,792	60	1,726 - 1,731	1,149	*	1,149	1,094	55	
Furniture and related products	337	439	17	423	4	*	3	0	3	
Miscellaneous	339	22,164 - 22,186	1,342 - 1,363	20,822	325 - 331	14 - 20	311	102	209	
Medical equipment and supplies	3391	19,458	1,254	18,204	248	14	233	72	162	
Other miscellaneous manufacturing	3399	2,706 - 2,727	88 - 109	2,618	77 - 83	0 - 5	78	30	48	
Nonmanufacturing industries	21-23, 42-81	245,708	5,569	240,138	38,831	2,530	36,300	7,207	29,093	
Mining, quarrying, oil and gas extraction, and support activities	21	1,087 - 1,279	9 - 129	1,077 - 1,151	189	5	183	0	183	
Utilities	22	134 - 18,638	0 - 677	133 - 17,961	42	7	35	28	7	

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Wholesale trade	42	1,836	65 - 175	1,661 - 1,770	87	2	84	0	84	
Electronic shopping and electronic auctions	454111-12	5,931 - 24,688	0 - 677	5,931 - 24,034	8	0 - 4	4 - 8	0	4 - 8	
Transportation and warehousing	48-49	7,247 - 7,249	49	7,198 - 7,200	8 - 10	0	8 - 10	0	8 - 10	
Information	51	149,633	3,145	146,488	1,514	148	1,366	377	989	
Publishing	511	40,163	1,642	38,521	682	51	631	36	595	
Newspaper, periodical, book, and directory publishers	5111	87	7	81	23	0	23	23	0	
Software publishers	5112	40,076	1,635	38,441	659	51	608	13	595	
Telecommunications	517	4,311 - 4,380	574	3,736 - 3,805	31 - 100	1	30 - 98	3	26 - 96	
Data processing, hosting, and related services	518	45,288	704	44,585	702	95	607	338	269	
Other information	other 51	59,801 - 59,871	224	59,577 - 59,647	29 - 100	*	29 - 99	0	29 - 99	
Finance and insurance	52	21,040	138	20,902	47	1	45	0	45	
Real estate and rental and leasing	53	2,099 - 2,101	4	2,095 - 2,097	0 - 1	0	0 - 1	0	0 - 1	
Lessors of nonfinancial intangible assets (except copyrighted works)	533	6 - 9	1	5 - 8	0	0	0	0	0	
Other real estate and rental and leasing	other 53	2,091 - 2,095	3	2,087 - 2,091	0 - 1	0	0 - 1	0	0 - 1	
Professional, scientific, and technical services	54	33,200	1,117	32,083	36,729	2,315	34,413	6,790	27,624	
Architectural, engineering, and related services	5413	2,659	106	2,553	2,378	372	2,007	1,318	688	
Computer systems design and related services	5415	17,514	326	17,188	3,321	101	3,221	569	2,652	
Scientific research and development services	5417	6,778	655	6,123	29,770	1,750	28,019	4,106	23,914	
Research and development in nanotechnology	541713	170	16	154	84	11	73	47	26	
Research and development in biotechnology (except nanobiotechnology)	541714	1,908	244	1,664	7,537	163	7,374	78	7,296	
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	4,662	396	4,266	21,567	1,520	20,046	3,476	16,570	
Research and development in the social sciences and humanities	541720	38	0	38	581	56	525	504	22	
Other professional, scientific, and technical services	other 54	6,249	30	6,218	1,260	93	1,166	797	370	

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Health care services	621-23	2,217 - 2,296	252	1,965 - 2,043	104	9	r	95	10	85
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	2,504 - 3,815	3 - 680	2,501 - 3,136	98 - 106	35 - 44		62 - 66	3	59 - 63
All companies (number of domestic employees)	-	577,661	49,856	527,804	81,797	7,103		74,695	23,582	51,113
Small companies										
10-19 <sup>a</sup>	-	4,801	543	4,258	1,365	146		1,219	444	775
20-49	-	14,619	1,993	12,626	2,651	217		2,434	912	1,522
Medium companies										
50-99	-	15,085	2,597	12,488	2,240	188		2,052	694	1,359
100-249	-	22,471	2,441	20,030	4,589	596		3,993	1,421	2,572
Large companies										
250-499	-	23,150	2,576	20,574	4,102	744		3,358	1,065	2,294
500-999	-	25,923	2,268	23,655	4,120	343		3,777	1,271	2,506
1,000-4,999	-	88,751	5,142	83,609	11,930	924		11,006	2,137	8,869
5,000-9,999	-	57,987	4,114	53,873	9,649	i	705	i	8,944	i
10,000-24,999	-	97,378	13,320	84,057	22,820		2,270		20,549	
25,000 or more	-	227,495	14,861	212,634	18,332		971		17,361	i

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

NAICS = 2017 North American Industry Classification System.

<sup>a</sup> 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&amp;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 \$50,000 or more of R&amp;D and are not comparable 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, 2021.