

TABLE 28-A

Companies with domestic R&D paid for and performed by the company, by industry, company size, and state (A-M): 2017

(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies, U.S. total ^a (number)	United States	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	
All industries	21-23, 31-33, 42-81	19,514	339,036	968	905	4,476	442	120,111	3,828	6,423	1,445	i 279	4,496	5,085	105	1,527	12,743	5,394	2,195	1,486	758	243	257	3,106	18,912	19,101	6,633	221	3,433	114	
Manufacturing industries	31-33	11,581	216,155	533	4 e	3,249	276	63,215	2,499	5,891	1,336	i 53	2,426	2,864	74 i	1,483	9,999	5,104	1,982	1,096	642	146	204	2,195	14,249	18,237	5,730	176	2,593	58	
Food	311	554	4,453	i 6	1 e	4	55	180	33	29	757	i *	e 17	31	1 e	60	773	i 82	778	i 22	26	4	3	58	14	157	356	2 e	22	1	
Beverage and tobacco products	312	70	968	* e	* e	* e	* e	58	12	3	* e	* e	15	127	* e	* e	109	* e	* e	5	13	* e	* e	3	2	3	* e	* e	1	i *	e
Textile, apparel, and leather products	313-16	219	919	6	* e	* e	4	283	10	* e	* e	0	15	95	* e	1	i 8	* e	* e	* i	* e	* e	1	* e	77	12	14	* e	2	i 1	
Wood products	321	75	170	1	* e	* e	1	18	1	* e	* e	0	*	7	* e	* e	1	1	i 11	*	* e	1	* e	* e	4	* e	45	1	* e	* e	
Paper	322	89	1,292	1	0	2	82	40	*	3	9	0	2	226	0	* e	97	1	i 2	10	21	1	11	7	24	89	9	*	1	* e	
Printing and related support activities	323	156	218	* e	* e	* e	*	46	i 7	* e	* e	* e	1	2	* e	* e	5	i 1	2	i *	e 6	* e	* e	* e	3	i 4	9	i *	e 8	* e	
Petroleum and coal products	324	64	301	* e	* e	1	* e	25	2	* e	* e	0	1	1	0	* e	38	33	0	4	17	* e	* e	* e	* e	* e	* i	3	1	3	0
Chemicals	325	1,730	63,285	114	* e	143	42	13,634	181	4,011	448	30	583	272	42	i 20	4,477	i 2,436	188	156	287	26	12	1,071	8,435	664	367	31	1,580	8	
Basic chemicals	3251	253	2,393	2	e 0	3	e 7	105	9	79	136	0	36	26	0	* e	68	13	65	3	e 17	11	e *	e 51	95	37	2	6	16	* e	
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	125	612	1	e 0	* e	*	14	* e	* e	0-27	0	1	23	0	* e	12	4	4	*	19	9	4	*	7	6	7	1	*	0	
Pesticide, fertilizer, and other agricultural chemicals	3253	60	1,092	1	* e	5	i 2	i 51	9	i *	e 19	1	i 4	6	0-43	i 3	49	i 8	i 48	i 5	i *	1	e *	e 2	i 7	i 2	44	14	i 471-648	i 2	i
Pharmaceuticals and medicines	3254	755	55,229	106	*	119	30	13,202	159	3,867	263-295	29	519	200	0-43	e 12	4,126	i 2,300-2,413	56	72	43	5	7	1,016	i 8,211	493	182	9	912	4	
Soap, cleaning compound, and toilet preparation	3256	223	2,488	* e	0	1	e 2	172	1	e 2	e *	e 0	14	11	* e	4	95	1	e 1	e 0-78	i *	e *	e 0	1	77	66	101	* e	6	* e	
Paint, coating, adhesive, and other chemicals	3255, 3259	315	1,471	5	* e	16	1	e 91	2	62	* e	0	10	6	i 0	* e	127	0-112	15	0-78	208	1	* e	1	e 37	61	30	*	0-177	i 1	
Plastics and rubber products	326	624	3,637	13	* e	224	7	127	61	41	34	0	41	17	13	2	i 83	363	23	10	47	36	i 1	e 102	101	549	81	5	e 16	1	i
Nonmetallic mineral products	327	175	1,303	4	* e	3	i *	e 30	38	* e	* e	* e	4	10	* e	* e	37	14	1	e 1	1	1	e 1	i *	e 9	9	5	2	3	* e	

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(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies, U.S. total ^a (number)	United States	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	
Primary metals	331	176	741	12	0	3	3	11	7	1	i	5	0	2	6	0	* e	29	60	25	1	* e	* e	* e	26	7	50	15	34	3	* e
Fabricated metal products	332	1,168	2,099	24	* e	83	2 e	241	28	81	2	* e	32	59	* e	2 e	114	101	16 i	15	16	8 e	4	10	51	99	60	3 e	49	1 e	
Machinery	333	1,662	12,257	17	* e	21	11 e	3,168	37	254	i	* e	0	88	147	1	11	1,661	300	658	115	66	27	5	179 i	194	413	518	15 i	107	2 e
Agricultural implement	33311	181	1,511	* e	0	5	2 e	35	6	1 e	* e	0	1 e	31	0	2 e	174 - 439	5 e	623	68 i	* e	11	0	* e	*	6	95	1 e	1 e	0	
Semiconductor machinery	333242	33	3,228	0	0	4	0	2,408	* i	0 - 213	i	0	0	6	0	0	* i	0	0	0	0	0	0	0	1	42	0	62 i	0	0	0
Engine, turbine, and power transmission equipment	3336	97	1,921	0 - 18	0	0 - 14	* e	0 - 452	0 - 32	42	0	0	20	14	0	0	957 - 1,224	123	0 - 36	5	*	* e	0 - 6	0 - 179	18	45	0 - 363	* e	0 - 107	* e	
Other machinery	other 333	1,352	5,596	0 - 18	* e	0 - 14	9 e	271 - 727	0 - 32	0 - 213	i	* e	0	61	102	1	9	264	173	0 - 36	42	66	15	0 - 6 e	0 - 179 i	134	361	0 - 363	14 i	0 - 107	2 e
Computer and electronic products	334	1,726	69,942	159	1	2,506	27 i	35,766	1,336	217	47	22	820	635	14	1,370	1,125	87	193	397	23	14 i	34	267	2,720	219	938	11	39	16	
Communications equipment	3342	254	10,972	101	1	84	7	5,002	267	49	2	20	327	486	13	6	642	35	11	22	7	3	3	151	383	62	90	4	22	3	
Semiconductor and other electronic components	3344	422	27,859	34	0	1,565	1 i	14,409 i	301	15	5	*	70	21	*	1,252	124	13	19 i	3 e	1	*	21	64 i	1,035	47 i	111	3	3 e	1 i	
Navigational, measuring, electromedical, and control instruments	3345	774	10,089	11	* e	833 i	19 i	3,416	288	144	38	0	115	114	0	10	264 i	34	162	165 - 374	14 i	10 i	9	29	727	93	337 i	2 e	13 i	12	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	109	2,545	* e	0	54	16 i	1,308	40 i	54 i	* e	0	27	19 i	0	0	107 i	11 i	4 i	0	6 i	* e	0 - 10	13 i	290	20 i	40	0	* e	* e	
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	118	3,214	6 i	0	744 i	0	566	61	0 - 91	i	* e	0	65	19	0	1	0 - 158 i	8	0 - 159	158 - 368	1 i	0 - 11 i	0 - 10	5	150	18 i	149 i	1 e	1 i	8
Other measuring and controlling device	other 3345	547	4,329	5	* e	36 i	3	1,541	188	0 - 91	38	0	22	76	0	9	0 - 158	16	0 - 159 i	6	6	0 - 11 e	0 - 10 e	12	287	55	148	1	11 i	4	
Other computer and electronic products	other 334	275	21,022	13	0	24	0	12,939	479	8	1	2	308	15	1	101	95	5	*	0 - 206	2 e	1	1	22	575	18	401	2 e	1 e	*	

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Industry and company size	NAICS code	Companies, U.S. total ^a (number)	United States	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana
Electrical equipment, appliances, and components	335	709	4,110	4 e	0	22	2 e	741	29	126	3	* e	61	97 i	0	1 e	284	51	30	21	9	3 e	* e	25 i	382	549	79 i	26 i	70 i	8
Transportation equipment	336	807	34,629	135	1	112	30	4,618	488	995	3 e	1	518	970	2	5 e	532	1,146	21	322	94	22	28	275	338	15,119	397	26	635	14
Automobiles, bodies, trailers, and parts	3361-63	367	21,137	47	0	19	5 e	2,363 i	6	18	* e	0	11 e	0-157	0	1 e	283	981	11 e	24	93	1 e	1 e	47	137	14,797	67	15	0-157	1 e
Aerospace products and parts	3364	306	11,903	47	1	78	24	2,087	475	954	3 e	1	469	557	2	4	213 i	158	10 i	296	1	17	24	195 i	191	149	121	7	410-636	13
Aircraft, aircraft engine, and aircraft parts	336411-13	290	11,473	33	1	54	24	2,033	353	945	3 e	1	455	557	2	4	213 i	158	10 i	296	1	17	5-25	195 i	191	107	82 i	4	401-636	* e
Guided missile, space vehicle, and related parts	336414-15, 336419	16	430	14	*	23	*	54	122	9	0	0	14	0	*	0	0	*	0	0	0	0	0-18	0	0	42	40	3	0-18	13
Military armored vehicle, tank, and tank component	336992	7	4	0	0	0	0	0	0	0	0	0	* i	0	0	0	0	0	0	0	0	0	0	1 i	0	* i	2	0	0	0
Other transportation	other 336	128	1,585	41	* e	15	1 e	169	7	24	* e	0	37	255-414	* e	* e	36	7	*	3	* e	4	3	31	10	173	208	4	0-225	0
Furniture and related products	337	202	419	4	* e	2	1 i	27	28	*	* e	0	1 i	30	* e	* e	8 i	26	26	1 i	3	* e	* i	* e	37	49	26	14	6	* i
Miscellaneous	339	1,386	15,410	34	* e	122	7	4,201	202	131	28	*	225	134	1 e	11	617	402	8	16	10 e	5	102	171	1,851	252 i	2,806	5	48	6
Medical equipment and supplies	3391	713	13,348	29	* e	102	4 e	3,858	161	77	25	*	211	102	* e	2 e	489	385	4 e	5 e	7 e	1 e	101	166	1,766	233 i	2,784	5	37	2 e
Other miscellaneous manufacturing	3399	672	2,062	5	* e	20	4	343	40	55	3	0	14	31 i	* e	10	128	17	4	11 i	3	4	1 e	6	85	19	23	1 e	11	5
Nonmanufacturing industries	21-23, 42-81	7,935	122,881	435	901	1,227	166	56,896	1,329	532	110	226	2,070	2,221	31	44 e	2,745	290	214	390	116	97	54	912	4,663	865	903	45	840	57
Mining, extraction, and support activities	21	104	2,841	1 e	3 e	1 e	1 e	111 i	32	* e	* e	0	1 e	9	* e	4	2 e	3	1 e	5	2 e	8 e	* e	6	0-137	1 e	2	2 i	1 e	* e
Utilities	22	36	281	21 i	0	0	0	74	0	0	0	*	4 i	24 i	1	*	40	0	0	*	0	0	0	*	2	2	1	4 i	2	0
Wholesale trade	42	662	503	6	* e	25 i	1 e	67	5	2 e	* e	* e	16	31 i	* e	1 i	44 i	8	11	4	8	2 e	1 e	4 e	13	10	17	1 e	5 e	* e
Electronic shopping and electronic auctions	454111-12	64	9,318	* e	* e	* e	* e	8,705 i	1 i	* e	* e	* e	1 e	* e	* e	* e	9	2	* e	* e	2 i	* e	* e	* e	6 i	* e	* e	* e	* e	* e
Transportation and warehousing	48-49	80	1,116	* e	2	* i	4	41	3	*	*	* e	6	3	* e	* e	24	3	*	6	* e	* e	* e	250	76	1	*	1	*	* i
Information	51	2,486	78,898	192	872	309	126	40,072	809	347 i	24 e	82	1,226	1,073	6	22 e	1,040	185	137	75	59	29 e	18	390	3,014	397	396	18	178 i	36

TABLE 28-A

Companies with domestic R&D paid for and performed by the company, by industry, company size, and state (A–M): 2017

(Millions of U.S. dollars)

Industry and company size	NAICS code	Companies, U.S. total ^a (number)	United States	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana		
Publishing	511	1,056	33,276	67	*	158	15	13,299	288	76	13 e	17	431 i	389	3	16 e	355	105	25	7 e	17	9	12	136	1,441	232	238	2 e	22	6		
Newspaper, periodical, book, and directory publishers	5111	36	74	* e	* e	* e	* e	22	* e	* e	* e	9	1 e	* e	* e	* e	2	* e	* e	* e	* e	* e	* e	* e	16	1 e	1 i	* e	* e	* e		
Software publishers	5112	1,020	33,201	67	*	158	15	13,277	288	76	13 e	8 e	430 i	389	3	15 e	352	105	25	7 e	16	9	12	136	1,426	232	237	1 e	22	6		
Telecommunications	517	101	3,643	3	* e	23	*	274 i	75	* e	*	* e	340	195 i	*	* e	259 i	* i	* e	0-37	* e	* e	*	42	74	2	* e	* e	2	* e		
Data processing, hosting, and related services	518	1,114	16,037	121	871	102	109	6,759	301	28-133	11 e	38	414 i	398	2 e	6 e	326	75 e	63	33 e	35	16 e	5 e	193	1,119	91 e	147	7 e	147 i	30		
Other information	other 51	216	25,943	1 e	* e	25	* e	19,740	146	136-244	i	* e	27	41	90	* e	1 e	100	5 e	49	0-37	i	8	4 i	1 e	20	381	72	11	9	6	* e
Finance and insurance	52	86	7,565	5	1	423	1	1,728 i	28	36	66	* e	356	615	* e	1	861	8	13	3	2 e	1 e	1	21	52	50	3 e	* e	11	* e		
Real estate and rental and leasing	53	90	708	1 e	* e	2 e	7	305 i	8 e	2 e	* e	105	5 e	42 e	* e	* e	6 e	1 e	3	1 e	3	8	* e	2 e	2 e	3 e	6 e	1 e	1 e	* e		
Lessors of nonfinancial intangible assets (except copyrighted works)	533	55	138 i	1 e	0	2 e	* e	23 i	4 e	2 e	* e	0	4 e	39 e	* e	* e	4 e	1 e	* e	1 e	1 e	1 e	* e	1 e	1 e	3 e	4 e	1 e	* e	* e		
Other real estate and rental and leasing	other 53	35	570	* e	* e	* e	7	282 i	3	* e	* e	105	1 e	2	* e	* e	1	* e	3	* e	2	7	* e	* e	* e	* e	1 i	* i	* e	* e		
Professional, scientific, and technical services	54	3,679	18,972	198	24	441	19	5,137	433 i	126	19	32	383	402	22	15	672	55	38	286	15	46	33	221	1,313	292	436	17	632	18		
Architectural, engineering, and related services	5413	1,124	1,561	39	3	19	1 e	218	37	13	3	3 e	48	32	6	6	76	14	9	31	3 e	22	16	24	33	75	29	7	76	8		
Computer systems design and related services	5415	1,372	11,669	106	4	191	7	3,418 i	310 i	24	13	17	190	208	12	3 e	288	28	19	248	9	7 e	16	126	752	131	336	2 e	543	1 e		
Scientific research and development services	5417	689	2,817	49 i	15	225	7 i	918	57	68	2	2 i	94	9	4	3 i	31	10	8	2	1 i	3	1 i	54	400	63	32	7	3 i	9		
Biotechnology research and development	541711	160	795	2 i	0	214	* e	236	* e	25	2	* e	5	1 i	1	1 i	10	* e	8	2	* e	1	* e	33	103	1 e	8	1	1	0		

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Physical, engineering, and life sciences (except biotechnology) research and development	541712	520	1,936	46	i 15	11	7	i 603	57	43	*	1	89	8	3	2	i 21	10	*	e *	1	i 2	e 1	i 21	297	63	24	6	2	i 9	
Social sciences and humanities research and development	541720	9	86	0	0	0	0	79	0	*	i 0	1	i 0	*	i 0	0	0	0	0	0	0	0	0	0	*	0	*	i 0	0	*	i
Other professional, scientific, and technical services	other 54	493	2,925	4	2	6	2	583	29	22	1	9	e 51	153	1	e 3	277	3	e 3	5	2	e 14	1	e 17	129	23	39	1	e 9	1	e
Health care services	621-23	108	958	i 2	*	e 19	2	450	*	e *	e *	e *	49	i 1	i *	e *	e 12	*	e *	e *	*	e *	e *	e 3	i 53	i 47	5	*	i *	e *	e
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	545	1,722	8	*	e 6	6	208	8	17	*	e 6	24	22	1	e 2	i 35	25	10	11	23	2	e *	e 15	0-137	60	37	1	e 10	1	e
All companies (number of domestic employees)	-	19,514	339,036	968	905	4,476	442	120,111	3,828	6,423	1,445	i 279	4,496	5,085	105	1,527	12,743	5,394	2,195	1,486	758	243	257	3,106	18,912	19,101	6,633	221	3,433	114	
Small companies																															
10-19 ^b	-	3,283	2,402	26	1	e 27	e 5	e 626	50	28	e 5	e 8	e 65	e 51	e 4	8	e 79	e 28	e 9	e 9	e 12	e 11	e 5	e 69	174	63	e 61	5	e 20	e 4	
20-49	-	6,001	7,593	50	e 17	80	e 39	2,120	140	101	12	e 16	e 158	e 151	e 9	19	e 289	e 120	e 50	e 38	e 41	e 29	e 10	e 177	855	232	158	20	e 59	e 16	
Medium companies																															
50-99	-	3,569	8,070	42	e 4	e 127	10	e 2,439	93	112	11	e 16	e 145	100	e 3	e 11	e 336	133	32	43	42	36	14	134	987	227	145	11	e 60	20	
100-249	-	2,986	13,514	125	1	e 128	27	4,721	208	183	18	28	263	170	6	24	671	142	93	64	44	22	e 8	e 140	1,099	368	278	16	e 78	10	
Large companies																															
250-499	-	1,390	11,773	69	2	156	31	4,091	202	176	10	2	197	182	0-45	9	215	149	83	34	38	22	3	178	1,226	428	251	8	143	13	
500-999	-	887	16,295	49	2	e 141	8	e 4,883	162	56	0-299	19	243	162	12	11	699	221	116	41	88	7	e 17	240	1,963	560	330	15	72	2	e
1,000-4,999	-	947	52,341	345	5	757	145	18,529	819	1,176	218	134	1,070	861	10	104	2,200	643	131	392	342	61	i 160	883	i 5,378	i 1,979	894	26	264	18	
5,000-9,999	-	198	32,701	134	870	337	72	13,299	814	675	0-299	5	i 419	425	*	45	706	392	45	182	38	7	2	202	963	702	710	51	288	3	
10,000-24,999	-	149	63,415	44	1	617	34	i 21,066	529	i 893	769	i 24	768	1,083	0-45	i 1,168	4,050	i 2,435	1,025	i 558	35	8	28	545	3,055	1,793	1,384	41	i 1,085	i 19	

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Industry and company size	NAICS code	Companies, U.S. total ^a (number)	United States	Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	District of Columbia	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana		
25,000 or more	–	105	130,931	83	2	2,107	72	48,337	810	3,023	108	27	1,168	1,901	20	127	3,497	1,130	611	125	79	41	11	538	3,211	12,749	2,423	28	i	1,365	9	i

* = amount < \$500,000. e = estimated; > 50% of the estimate is modeled—see Technical Notes. i = > 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2012 North American Industry Classification System.

^a Statistics for the number of companies are based only on companies in the United States that reported to the survey. These statistics do not include an adjustment to the weight to account for unit nonresponse. A company having multiple reporting parts for data collection may contribute to the statistics for multiple industries, so the detail may not add to the total for the number of companies.

^b 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. For a given estimate in this table, if the conditions are satisfied for both the i and e flags, the e flag is assigned because the imputation rate may be found in the corresponding table of imputation rates. Changes in data collection and imputation processes have affected the comparability of company count estimates in this table with estimates published for previous years. 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.