

TABLE 28-A

Companies with domestic R&D paid for and performed by the company, by industry, company size, and state (A-M): 2016

(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	29,999	317,731	868	27 e	4,743	340	105,769	3,542	6,101	1,463	230	4,441	4,273	114 i	1,398	11,822	4,988	2,225	1,469	752	228	261	3,335	18,084	17,454	6,601	198	3,466	121
Manufacturing industries	31-33	18,634	211,660	563	12	3,799	224	60,439	2,311	5,712	1,304	37	2,426	2,336	80 i	1,346	9,589	4,818	2,103	1,047	664	132	202	2,351	12,949	16,823	5,692	155	2,679	61
Food	311	1,153	4,611	6 e	5 e	4 e	46	130	40	22	804	* e	17	24	1 e	56	810 i	93	840	21	15	5 e	1 e	48	17	163	360	6	28	1 e
Beverages and tobacco products	312	88	987	* e	* e	* e	* e	38	22	3	* e	* e	14	D	* e	* e	101	* e	* e	* e	25	* e	1 i	* e	3	1 e	* e	* e	21	* e
Textiles, apparel, and leather products	313-16	419	1,156 i	13 e	* e	2 e	1 e	155 i	12	4 e	* e	* e	23	118	1 e	1 e	15 e	7 e	2 e	2 e	2 e	2 e	4 e	3 e	74	15	4 e	3 e	5 e	1 e
Wood products	321	153	181	1	* e	* e	2	14	1	* e	* e	0	2	6	* e	* e	3 i	1 e	8	* e	6	1	* e	* e	3	1 i	42	1	* e	*
Paper	322	242	851	1 i	* e	* e	64	10	*	1 i	0	0	2	49	* e	* e	8 i	2 i	1	4	25	*	13	8	19	13	7	* e	1 e	* e
Printing and related support activities	323	309	219 i	* e	* e	2 i	1	63 i	6	1 e	* e	* e	2 e	3	* e	* i	6 i	2 i	2 i	1 e	* e	1 i	* e	1 e	3	9 i	8 i	* e	7	* e
Petroleum and coal products	324	126	367	7 e	* e	1 e	3 e	25	8	1 e	* i	* e	3 e	3 e	* e	* e	51	15	* e	3	* e	5 e	* e	8	3 e	12	1 e	2 e	6 e	* e
Chemicals	325	2,640	64,165	114	* e	305 i	23	13,219	222	4,098	349 i	26	483	365	51 i	25	4,247 i	2,442	146	141 i	314	16 e	15 e	1,021	7,881	375	407	32 i	1,562	26
Basic chemicals	3251	284	2,284	2	0	9	6	112	16	15	66	* e	19	21	0	* e	37	11	18	3	23	3 e	* e	49	73	38	2 e	4	12	2
Resins, synthetic rubber, and artificial synthetic fibers and filaments	3252	213	693	1 e	0	* e	* e	15	* e	2 i	2	0	1 e	15	* e	* e	D	4 i	1 i	* e	18	1 i	* e	* e	11 i	4 i	6	* e	* e	0
Pesticides, fertilizers, and other agricultural chemicals	3253	57	1,061 i	1 e	0	5 i	3 i	33 i	10 i	* e	* e	1 i	8 e	6	D	2	D	D	47 i	6 i	*	3 e	* e	3 i	8 i	4	7 i	16 i	D	2 i
Pharmaceuticals and medicines	3254	960	55,983	102	0	265 i	12	12,793	187	3,979	276 i	25	437	297	D	21	3,994 i	D	69	61	44	6	14 e	966	7,679	206	240	9	D	22
Soaps, cleaning compounds, and toilet preparations	3256	432	2,660	1 e	* e	3 i	2	186	3 e	60	4	* e	10	15	* e	* e	91	3 e	2 e	65 i	1 e	1 e	* e	2 e	83	74	96	1 e	10 i	* e
Paints, coatings, adhesives, and other chemicals	3255, 3259	696	1,484	7	0	23	1 e	78	6	42	* e	* e	9 i	10 i	0	1 i	66 i	21	9	6 i	227	2 e	* e	2 e	26 i	50	56	2 i	37	* e
Plastics and rubber products	326	1,201	3,584	11	* e	258	10	111	25	29	33	0	44	105	13	2 i	76	328	24	12	61 i	27	1 e	121	81	511	77	12	12 i	1 i
Nonmetallic mineral products	327	409	1,274	2	* e	3	1 e	71	36	D	* e	1	29	11	* e	* e	30	6	1 e	1 e	2 e	1 e	D	1 e	81	11	9	2	3	* e
Primary metals	331	337	583	10	* e	1 e	3 i	13 i	2	4	3 i	0	1 e	D	* e	* e	26	38	16 i	1	7	* e	* e	13	5 i	34	9	8	5	* e
Fabricated metal products	332	2,229	2,127	26	* e	63	3 e	219	9 i	70	1 e	* e	26	22 i	* e	2 e	129	79	16 i	21	19	16 i	2 e	11	44 i	97	53	4 e	41	1 e
Machinery	333	2,648	11,699	23	* e	46	10 e	3,024	36	D	1	0	92	110	1	6 i	1,796	260	762	119 i	48	25	5	179	217	346	489	15	76	1 e
Agricultural implements	33311	190	1,552	1	0	4	1 e	32	7	D	* e	0	1	33	0	1 e	283	3	737	75 i	* e	13	* e	1 i	0	4	106	D	1	D
Semiconductor machinery	333242	48	3,028	0	0	4	0	2,176	2	D	0	0	16	0	0	* i	0	0	0	0	0	0	0	D	76	* i	D	0	0	0
Engines, turbines, and power transmission equipment	3336	125	1,901	1	0	1	* e	108	2 e	D	0	0	12	18	0	* e	D	115	* e	6	* e	* e	3	D	5	41	D	D	1 e	D
Other machinery	other 333	2,285	5,218	21	* e	38	9 e	707 i	24	194	1	0	63	59	1	4 i	D	142	25	38	48	11 e	2 e	177	136	301	295	15	74	1 e
Computer and electronic products	334	2,980	68,515	162	4	2,875	34	36,785	1,363	199	84	10	908	721	9	1,234	1,131	108	182	357	34	18	17	355	2,880	294	919	5 e	50	6
Communications equipment	3342	502	11,293	95	4	40	1	6,330	262	25	1	8	230	486	8	6	509	23	*	D	3	* i	2	219	436	21	68	1 e	15	2
Semiconductors and other electronic components	3344	822	29,176	31	*	1,838	16	15,497	322	31	38	1	161	107	1	1,115	241	23	9 i	9	1 e	*	8	64	1,057	42	138	1	18	* i
Navigational, measuring, electromedical, and control instruments	3345	1,258	10,131	27	* e	991	17 i	3,395	268	133	45	*	231	120	* e	7	256	31	172	D	15 i	11	6 i	56	943	83	279	2 e	17 i	3
Electromedical, electrotherapeutic, and irradiation apparatuses	334510, 334517	250	2,466	* e	0	48 i	14 i	1,184 i	20 i	D	2 i	*	84 i	22 i	* i	* e	D	7 i	D	* e	6 i	D	4 i	32	202	16 i	21 i	* e	1 e	* e
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	171	3,121	6	0	883	0	464	49	D	* e	0	66	33	0	1 e	D	6	D	D	1	D	1	11	197	11	139	1 e	1	* e
Other measuring and controlling devices	other 3345	837	4,544	21	* e	60 i	3	1,746	199	67	42	0	81	65	* e	6	82	17	21 i	5	9	2 e	1 i	13	544	56	119	1 e	15 i	3
Other computer and electronic products	other 334	399	17,914	9	0	6	* e	11,564	511	10	1	1	286	8	0	107	125	31	1	88	15	6 i	1	16	445	149	433	2 e	1 e	*
Electrical equipment, appliances, and components	335	719	4,302	2 e	*	40	2 e	576	19	66	2	* e	49	113	*	1 i	226	37	9	4	4	2 e	* e	14	216	536	89	18	57	8

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Transportation equipment	336	1,114	32,905	142	1	90	16	2,493	315	906	2	*	466	353	2	9	629	959	34	336	84	8	D	427	284	14,254	368	22	767	13														
Automobiles, bodies, trailers, and parts	3361-63	738	19,293	67	* e	16	15	1,150	5 e	12	* e	0	14 e	D	* e	6	380	844	19 e	D	78	3 e	1 e	56	109	14,000	67	16	D	1 e														
Aerospace products and parts	3364	168	12,272	30	1	60	1	1,277	301	886	2	*	415	94	1	1	198	108	14	D	5	4	D	336	168	112	111	5	D	13 e														
Aircraft, aircraft engines, and aircraft parts	336411-13	151	11,930	25	1	50	1	1,234	170	875	2	*	415	94	1	1	198	108	14	D	* e	4	D	336	168	112	72	5	D	* e														
Guided missiles, space vehicle, and related parts	336414-15, 336419	17	342	5	0	10	0	43	i	131	11	0	1	0	0	0	0	0	0	0	5	0	0	0	0	0	39	0	*	13														
Military armored vehicles, tanks, and tank components	336992	6	3	0	0	* i	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	*	*	0	0	0														
Other transportation	other 336	202	1,337	45	* e	14	1 e	66	9	9	i	* e	0	37	i	D	* e	1	51	8	* e	*	* e	2 e	1 i	34	7	142	190	1 e	12	* e												
Furniture and related products	337	275	366	4	* e	2	i	11	i	28	i	* e	* e	1 e	5	* e	* e	10	25	23	5	7	* e	* i	* e	* e	96	12	13	1 e	* e													
Miscellaneous	339	1,603	13,768	39	i	* e	106	5 e	3,483	166	86	24	i	* e	265	189	1 e	10	295	416	36	17	i	11 e	5 e	121	140	1,136	56	i	2,838	11	37	2 e										
Medical equipment and supplies	3391	928	11,474	34	i	* e	80	4 e	3,126	124	76	24	i	0	249	90	1 e	2 e	144	399	4 e	9	7 e	3 e	120	135	1,091	34 e	2,819	10	23	2 e												
Other miscellaneous manufacturing	3399	675	2,294	i	5	i	* e	27	1 e	357	i	42	11	i	* e	* e	15	i	99	i	* e	8	151	i	17	32	8	i	3	i	2 e	1 e	6	44	i	22	i	19	1 e	13	* e			
Nonmanufacturing industries	21-23, 42-81	11,366	106,071	305	15 e	944	116	45,330	1,231	389	159	193	i	2,015	1,937	35	51	2,234	169	i	123	421	89	i	97 e	59	983	5,135	631	909	43	786	60											
Mining, extraction, and support activities	21	62	2,897	* e	* e	16	* e	144	11	* e	* e	* e	1	i	8	* e	* e	* e	3	* e	4	* e	* e	* e	* e	59	1	1	2	* e	* e													
Utilities	22	34	325	D	0	0	0	191	D	0	*	*	3	D	1	0	1	0	0	*	0	0	0	1	*	*	0	3	1	0														
Wholesale trade	42	1,642	442	i	D	* e	4 e	3	i	60	i	6	i	6	i	1 e	22	15	5	i	3 e	6	i	3 e	1 e	4 e	13	i	10 e	8 e	1 e	7 e	1 i											
Electronic shopping and electronic auctions	454111-12	241	1,569	i	* e	* e	2	i	* e	1,059	i	D	1 e	* e	* e	2 e	D	* e	* e	3 e	1	* e	* e	2	i	* e	* e	1 e	3	i	1 e	1 e	* e	1 e	* e									
Transportation and warehousing	48-49	32	486	* e	2	1	1	2	i	6	* e	* e	6	2	* i	* e	8	* e	* e	6	* e	* e	* e	* e	323	* e	* i	* i	2	*	* i													
Information	51	2,327	70,075	132	4 e	210	94	36,691	658	171	66	78	i	1,074	1,031	8 e	20 e	823	67 e	85	89	15 e	29 e	18	359	3,415	288	345	18	153	38													
Publishing	511	1,341	33,174	67	1 e	118	5 e	12,819	333	90	34	32	352	531	4	11 e	326	26 e	30	18	i	5 e	10 e	12	183	2,363	185	232	14	32	14													
Newspaper, periodical, book, and directory publishers	5111	103	77	i	* e	* e	* e	* e	27	* e	* e	5	1 e	* e	* e	* e	1 e	* e	* e	* e	* e	* e	* e	3	i	11	* e	1 e	* e	* e	* e													
Software publishers	5112	1,238	33,098	67	1 e	118	5 e	12,792	333	90	34	26 e	351	531	4	11 e	325	26 e	30	18	i	5 e	10 e	12	180	2,352	185	231	14	32	14													
Telecommunications	517	121	3,530	i	2	1 e	3	i	2 e	355	i	43	1 e	* e	16	i	370	229	i	1 e	* e	248	i	1 e	2 e	34	2 e	1 e	1 e	8	40	2 e	2 e	* e	1 e	* e								
Data processing, hosting, and related services	518	744	11,776	62	1 e	83	85	5,419	160	78	31	11 e	327	i	225	3 e	8 e	150 e	37 e	42	17 e	8 e	15 e	3	160	688	49 e	101	3 e	115	23													
Other information	other 51	121	21,594	1	1	7	2	18,098	122	3	* e	19	i	25	46	* e	2	99	3	10	20	1 e	3	*	8	325	52	11	*	5	* e													
Finance and insurance	52	70	7,237	5	*	399	1	1,233	i	16	28	59	*	392	546	* e	* e	920	1	*	2	1	*	2	6	40	51	3	*	11	*													
Real estate and rental and leasing	53	48	475	* e	* e	* i	* e	190	1	* e	* e	73	1	i	D	*	* e	7	* e	2	* i	*	1	i	* e	* e	4	i	* e	* e	* e	* e	* e											
Lessors of nonfinancial intangible assets (except copyrighted works)	533	11	27	0	0	* i	0	D	*	0	0	0	1	i	D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0												
Other real estate and rental and leasing	other 53	37	449	* e	* e	* e	* e	D	1	* e	* e	73	1	i	4	*	* e	7	* e	2	* i	*	1	i	* e	* e	4	i	* e	* e	* e	* e	* e											
Professional, scientific, and technical services	54	6,385	20,845	138	9 e	304	11 e	5,129	i	512	i	171	30	41 e	463	300	24	28	411	70 e	27 e	309	44	i	58 e	37	279 e	1,446	266	i	539	15	601	20										
Architectural, engineering, and related services	5413	1,354	1,816	36	5 e	22	3 e	224	i	39	39	2 e	5 e	60 e	35 e	8	10	i	56	i	17 e	8 e	7 e	8 e	37	16	34 e	102	45	i	23 e	6	26	7										
Computer systems design and related services	5415	2,543	13,255	74	2 e	209	4 e	3,670	i	397	i	53	21	17 e	233	156	13	8	196	26 e	15	294	21	i	11 e	17	124 e	790	127	i	418	2 e	541	3 e										
Scientific research and development services	5417	1,480	2,811	20	i	* e	56	1	i	890	47	70	4	2	i	117	21	i	1	e	4	i	26	i	19	i	2	i	4	i	11	i	1	i	2	i	76	429	i	65	52	5	27	9
Biotechnology research and development	541711	315	750	i	1	i	* e	8	i	0	251	2	i	34	1	* e	26	i	4	i	* e	* e	9	1	i	* i	* e	5	i	* i	* e	16	i	175	i	3	18	* e	1	i	2	i		
Physical, engineering, and life sciences (except biotechnology) research and development	541712	1,134	2,029	19	i	0	48	1	i	634	45	37	i	3	2	i	90	17	i	1	e	4	i	17	i	18	i	1	i	4	i	7	1	i	2	i	58	253	62	34	i	5	23	6

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Social sciences and humanities research and development	541720	31	32	* e	0	* e	0	6	* e	* e	* e	* i	* e	*	* i	* e	* e	* e	* e	* e	* e	* e	* e	1 i	1 e	* e	* e	* e	3 i	*	
Other professional, scientific, and technical services	other 54	1,008	2,962	8 e	1 e	16 e	2 e	345	30 i	9 e	3 e	17 e	53 e	88	1 e	7	133	8 e	3 e	4 e	4 e	8 e	2 e	46 e	125	29 e	46	1 e	8 e	1 e	
Health care services	621-23	241	782	2	* e	2 i	* e	456	1 e	1 e	* e	* e	33	1 e	* e	* e	2 e	1 e	* e	1	* e	1 e	* e	1 e	39	2 e	1 e	* e	1 e	* e	
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	286	939 i	8	1 e	6 i	5	174 i	14 i	11	3	1 e	23 i	9 i	1 e	1 e	36	12	4 i	6	20	5 i	1 i	9 i	115	13	11	1 e	12	1 e	
All companies (number of domestic employees)	-	29,999	317,731	868	27 e	4,743	340	105,769	3,542	6,101	1,463	230	4,441	4,273	114 i	1,398	11,822	4,988	2,225	1,469	752	228	261	3,335	18,084	17,454	6,601	198	3,466	121	
Micro companies ^b	-	3,507	1,044 i	11 e	1 e	8 e	2 e	240 i	26 i	18 i	1 e	3 e	41 i	15 e	1 e	2 e	33 e	14 e	5 e	4 e	3 e	4 e	2 e	63	122	i	24 e	23 i	2 e	10 e	4 i
Small companies	-	6,390	3,887 i	35 e	3 e	58 e	12 e	853 i	58 e	42 e	D	15 e	116 e	182 i	5 e	13 e	139 e	47 e	25 e	18 e	41 i	17 e	10 e	92 e	306	i	92 e	85 e	8 e	49 e	4 e
Medium companies	-	7,873	7,473 i	47 e	4 e	95 e	18 e	1,910	94 e	117 i	18 e	24 e	197 e	136 e	11 e	13 e	288 e	96 e	38 e	38 e	32 e	30 e	13 e	212 e	741	231 i	156 e	21 e	62 e	8 e	
Large companies	-	4,519	7,728	47 e	3 e	70	14 e	2,106	91	117	13 e	13 e	175 e	113 e	6 e	15 e	271 i	125	44 i	37 e	38	32 e	12 e	132	947	228	180	12 e	71	16	
250 - 499	-	1,567	11,438	81	2	74	13 e	3,953	216	76	39	4 e	152	150	3 e	12	269	164	36	53	36	9 e	3 e	132	1,141	280	241	13	102	16	
500 - 999	-	840	13,525	14	* e	113	5	3,943	184	104	D	12	517	120	6	13	424	116	67	51	47	7	14	211	1,148	491	332	3	56	1 e	
1,000 - 4,999	-	926	53,305	336	5	708	104	19,280	849	774	153	84	575	898	14	71 i	1,910	532	145	327	367	55	151	940	5,845	1,428	977	28	197 i	17	
5,000 - 9,999	-	226	35,887	90	* e	380	73	16,710	691	700	22	17 i	446	377	1 e	48	664	390	46	186	55	8	1 i	192	1,259	666	704	19	258	18	
10,000 - 24,999	-	146	53,384	44	1	644	29 i	14,530	254	856	849	20 i	814	843	56 i	1,074	3,868 i	3,201	1,028	569	45	9	32	535	2,286	1,940	1,356	44	1,117 i	19	
25,000 or more	-	98	118,339	61	5	2,441	56	38,424	882	3,139	95	9	1,170	1,255	5	114	3,575	189	706	138	36	27	11	708	3,439	11,815	2,345	23	1,429	12	

* = amount < \$500,000. D = data withheld to avoid disclosing operations of individual companies. e = estimated; more than 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 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 R&D and Innovation Survey does not include companies with fewer than five domestic employees.

^c Includes data reported on Form BRDI-1 that were not allocated to a specific state as well as data reported on Form BRDI-1(S) by multiestablishment companies. For single-establishment companies, data reported on Form BRDI-1(S) were allocated to the state in the address used to mail the survey form.

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.

Source(s)

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