

TABLE 34

## Domestic R&amp;D paid for by others and performed by the company, by type of cost, industry, and company size: 2016

(Millions of U.S. dollars)

Industry and company size	NAICS code	Total	Salaries, wages, and fringe benefits	Stock-based compensation	Temporary staffing	Expensed equipment	Materials and supplies	Lease and rental payments	Depreciation	Royalties and licensing fees	Other purchased services (except R&D)	Other
All industries	21-23, 31-33, 42-81	56,954	34,074	576	1,868	424	5,101	993	1,154	56	2,912	9,797
Manufacturing industries	31-33	38,893	23,258	372	1,300	291	4,019	621	801	43 i	1,391	6,796
Food	311	217	133	0	8	*	15	10	7	0	10	35
Beverages and tobacco products	312	D	D	0	3	4	7	4	10	0	12	D
Textiles, apparel, and leather products	313-16	9	5	0	0	0	2	0	0	0	0	3
Wood products	321	7 i	4	D	* i	* i	1	D	* i	* i	* i	D
Paper	322	*	D	* i	D	0	*	D	D	0	D	D
Printing and related support activities	323	* i	D	D	D	* i	D	* i	D	0	* i	D
Petroleum and coal products	324	14	9	0	0	D	D	*	D	0	D	D
Chemicals	325	9,410	4,579	348	485	57	516	251	365	22	477	2,310 i
Basic chemicals	3251	261	174	*	D	14	24	D	14	*	16	D
Resins, synthetic rubber, and artificial synthetic fibers and filaments	3252	18	D	0	* i	D	D	*	D	0	0	D
Pesticides, fertilizers, and other agricultural chemicals	3253	D	D	0	D	*	18	D	D	0	0	D
Pharmaceuticals and medicines	3254	8,644	4,126	348	353 i	40	467	233	319	22	457	2,279 i
Soaps, cleaning compounds, and toilet preparations	3256	141	91	0	11	0	5	9	D	0	3	D
Paints, coatings, adhesives, and other chemicals	3255, 3259	D	17	0	D	D	D	* i	D	0	* i	D
Plastics and rubber products	326	169	27	0	2	83	48	1 i	2	0	1 i	4 i
Nonmetallic mineral products	327	14	10	0	0	*	3	0	*	0	0	2
Primary metals	331	10	6	0	0	0	4	0	0	0	*	*
Fabricated metal products	332	112 i	42	0	D	*	15 i	3 i	* i	2 i	* i	D
Machinery	333	886	609	*	11	2	174	5	25	*	9	51 i
Agricultural implements	33311	12	9	0	*	1	1	*	1	*	* i	1
Semiconductor machinery	333242	383	326	*	1	*	26	*	20	0	4	5
Engines, turbines, and power transmission equipment	3336	58 i	22	0	* i	0	7 i	*	*	0	0	29 i
Other machinery	other 333	432	252	* i	10	1 i	141	5	4	0	5	15
Computer and electronic products	334	8,869	6,083	24	415	55	742	101	209	14 i	227	1,000
Communications equipment	3342	1,818 i	1,427	2	102 i	9 i	29 i	7	37 i	9 i	45 i	151 i
Semiconductors and other electronic components	3344	2,215	1,456	9	110	23	77	68	87	3	154	227
Navigational, measuring, electromedical, and control instruments	3345	4,753	3,137	11	197	22	633	24	83	2	23	620
Electromedical, electrotherapeutic, and irradiation apparatuses	334510, 334517	165	112	0	6	1	12	6	3	0	0	25
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	4,412	2,924	11	174	19	606	16	74	2	21	565
Other measuring and controlling devices	other 3345	176	100	1	17	3	16	1	6	0	2	31
Other computer and electronic products	other 334	82	63	1	6	*	2	2	2	*	4	2
Electrical equipment, appliances, and components	335	469 i	344	0	14 i	3 i	39 i	10 i	11 i	0	3 i	45 i

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Transportation equipment	336	18,371	11,219	0	346	78	2,422	234	169	5 i	640	3,257
Automobiles, bodies, trailers, and parts	3361-63	2,749	1,355	0	193	D	599	107	114	5 i	D	D
Aerospace products and parts	3364	14,373	9,137	0	D	41	1,634	107	40	*	527	D
Aircraft, aircraft engines, and aircraft parts	336411-13	13,291	8,663	0	111	41	1,159	107	40	*	527	2,643
Guided missiles, space vehicles, and related parts	336414-15, 336419	1,083 i	474	0	D	1	475	*	*	0	* i	D
Military armored vehicles, tanks, and tank components	336992	D	D	0	*	0	D	D	*	0	*	D
Other transportation	other 336	D	D	0	D	D	D	D	15 i	* i	D	D
Furniture and related products	337	*	D	0	D	D	D	D	0	0	0	* i
Miscellaneous	339	D	127	0	16	8	32	2	2	*	11	D
Medical equipment and supplies	3391	194	97	0	14	6	29	2	1	*	11	32
Other miscellaneous manufacturing	3399	D	30	0	2 i	2 i	2 i	*	1 i	0	*	D
Nonmanufacturing industries	21-23, 42-81	18,061	10,816	203	568	132	1,082	372	353	13	1,520 i	3,002
Mining, extraction, and support activities	21	400	225	3	23	*	30	16	11	3	D	D
Utilities	22	26	8	*	2	1	D	D	0	0	D	D
Wholesale trade	42	10 i	7	0	1	0	D	D	*	0	0	D
Electronic shopping and electronic auctions	454111-12	0	0	0	0	0	0	0	0	0	0	0
Transportation and warehousing	48-49	3	2	0	0	1	0	0	0	0	0	0
Information	51	674	486	42	10	3	17	12	16	*	42	44
Publishing	511	400	294	21	6	3	9	7	8	0	39	13
Newspaper, periodical, book, and directory publishers	5111	3 i	2	*	* i	* i	* i	* i	* i	0	* i	* i
Software publishers	5112	397	292	21	6	3	9	7	8	0	39	13
Telecommunications	517	D	33	0	3	*	1	3	D	*	1	D
Data processing, hosting, and related services	518	138	108	D	2	*	2	2	3	0	2	D
Other information	other 51	D	52	D	1	0	6	0	D	0	0	D
Finance and insurance	52	94	94	0	0	0	0	0	0	0	0	0
Real estate and rental and leasing	53	0	0	0	0	0	0	0	0	0	0	0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0	0	0	0	0	0
Other real estate and rental and leasing	other 53	0	0	0	0	0	0	0	0	0	0	0
Professional, scientific, and technical services	54	16,750	9,915	158	530	127	1,019	339	325	11	1,474 i	2,854
Architectural, engineering, and related services	5413	1,596	1,011	1	48	5	113	24	4	*	93	298
Computer systems design and related services	5415	2,492 i	1,671	77	16 i	46 i	33 i	97	21	0	61	470
Scientific research and development services	5417	12,031	6,721	72	455	71	862	201	295 i	10	1,311 i	2,032
Biotechnology research and development	541711	3,714	2,086	28	180	7	251	58	D	1	620	D
Physical, engineering, and life sciences (except biotechnology) research and development	541712	7,630	4,155	38	262 i	59	609	126	249 i	9	682 i	1,440 i

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Social sciences and humanities research and development	541720	687	479	6	13	6	2	17	D	*	9	D
Other professional, scientific, and technical services	other 54	632	512	8	11	5	12	16	5	*	9	55
Health care services	621-23	66	49	0	*	*	5	3	*	*	4	5
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	38	30	0	1	*	3	1	1	0	1	2
All companies (number of domestic employees)	-	56,954	34,074	576	1,868	424	5,101	993	1,154	56	2,912	9,797
Micro companies <sup>a</sup>												
5 - 9	-	536	326	7	24	17	44	12	6	*	22	78
Small companies												
10 - 19	-	1,071	673	7	29	19	99	38	13	2	30	161
20 - 49	-	2,189	1,303	8	68	42	285	55	20	4	42	361
Medium companies												
50 - 99	-	1,570	999	21	65	15	150	59	29	3	40	189
100 - 249	-	3,153	1,919	27	213	42	268	72	55	2	67	487
Large companies												
250 - 499	-	1,654	1,035	64	49	24	112	43	62	2	46	217
500 - 999	-	924	542	24	22	26	76	37	20	2	29	147
1,000 - 4,999	-	10,666	5,741	258	449	124	945	244	428	12	848	1,616
5,000 - 9,999	-	4,746	2,667	D	228	5	282	29	53	3	245	D
10,000 - 24,999	-	12,210	6,837	124	349	30	1,574	219	349	24	938	1,765
25,000 or more	-	18,232	12,032	D	371	79	1,264	184	118	2	605	D

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

**Source(s)**

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