

TABLE 83

**Domestic R&D paid for by others and performed by the company, depreciation, capital expenditures, and adjusted domestic R&D, by industry and company size: 2016**

(Millions of U.S. dollars and percent)

Industry and company size	NAICS code	Domestic R&D paid for by others and performed by the company	Depreciation	Capital expenditures related to R&D <sup>a</sup>	Adjusted domestic R&D paid for by the company and others	Change	
						Amount	Percent
All industries	21-23, 31-33, 42-81	56,954	1,154	0	55,800	-1,154	-2.0
Manufacturing industries	31-33	38,893	801	0	38,092	-801	-2.1
Food	311	217	7	0	210	-7	-3.1
Beverage and tobacco products	312	D	10	0	D	-10	D
Textile, apparel, and leather products	313-16	9	0	0	9	0	0.0
Wood products	321	7 i	* i	0	7 i	* i	-3.7
Paper	322	*	D	0	D	D	D
Printing and related support activities	323	* i	D	0	D	D	D
Petroleum and coal products	324	14	D	0	D	D	D
Chemicals	325	9,410	365	0	9,045 i	-365	-3.9
Basic chemicals	3251	261	14	0	247 i	-14 i	-5.2
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	18	D	0	D	D	D
Pesticide, fertilizer, and other agricultural chemicals	3253	D	D	0	D	D	D
Pharmaceuticals and medicines	3254	8,644	319	0	8,325 i	-319	-3.7
Soap, cleaning compound, and toilet preparation	3256	141	D	0	D	D	D
Paint, coating, adhesive, and other chemicals	3255, 3259	D	D	0	D	D	D
Plastics and rubber products	326	169	2	0	167 i	-2 i	-1.3
Nonmetallic mineral products	327	14	*	0	14	*	-2.9
Primary metals	331	10	0	0	10 i	0	0.0
Fabricated metal products	332	112 i	* i	0	112 i	* i	-0.3
Machinery	333	886	25	0	861	-25	-2.8
Agricultural implement	33311	12	1	0	11	-1	-8.0
Semiconductor machinery	333242	383	20	0	363	-20	-5.2
Engine, turbine, and power transmission equipment	3336	58 i	* i	0	58 i	* i	-0.5
Other machinery	other 333	432	4	0	428	-4	-0.8
Computer and electronic products	334	8,869	209	0	8,660	-209	-2.4
Communications equipment	3342	1,818 i	37 i	0	1,781 i	-37 i	-2.1
Semiconductor and other electronic components	3344	2,215	87	0	2,128	-87	-3.9
Navigational, measuring, electromedical, and control instruments	3345	4,753	83	0	4,670	-83	-1.7
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	165	3	0	162	-3	-1.7
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	4,412	74	0	4,338	-74	-1.7
Other measuring and controlling device	other 3345	176	6	0	170	-6	-3.3
Other computer and electronic products	other 334	82	2	0	80	-2	-2.3
Electrical equipment, appliances, and components	335	469 i	11 i	0	458 i	-11 i	-2.3
Transportation equipment	336	18,371	169	0	18,201	-169	-0.9

TABLE 83

**Domestic R&D paid for by others and performed by the company, depreciation, capital expenditures, and adjusted domestic R&D, by industry and company size: 2016**

(Millions of U.S. dollars and percent)

Industry and company size	NAICS code	Domestic R&D paid for by others and performed by the company	Depreciation	Capital expenditures related to R&D <sup>a</sup>	Adjusted domestic R&D paid for by the company and others	Change	
						Amount	Percent
Motor vehicles, bodies, trailers, and parts	3361-63	2,749	114	0	2,634	-114	-4.2
Aerospace products and parts	3364	14,373	40	0	14,333	-40	-0.3
Aircraft, aircraft engine, and aircraft parts	336411-13	13,291	40	0	13,251	-40	-0.3
Guided missile, space vehicle, and related parts	336414-15, 336419	1,083 i	*	0	1,083 i	*	*
Military armored vehicle, tank, and tank component	336992	D	*	0	D	*	D
Other transportation	other 336	D	15 i	0	D	-15 i	D
Furniture and related products	337	*	0	0	*	0	0.0
Miscellaneous	339	D	2	0	D	-2	D
Medical equipment and supplies	3391	194	1	0	193	-1	-0.6
Other miscellaneous manufacturing	3399	D	1 i	0	D	-1 i	D
Nonmanufacturing industries	21-23, 42-81	18,061	353	0	17,708	-353 i	-2.0
Mining, quarrying, oil and gas extraction, and support activities	21	400	11	0	389	-11	-2.7
Utilities	22	26	0	0	26	0	0.0
Wholesale trade	42	10 i	*	0	10 i	*	-0.6
Electronic shopping and electronic auctions	454111-12	0	0	0	0	0	0.0
Transportation and warehousing	48-49	3	0	0	3	0	0.0
Information	51	674	16	0	658	-16	-2.4
Publishing	511	400	8	0	392	-8	-2.0
Newspaper, periodical, book, and directory publishers	5111	3 i	*	i	3 i	*	-1.8
Software publishers	5112	397	8	0	389	-8	-2.0
Telecommunications	517	D	D	0	D	D	D
Data processing, hosting, and related services	518	138	3	0	135	-3	-2.2
Other information	other 51	D	D	0	D	D	D
Finance and insurance	52	94	0	0	94	0	0.0
Real estate and rental and leasing	53	0	0	0	0	0	0.0
Lessors of nonfinancial intangible assets (except copyrighted works)	533	0	0	0	0	0	0.0
Other real estate and rental and leasing	other 53	0	0	0	0	0	0.0
Professional, scientific, and technical services	54	16,750	325	0	16,425 i	-325 i	-1.9
Architectural, engineering, and related services	5413	1,596	4	0	1,592 i	-4	-0.2
Computer systems design and related services	5415	2,492 i	21	0	2,471 i	-21 i	-0.8
Scientific research and development services	5417	12,031	295 i	0	11,735	-295 i	-2.5
Research and development in biotechnology	541711	3,714	D	0	D	D	D
Research and development in the physical, engineering, and life sciences (except biotechnology)	541712	7,630	249 i	0	7,380 i	-249 i	-3.3
Research and development in the social sciences and humanities	541720	687	D	0	D	D	D
Other professional, scientific, and technical services	other 54	632	5	0	627	-5	-0.7
Health care services	621-23	66	*	0	66 i	*	-0.4

TABLE 83

**Domestic R&D paid for by others and performed by the company, depreciation, capital expenditures, and adjusted domestic R&D, by industry and company size: 2016**

(Millions of U.S. dollars and percent)

Industry and company size	NAICS code	Domestic R&D paid for by others and performed by the company	Depreciation	Capital expenditures related to R&D <sup>a</sup>	Adjusted domestic R&D paid for by the company and others	Change	
						Amount	Percent
Other nonmanufacturing	23, 44–45 (excluding 454111–12), 55–56, 624, 71–72, 81	38	1	0	37	-1	-1.9
All companies (number of domestic employees)	–	56,954	1,154	0	55,800	-1,154	-2.0
Micro companies <sup>b</sup>							
5–9	–	536	6	0	530	-6	-1.2
Small companies							
10–19	–	1,071	13	0	1,058	-13	-1.2
20–49	–	2,189	20	0	2,169	-20	-0.9
Medium companies							
50–99	–	1,570	29	0	1,541	-29	-1.9
100–249	–	3,153	55	0	3,098	-55	-1.8
Large companies							
250–499	–	1,654	62	0	1,592	-62	-3.8
500–999	–	924	20	0	905	-20	-2.1
1,000–4,999	–	10,666	428	0	10,238	-428	-4.0
5,000–9,999	–	4,746	53	0	4,693	-53	-1.1
10,000–24,999	–	12,210	349	0	11,861	-349	-2.9
25,000 or more	–	18,232	118	0	18,114	-118	-0.6

\* =  $-\$500,000 < \text{amount} < \$500,000$  (or  $-0.05\% < \text{amount} < 0.05\%$ ); D = data withheld to avoid disclosing operations of individual companies; i = more than 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> Capital expenditures related to R&D are assumed to be \$0 for domestic R&D paid for by others and performed by the company.

<sup>b</sup> The Business R&D and Innovation Survey did not include companies with fewer than 5 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. To enable comparisons between U.S. Business Enterprise Research and Development (BERD) Survey statistics and those of other nations, in this table an internationally comparable adjusted domestic R&D estimate is calculated by subtracting depreciation relating to R&D operations, which was *included* in U.S. BERD domestic R&D, and adding capital expenditures relating to R&D operations, which was *excluded* from U.S. BERD domestic R&D.

**Source(s):**

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