

TABLE 49

## Domestic R&amp;D performance by source of funds and performer, by industry and company size: 2016

(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				
			Total	Paid for by the U.S. government			Paid for by non-U.S. government sources						
All industries	21-23, 31-33, 42-81	355,230	37,499		317,731	66,309	9,355		56,954	23,772		33,182	
Manufacturing industries	31-33	245,400	33,740		211,660	46,285	7,392		38,893	19,217		19,676	
Food	311	4,751	140		4,611	217	*		217	2		215	
Beverages and tobacco products	312	1,170	183		987	D	0		D	0		D	
Textiles, apparel, and leather products	313-16	1,168	i 12	i	1,156	i 10	1		9	5		4	
Wood products	321	191	10		181	D	D		7	i *	i	7	i
Paper	322	854	3		851	*	*	i	*	*	i	*	
Printing and related support activities	323	221	i 2		219	i D	D		* i	*	i	* i	
Petroleum and coal products	324	423	56		367	D	D		14	0		14	
Chemicals	325	91,357	27,193		64,165	13,592	4,182		9,410	212		9,199	
Basic chemicals	3251	2,392	109		2,284	263	2		261	46		215	
Resins, synthetic rubber, and artificial synthetic fibers and filaments	3252	710	17		693	18	*		18	1	i	17	
Pesticides, fertilizers, and other agricultural chemicals	3253	D	D		1,061	i D	D		D	2		D	
Pharmaceuticals and medicines	3254	82,611	26,628		55,983	12,793	4,149		8,644	147		8,498	
Soaps, cleaning compounds, and toilet preparations	3256	3,031	372		2,660	168	27		141	*		141	
Paints, coatings, adhesives, and other chemicals	3255, 3259	D	D		1,484	D	D		D	16	i	D	
Plastics and rubber products	326	3,735	151		3,584	172	3	i	169	4		165	
Nonmetallic mineral products	327	1,572	297		1,274	15	1		14	6		9	
Primary metals	331	619	36	i	583	D	D		10	6		4	
Fabricated metal products	332	2,207	80		2,127	144	i 31	i	112	i 12		100	i
Machinery	333	12,135	435		11,699	919	33		886	152		733	
Agricultural implements	33311	1,735	182		1,552	13	*		12	3		10	
Semiconductor machinery	333242	3,028	*		3,028	404	22		383	3		380	
Engines, turbines, and power	3336	1,908	7		1,901	60	i 2		58	i 41	i	17	

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transmission equipment													
Other machinery	other 333	5,464	246	5,218	441	9	432	106	326				
Computer and electronic products	334	69,829	1,313	68,515	9,123	254	8,869	4,410	4,459				
Communications equipment	3342	11,533	240	11,293	1,861	43	1,818	787	1,032	i			i
Semiconductors and other electronic components	3344	29,562	386	29,176	2,261	46	2,215	278	1,937				
Navigational, measuring, electromedical, and control instruments	3345	10,419	288	10,131	4,916	162	4,753	3,320	1,434				
Electromedical, electrotherapeutic, and irradiation apparatuses	334510, 334517	2,516	50	2,466	167	2	165	1	164	i			
Search, detection, navigation, guidance, aeronautical, and nautical systems and instruments	334511	3,246	126	3,121	4,569	156	4,412	3,274	1,138				
Other measuring and controlling devices	other 3345	4,656	112	4,544	180	4	176	45	131				
Other computer and electronic products	other 334	18,314	399	17,914	85	3	82	26	57				
Electrical equipment, appliances, and components	335	4,451	149	4,302	479	10	469	46	422	i			i
Transportation equipment	336	35,654	2,749	32,905	21,213	2,843	18,371	14,325	4,045				
Automobiles, bodies, trailers, and parts	3361-63	21,292	1,999	19,293	2,886	137	2,749	D	D				
Aerospace products and parts	3364	12,980	708	12,272	17,076	2,702	14,373	12,904	1,469				
Aircraft, aircraft engines, and aircraft parts	336411-13	12,517	587	11,930	15,993	2,702	13,291	11,839	1,452				
Guided missiles, space vehicles, and related parts	336414-15, 336419	463	121	342	1,083	1	1,083	1,065	17	i			
Military armored vehicles, tanks, and tank components	336992	3	0	3	D	0	D	D	D				
Other transportation	other 336	1,379	42	1,337	D	3	D	D	D				
Furniture and related products	337	391	25	366	*	0	*	*	*	i			*

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Miscellaneous manufacturing	339	14,673	904	13,768	264	D	D	36	D	
Medical equipment and supplies	3391	12,289	815	11,474	219	25	194	27	167	
Other miscellaneous manufacturing	3399	2,383	i 89	i 2,294	i 45	D	D	10	i D	
Nonmanufacturing industries	21-23, 42-81	109,830	3,759	106,071	20,024	1,963	18,061	4,555	13,506	
Mining, extraction, and support activities	21	3,169	273	2,897	400	0	400	2	397	
Utilities	22	515	190	325	40	14	26	D	D	
Wholesale trade	42	519	i 77	i 442	i 13	i 3	i 10	0	10	
Electronic shopping and electronic auctions	454111-12	1,581	i 13	i 1,569	i 0	0	0	0	0	
Transportation and warehousing	48-49	501	16	486	3	0	3	3	0	
Information	51	72,073	1,999	70,075	747	73	674	25	649	
Publishing	511	34,507	1,333	33,174	468	68	400	7	393	
Newspaper, periodical, book, and directory publishers	5111	82	i 6	i 77	i 3	i *	i 3	i *	i 3	
Software publishers	5112	34,425	1,327	33,098	465	68	397	7	390	
Telecommunications	517	3,711	i 181	i 3,530	D	0	D	*	D	
Data processing, hosting, and related services	518	12,045	270	11,776	143	5	138	16	122	
Other information	other 51	21,810	215	21,594	D	*	D	2	D	
Finance and insurance	52	7,332	95	7,237	94	0	94	0	94	
Real estate and rental and leasing	53	478	3	475	0	0	0	0	0	
Lessors of nonfinancial intangible assets (except copyrighted works)	533	30	3	27	0	0	0	0	0	
Other real estate and rental and leasing	other 53	449	*	449	0	0	0	0	0	
Professional, scientific, and technical services	54	21,837	993	20,845	18,601	1,851	16,750	4,496	12,254	
Architectural, engineering, and related services	5413	1,917	101	1,816	1,958	362	1,596	964	632	
Computer systems design and related services	5415	13,361	107	13,255	2,588	97	2,492	i 583	1,908	

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Scientific research and development services	5417	3,578	766	i	2,811	13,319	1,288	12,031	2,675	9,356		
Biotechnology research and development	541711	1,127	377	i	750	3,819	105	3,714	93	3,621		
Physical, engineering, and life sciences (except biotechnology) research and development	541712	2,418	389		2,029	8,695	1,065	i 7,630	1,956	5,674 i		
Social sciences and humanities research and development	541720	32	0		32	805	118	687	626	61		
Other professional, scientific, and technical services	other 54	2,981	19		2,962	737	104	632	274	358		
Health care services	621-23	805	23	i	782	68	2	66	2	64 i		
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	1,018	i 79		939	i 59	21	38	D	D		
All companies (number of domestic employees)	-	355,230	37,499		317,731	66,309	9,355	56,954	23,772	33,182		
Micro companies <sup>a</sup>												
5-9	-	1,299	i 255		1,044	i 626	i 90	i 536	i 263	i 273	i	
Small companies												
10-19	-	4,455	i 569		3,887	i 1,234	i 163	i 1,071	i 393	i 678	i	
20-49	-	8,821	1,348		7,473	i 2,499	310	2,189	899	1,290 i		
Medium companies												
50-99	-	9,251	1,523		7,728	1,963	393	1,570	451	1,120		
100-249	-	13,681	1,960		11,722	3,895	741	3,153	839	2,315		
Large companies												
250-499	-	12,579	1,141		11,438	1,951	296	1,654	462	1,193		
500-999	-	15,009	1,484		13,525	1,209	285	924	258	666		
1,000-4,999	-	60,616	7,311		53,305	12,607	1,940	10,666	1,134	9,532		
5,000-9,999	-	38,311	2,424		35,887	5,784	1,038	4,746	1,132	i 3,614		
10,000-24,999	-	64,542	11,158		53,384	13,429	1,219	12,210	3,994	8,216 i		
25,000 or more	-	126,664	8,325		118,339	21,112	2,880	18,232	13,948	i 4,284		

\* = amount < \$500,000; D = data withheld to avoid disclosing operations of individual companies; i = > 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&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.

**Source(s)**

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