

TABLE 57

R&D costs paid for by the company and others projected for 2021, by industry and company size: 2020

(Millions of U.S. dollars)

Industry and company size	NAICS code	Projected worldwide R&D cost		Projected domestic R&D cost						Projected foreign R&D cost paid for by the company
		Paid for by the company	Paid for by others	Paid for by the company			Paid for by others			
				Total	Purchased and collaborative R&D	R&D performed by the company	Total	U.S. government	Non-U.S. government sources	
All industries	21-23, 31-33, 42-81	692,741	99,058	574,938	45,995	528,942	77,900	30,938	46,962	117,803
Manufacturing industries	31-33	426,130	55,475	347,220	41,242	305,977	47,035	22,348	24,687	78,910
Food	311	6,590	245	5,293	262	5,031	237	0	237	1,297
Beverage and tobacco products	312	2,163	101	1,186	155	1,031	101	0	101	977
Textile, apparel, and leather products	313-16	1,014	9	858	10	848	9	5	4	156
Wood products	321	218	4	210	12	199	4	*	4	8 i
Paper	322	965	1	836	3	833	1	0	1	129
Printing and related support activities	323	285	1	275	2	272	1	0	1	11
Petroleum and coal products	324	1,348	102	1,237	157	1,080	91 - 103	0	91 - 103	111
Chemicals	325	174,901	18,651	147,940	30,563	117,377	13,254	1,287	11,967	26,961
Basic chemicals	3251	3,860	163	2,924	49	2,875	158	4	154	936
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	1,880	106	1,315	19	1,297	63 - 91	0 - 28	63	565
Pesticide, fertilizer, and other agricultural chemicals	3253	1,029	305	873	101	772	279 - 306	0	279 - 306	157
Pharmaceuticals and medicines	3254	162,311	17,818	138,317	30,109	108,209	12,473	1,257	11,216	23,994
Soap, cleaning compound, and toilet preparation	3256	3,691	224	2,787	248	2,538	218	0	218	904
Paint, coating, adhesive, and other chemicals	3255, 3259	2,130	35	1,724	37	1,687	34	0 - 27	8 - 35	406
Plastics and rubber products	326	3,365	26	2,724	41	2,682	23	*	23	641
Nonmetallic mineral products	327	2,133	91	1,881	119	1,762	88	2	86	252
Primary metals	331	1,011	20	963	21	942	19	1	18	48
Fabricated metal products	332	3,705	73	3,350	166	3,183	61	11	50	356
Machinery	333	21,023	1,433	16,333	425	15,908	1,337	146	1,191	4,689
Agricultural implement	33311	2,837	71	1,919	174	1,745	43 - 72	*	42 - 72	918
Semiconductor machinery	333242	5,459	816	4,396	6	4,390	801	*	800	1,063
Engine, turbine, and power transmission equipment	3336	2,173	206	1,639	10	1,629	153	74	78	534
Other machinery	other 333	10,554	339	8,379	236	8,144	311 - 340	71	240 - 269	2,175
Computer and electronic products	334	133,657	11,730	102,969	3,198	99,771	10,382	5,292	5,090	30,689
Communications equipment	3342	15,703	1,313	12,118	810	11,308	1,133	433 - 636	496 - 699	3,585
Semiconductor and other electronic components	3344	65,479	3,019	49,231	308	48,923	2,659	95	2,564	16,248

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Navigational, measuring, electromedical, and control instruments	3345	14,811	7,178	11,589	278	11,311	6,391	4,562	1,828	3,222
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	3,623	288	3,033	96	2,937	277	24	253	590
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	4,032	6,143	3,510	71	3,438	5,593	4,486	1,107	523
Other measuring and controlling device	other 3345	7,156	747	5,047	111	4,936	521	53	468	2,109
Other computer and electronic products	other 334	37,663	i 219	30,030	i 1,801	i 28,229	i 200	0 - 201	0 - 201	7,634
Electrical equipment, appliances, and components	335	6,678	695	4,773	79	4,694	649	48	601	1,905
Transportation equipment	336	41,414	22,015	35,481	5,076	30,404	20,544	15,509	5,035	5,933
Motor vehicles, bodies, trailers, and parts	3361-63	28,517	4,007	i 23,221	3,941	19,279	3,440	i 44 - 1,164	2,275 - 3,396	i 5,296
Aerospace products and parts	3364	11,004	16,861	10,567	1,071	9,496	15,986	14,346	1,640	437
Aircraft, aircraft engine, and aircraft parts	336411-13	10,228	16,077	9,803	939	8,864	15,203	13,589	i 1,614	425
Guided missile, space vehicle, and related parts	336414-15, 336419	776	784	764	132	632	784	757	26	12
Military armored vehicle, tank, and tank component	336992	4	i 1,119	4	i *	i 4	i 1,119	1,119	1	0
Other transportation	other 336	1,889	26 - 1,148	1,689	64	1,625	1,119	1,119	0 - 1,119	200
Furniture and related products	337	634	5	586	30	556	4	*	i 4	48
Miscellaneous	339	25,024	272	20,326	922	19,403	210 - 222	46	163 - 176	4,698
Medical equipment and supplies	3391	21,274	231	17,108	809	16,299	179	29	150	4,166
Other miscellaneous manufacturing	3399	3,750	42	i 3,218	113	3,105	30 - 42	i 17	13 - 26	i 532
Nonmanufacturing industries	21-23, 42-81	266,611	43,583	i 227,718	4,753	222,965	30,866	8,590	22,276	i 38,893
Mining, quarrying, oil and gas extraction, and support activities	21	1,292	66	i 1,104	58	1,046	57	i 2	i 55	i 188
Utilities	22	389	46	382	197	185	45	41	5	6
Wholesale trade	42	1,245	i 95	1,182	i 136	1,046	i 36	i 0	36	i 62
Electronic shopping and electronic auctions	454111-12	39 - 31,592	i 0 - 132	25,496	i 40	25,457	i 0 - 132	0	0 - 132	0 - 6,100
Transportation and warehousing	48-49	4,475 - 10,576	i 3	4,476	i 137	4,338	i 3	0	3	6,100
Information	51	174,810	1,297	147,041	1,846	145,195	1,186	337	849	27,769
Publishing	511	48,499	667	39,611	838	38,773	586	60	526	8,889

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Newspaper, periodical, book, and directory publishers	5111	68	0	68	3	64	0	0	0	0
Software publishers	5112	48,432	667	39,543	834	38,709	586	60	526	8,889
Telecommunications	517	4,097	5 - 156	3,993	453	3,539	5 - 156	6	0 - 150	104
Data processing, hosting, and related services	518	57,551	475	47,055	394	46,661	445	270	175	10,497
Other information	other 51	64,662	0 - 151	56,383	161	56,222	0 - 151	1	0 - 150	8,279
Finance and insurance	52	14,687	111	13,128	299	12,829	21	0	21	1,560
Real estate and rental and leasing	53	2,106	*	2,015	0	2,015	*	0	*	91
Lessors of nonfinancial intangible assets (except copyrighted works)	533	6	*	4	0	4	*	0	*	2
Other real estate and rental and leasing	other 53	2,100	0	2,011	0	2,011	0	0	0	90
Professional, scientific, and technical services	54	34,019	41,732	30,959	1,346	29,613	29,288	8,198	21,089	3,060
Architectural, engineering, and related services	5413	2,540	2,559	2,513	147	2,366	2,403	1,897	506	27
Computer systems design and related services	5415	15,210	3,901	12,877	247	12,629	3,778	851	2,927	2,334
Scientific research and development services	5417	10,037	34,026	9,629	857	8,772	21,891	4,576	17,315	407
Research and development in nanotechnology	541713	151	67	150	*	150	63	26	36	2
Research and development in biotechnology (except nanobiotechnology)	541714	2,087	8,688	1,874	435	1,439	5,552	195	5,357	213
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	7,762	24,549	7,569	422	7,147	15,554	3,688	11,867	192
Research and development in the social sciences and humanities	541720	36	722	36	0	36	722	667	55	*
Other professional, scientific, and technical services	other 54	6,232	1,246	5,940	94	5,846	1,215	874	342	292
Health care services	621-23	1,929	103	1,868	622	1,246	101	11	90	60
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81	70 - 31,623	0 - 135	70 - 25,527	71	0 - 25,457	0 - 133	1	0 - 132	0 - 6,100
All companies (number of domestic employees)	-	692,741	99,058	574,938	45,995	528,942	77,900	30,938	46,962	117,803
Small companies										
10-19 ^a	-	5,721	1,257	5,119	917	4,202	1,125	666	458	602
20-49	-	17,350	2,621	16,090	2,820	13,270	2,293	983	1,310	1,260
Medium companies										
50-99	-	16,315	2,559	14,998	2,155	12,843	2,061	646	1,416	1,318
100-249	-	33,881	3,995	30,767	3,874	26,894	3,627	1,711	1,915	3,114

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Large companies												
250–499	–	24,984	3,566	21,902	1,900	20,002	3,253	1,336	1,918	3,082		
500–999	–	25,181	3,524	21,723	2,561	19,162	3,139	638	2,501	3,458		
1,000–4,999	–	110,246	15,434	88,192	4,823	83,369	13,596	2,942	10,654	22,054		
5,000–9,999	–	70,452	9,975	60,176	4,138	56,038	6,319	768	5,551	10,276		
10,000–24,999	–	107,416	27,902	88,034	11,821	76,213	17,911	1,345	16,566	19,383		
25,000 or more	–	281,195	28,225	227,937	10,987	216,950	24,577	19,903	4,673	53,258		

* = amount < \$500,000; i = more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse.

NAICS = 2017 North American Industry Classification System.

^a The Business Enterprise 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 \$50,000 or more of R&D and are not comparable with estimates published for years prior to 2018. 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 Census Bureau, Business Enterprise Research and Development Survey, 2020.