TABLE 22

Companies with domestic R&D paid for by the company and others and performed by the company in the artificial intelligence technology focus area, by industry and company size: 2020

(Millions of U.S. dollars and number of companies)

				Artificial intelligence R&D							
Industry and company size	NAICS code	Domestic R&D		Total		Paid for by the company		Paid for	by others		
		Companies ^a (number)	Amount	Companies (number)	a Amount	Companies (number)	a Amount	Companies (number)			
All industries	21-23, 31-33, 42-81	30,360	537,619	3,580 i	20,644	i 3,270 i	18,613	490	i 2,030		
Manufacturing industries	31-33	15,920	308,445	1,100 i	6,636	1,060 i	6,345	80	291		
Food	311	970	5,239	20	9	20	8	10	1		
Beverage and tobacco products	312	240	1,177 i	10	1	10	1	0	0		
Textile, apparel, and leather products	313-16	230	822	20 i	8	20 i	8	0	0		
Wood products	321	130	187	0	0	0	0	0	0		
Paper	322	100	928	10	*	10	*	0	0		
Printing and related support activities	323	220	283	10 i	2	i 10 i	2	0	0		
Petroleum and coal products	324	100	1,311 - 1,324	10	1	10	1	0	0		
Chemicals	325	2,550	101,079	50	450	50	444	10	6		
Basic chemicals	3251	300	2,694	10	20	10	16	10	5		
Resin, synthetic rubber, and artificial synthetic fibers and filaments	3252	150	1,234	10	*	10	*	0	0		
Pesticide, fertilizer, and other agricultural chemicals	3253	130	1,060 - 1,066	10	1	10	1	0	0		
Pharmaceuticals and medicines	3254	1,230	91,776	30	417	30	417	0	0		
Soap, cleaning compound, and toilet preparation	3256	370	2,665	0	0	0	0	0	0		
Paint, coating, adhesive, and other chemicals	3255, 3259	400	1,643 - 1,649	10	11	10	10	10	1		
Plastics and rubber products	326	1,040	2,634	20	12	i 20	12	0	0		
Nonmetallic mineral products	327		1,717 i	20 i	28	i 20 i	28	0	0		
Primary metals	331	270	815	10 i	*	i 10 i	*	10	i *		
Fabricated metal products	332	2,270	3,396	30	23	i 30	23	0	0		
Machinery	333	2,120	16,223	210 i	374	i 200 i	371	10	3		
Agricultural implement	33311	160	1,769 - 1,811	20 i	58	i 20 i	58	0	0		
Semiconductor machinery	333242	60	4,807	10	1	10	*	10	1		
Engine, turbine, and power transmission equipment	3336	90	1,645	10 i	3	i 0	0	10	i 3		
Other machinery	other 333	1,830	7,959 - 8,001	180 i	312	180 i	312	10	*		
Computer and electronic products	334	2,220	99,535	340 i	3,497	i 320 i	3,384	40	i 113		
Communications equipment	3342	400	12,103	50 i	80	50 i	80	10	*		

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				Artificial intelligence R&D							
Industry and company size	NAICS code	Domestic R&D		Total		Paid for by the company		Paid for by		others	
		Companies ^a (number)	Amount	Companies (number)	a Amount	Companie (number		Compan (numbe		Amount	
Semiconductor and other electronic components	3344	570	43,181	100 i	1,433	i 90	i 1,403	i 10		31 i	
Navigational, measuring, electromedical, and control instruments	3345	1,060	18,505	160 i	606	i 150	i 527	30	i	79 i	
Electromedical, electrotherapeutic, and irradiation apparatus	334510, 334517	190	2,858	40 i	256	i 30	i 254	i 10	i	2	
Search, detection, navigation, guidance, aeronautical, and nautical system and instrument	334511	130	10,586	20 i	190	i 20	i 115	10		75 i	
Other measuring and controlling device	other 3345	740	5,061	110 i	160	110	i 158	20	i	2	
Other computer and electronic products	other 334	210	25,747	30 i	1,377	30	i 1,374	10		3	
Electrical equipment, appliances, and components	335	680	4,998	200 i	406	i 190	i 364	i 10	i	42 i	
Transportation equipment	336	980	48,796	60	1,212	50	1,090	20		122	
Motor vehicles, bodies, trailers, and parts	3361-63	490	23,121	30	753	20	725	10		28	
Aerospace products and parts	3364	340	22,914	i 30 i	446	i 30	i 353	i 10		93	
Aircraft, aircraft engine, and aircraft parts	336411-13	310	21,291	i 30 i	446	i 20	i 353	i 10		93	
Guided missile, space vehicle, and related parts	336414-15, 336419	40	1,623	10 i	*	i 10	*	10	i	* i	
Military armored vehicle, tank, and tank component	336992	10	11	0	0	0	0	0		0	
Other transportation	other 336	140	2,750	10	13	10	12	10		1	
Furniture and related products	337	240	496	10	2	i 10	2	i 0		0	
Miscellaneous	339	1,430	18,791 - 18,809	190 i	610	180	i 607	20	i	4	
Medical equipment and supplies	3391	840	16,116	160 i	594	160	i 590	20	i	4	
Other miscellaneous manufacturing	3399	600	2,674 - 2,692	30	16	30	16	0		0	
Nonmanufacturing industries	21-23, 42-81	14,460	229,174	2,490 i	14,008	i 2,210	i 12,268	i 410	i	1,739 i	
Mining, quarrying, oil and gas extraction, and support activities	21	300	1,165	10 i	4	i 10	i 4	i 0		0	
Utilities	22	50	264	10	3	10	3	0		0	
Wholesale trade	42	1,160	1,058	20 i	4	i 10	i 0 - 5	i 10	i	0 - 5 i	
Electronic shopping and electronic auctions	454111-12	90	3,840 - 19,390	i 10	0 - 1,264	i 10	0 - i 1,263	i 10		0 - 6	
Transportation and warehousing	48-49	60	4,957	i 10	7	10	7	0		0	
Information	51	3,810	129,463	810 i	5,789	790	i 5,729	30	i	60	
Publishing	511	1,680	35,025	350 i	1,641	340	i 1,631	10	i	10	
Newspaper, periodical, book, and directory publishers	5111	30	60	0	0	0	0	0		0	

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Industry and company size	NAICS code	Domestic R&D		Total		Paid for by the company		Paid for by		y others	
		Companies ^a (number)	Amount	Companies (number)	s ^a Amount	Compani (numbe		Compai (numb		Amount	
Software publishers	5112	1,650	34,965	350	i 1,641	340	i 1,631	10	i	10	
Telecommunications	517	140	3,425 - 3,437	20	137	20	93 - 138	10		0 - 44	
Data processing, hosting, and related services	518	1,660	41,551	410	2,355	410	2,348	10	i	8	
Other information	other 51	350	49,449 - 49,463	40	i 1,655	i 40	1,611 - i 1,656 i	10		0 - 44	
Finance and insurance	52	220	12,296	30	407	30	407	0		0	
Real estate and rental and leasing	53	60	3,249	10	0 - 1,263	10	0 - 1,263	0		0	
Lessors of nonfinancial intangible assets (except copyrighted works)	533	20	7	0	0	0	0	0		0	
Other real estate and rental and leasing	other 53	40	3,242	10	0 - 1,263	10	0 - 1,263	0		0	
Professional, scientific, and technical services	54	6,980	54,367	1,580	i 6,471	i 1,320	i 4,797 i	390	i	1,675 i	
Architectural, engineering, and related services	5413	1,390	4,214	170	i 150	i 90	i 60	100	i	91 i	
Computer systems design and related services	5415	2,780	17,935	880	i 1,635	i 830	i 1,291	110	i	344 i	
Scientific research and development services	5417	1,710	25,600	310	i 3,736	i 190	i 2,546 i	170	i	1,190 i	
Research and development in nanotechnology	541713	110 i	179	i 10	i 9	i 10	i 9 i	0		0	
Research and development in biotechnology (except nanobiotechnology)	541714	350	6,191	30	10 - i 1,202	i 20	i 11 i	10	i	0 - 1,191 i	
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	1,250	18,539	i 280	2,525 - i 3,717	i 170	i 2,526 i	160	i	0 - 1,191 i	
Research and development in the social sciences and humanities	541720	20	691	10	0 - 654	0	0	10		0 - 654	
Other professional, scientific, and technical services	other 54	1,110	6,618	230	i 950	220	i 900	20		50	
Health care services	621-23	620	1,477	20	i 37	20	i 37	0		0	
Other nonmanufacturing	23, 44-45 (excluding 454111-12), 55-56, 624, 71-72, 81		1,491 - 17,041	30	26	30	26	0		0	
ū	024, / 1 - / 2, 81	1,160						-	- ;	-	
All companies (number of domestic employees)	_	30,360	537,619	3,580	i 20,644	i 3,270	i 18,613 i	490	1	2,030 i	
Small companies		F 1 1 0	F 0.4=	200		. 745		100		40 :	
10-19 ^b	_	5,110	5,047	830	i 462		i 414 i		i	48 i	
20-49	_	9,510	12,994	1,230	i 778	i 1,170	i 672	130	i	106 i	

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						Artificial intel	ligence R&D		
		Domestic R&D		Total		Paid for by the company		Paid for	by others
Industry and company size	NAICS code	Companies (number)	a Amount	Companies (number)	a Amount	Companies ⁶ (number)	Amount	Companie (number	
Medium companies									
50-99	-	5,530	12,993	520 i	707	480 i	611	70	i 96
100-249	_	4,950	25,411	470 i	3,272 i	430 i	3,070 i	60	i 202
Large companies									
250-499	-	2,100	20,878	180	1,222	170	781	30	441
500-999	_	1,280	21,264	110	849	100	784	20	65 i
1,000-4,999	_	1,320	88,238	150	2,424 i	150	2,367 i	20	56
5,000-9,999	_	260	48,397	50	1,437 i	50	1,214	20	223 i
10,000-24,999	_	220	88,567	40	1,941 i	40	1,357 i	10	i 583 i
25,000 or more	-	130	213,829	40	7,552	40	7,342	10	210

^{* =} 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.

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. Companies could report R&D in one, more than one, or no application area. 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.

^a Beginning in survey year 2018, these statistics include an adjustment to the weight to account for unit nonresponse.

^b The Business Enterprise Research and Development Survey does not include companies with fewer than 10 domestic employees.