

Table 3. Total R&D cost, by selected industry and company size, for companies with 1–9 employees: 2019–23

(Thousands of U.S. dollars)

Industry	NAICS code	2019			2020			2021			2022			2023		
		All companies	1–4 employees	5–9 employees	All companies	1–4 employees	5–9 employees	All companies	1–4 employees	5–9 employees	All companies	1–4 employees	5–9 employees	All companies	1–4 employees	5–9 employees
All selected industries	31–33, 42, 51, 5413, 5415, 5417	7,247,880	3,217,255	4,030,625	7,522,839	3,623,592	3,899,247	8,131,847	3,659,817	4,472,030	7,616,415	3,573,847	4,042,568	8,283,032	4,022,872	4,260,160
Manufacturing industries	31–33	891,188	415,797	475,391	822,687	359,533	463,154	990,325	415,218	575,107	907,975	298,997	608,978	780,797	363,781	417,015
Food, beverage, and tobacco products	311–12	6,315	4,218	2,096	20,378	16,061	4,317	19,097	7,987	11,109	18,222	6,932	11,289	11,110	5,355	5,755
Textile, apparel, and leather products	313–16	236	236	0	472	472	0	7,096	7,096	0	9,268	1,264	8,005	9,493	131	9,362
Wood products	321	4,065	0	4,065	0	0	0	138	138	0	0	0	0	10,390	9,573	817
Paper	322	0	0	0	0	0	0	0	0	0	912	0	912	0	0	0
Printing and related support activities	323	555	141	414	0	0	0	0	0	0	0	0	0	91	91	0
Petroleum and coal products	324	0	0	0	0	0	0	739	0	739	202	202	0	0	0	0
Chemicals	325	345,503	163,854	181,649	201,214	96,869	104,345	224,348	113,915	110,433	269,478	105,857	163,621	200,577	48,468	152,109
Pharmaceuticals and medicines	3254	259,782	110,653	149,129	104,539	64,689	39,850	178,387	93,401	84,986	219,793	80,128	139,665	65,684	22,193	43,490
Chemicals, excluding pharmaceuticals	other 325	85,721	53,201	32,520	96,675	32,181	64,495	45,962	20,514	25,447	49,685	25,730	23,956	134,893	26,274	108,619
Plastics and rubber products	326	6,397	3,340	3,057	23,004	18,051	4,953	6,700	2,703	3,997	14,698	6,552	8,145	23,495	1,493	22,002
Nonmetallic mineral products	327	12,945	216	12,729	133	133	0	3,935	3,485	450	3,642	183	3,459	4,085	2,101	1,984
Primary metals	331	2,568	2,568	0	9,299	9,299	0	2,240	591	1,648	3,983	2,645	1,338	1,226	806	419
Fabricated metal products	332	20,594	9,950	10,644	59,474	387	59,087	16,827	10,196	6,631	46,559	10,043	36,516	7,852	1,142	6,711
Machinery	333	33,020	23,556	9,464	94,664	37,612	57,052	85,202	34,750	50,452	55,687	21,179	34,508	47,071	12,309	34,762
Computer and electronic products	334	279,725	146,657	133,068	237,090	101,714	135,376	372,243	109,934	262,308	198,193	74,439	123,754	362,793	225,802	136,991
Semiconductor and other electronic components	3344	44,841	26,337	18,504	40,558	24,002	16,556	124,080	35,134	88,946	52,464	24,163	28,300	154,157	128,737	25,420
Navigational, measuring, electromedical, and control instruments	3345	205,358	115,084	90,274	175,504	67,481	108,022	194,535	51,119	143,416	111,441	37,485	73,956	172,275	87,763	84,513
Other computer and electronic products	other 334	29,526	5,235	24,291	21,029	10,231	10,798	53,628	23,681	29,947	34,289	12,791	21,498	36,361	9,302	27,058
Electrical equipment, appliances, and components	335	13,243	8,404	4,839	32,026	27,642	4,383	42,416	8,593	33,824	17,504	6,195	11,309	23,705	8,888	14,817
Transportation equipment	336	31,730	24,976	6,754	40,780	12,035	28,745	36,232	21,551	14,681	44,175	12,672	31,503	17,415	5,214	12,201
Aerospace products and parts	3364	15,341	10,107	5,234	21,446	11,007	10,439	13,976	8,486	5,489	24,809	7,025	17,784	6,827	4,754	2,072
Other transportation equipment	other 336	16,389	14,869	1,520	19,333	1,028	18,305	22,257	13,065	9,192	19,366	5,647	13,719	10,588	460	10,128
Furniture and related products	337	0	0	0	124	0	124	1,471	1,094	377	212	0	212	307	0	307
Miscellaneous manufacturing	339	134,291	27,680	106,611	104,028	39,257	64,770	171,640	93,184	78,456	225,239	50,831	174,407	61,188	42,409	18,779

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Selected nonmanufacturing industries	42, 51, 5413, 5415, 5417	6,356,692	2,801,458	3,555,234	6,700,152	3,264,059	3,436,093	7,141,522	3,244,599	3,896,923	6,708,439	3,274,850	3,433,589	7,502,235	3,659,091	3,843,144
Wholesale trade	42	407,800	105,774	302,027	517,963	188,633	329,331	172,456	40,464	131,992	457,568	213,937	243,631	227,906	123,259	104,647
Information	51	708,356	314,081	394,274	829,283	373,836	455,448	961,919	295,126	666,793	907,155	419,883	487,271	1,153,109	485,861	667,248
Software publishers	5112	396,626	204,864	191,763	571,286	242,501	328,785	657,405	219,923	437,482	665,064	271,918	393,146	949,010	407,996	541,014
Information, excluding software publishers	51 less 5112	311,729	109,218	202,512	257,998	131,335	126,663	304,514	75,204	229,310	242,091	147,965	94,126	204,099	77,866	126,234
Architectural, engineering, and related services	5413	507,143	303,247	203,896	628,231	286,122	342,109	667,715	278,295	389,420	432,941	188,162	244,779	664,122	316,772	347,350
Computer systems design and related services	5415	1,848,184	910,765	937,419	1,473,927	879,174	594,753	1,975,063	1,043,298	931,765	1,739,815	904,152	835,663	1,969,675	1,090,682	878,992
Scientific research and development services	5417	2,885,208	1,167,591	1,717,617	3,250,748	1,536,295	1,714,453	3,364,369	1,587,415	1,776,953	3,170,961	1,548,716	1,622,245	3,487,423	1,642,516	1,844,907
Research and development in nanotechnology	541713	208,662	96,559	112,103	196,107	91,949	104,158	216,133	99,765	116,368	192,203	93,523	98,680	123,696	79,296	44,399
Research and development in biotechnology (except nanobiotechnology)	541714	1,174,789	496,758	678,031	1,548,115	757,706	790,409	1,491,139	731,902	759,238	1,523,931	753,460	770,471	1,685,456	702,580	982,875
Research and development in the physical, engineering, and life sciences (except nanotechnology and biotechnology)	541715	1,462,446	560,509	901,937	1,479,130	677,617	801,514	1,627,199	730,715	896,484	1,432,454	689,629	742,825	1,662,175	853,900	808,276
Social sciences and humanities research and development	541720	37,089	11,544	25,546	27,396	9,023	18,373	19,297	14,434	4,864	22,373	12,104	10,269	16,096	6,740	9,357

r = relative standard error > 50%.

NAICS = 2022 North American Industry Classification System.

Note(s):

Detail may not add to total because of rounding or unavailable NAICS detail for select records beyond the 4-digit industry classification. Industry classification is based on dominant establishment payroll. Statistics are representative of companies located in the United States that performed or funded R&D.

Source(s):

National Center for Science and Engineering Statistics and Census Bureau, 2024 Annual Business Survey: Data Year 2023.