



National Center for Science and  
Engineering Statistics

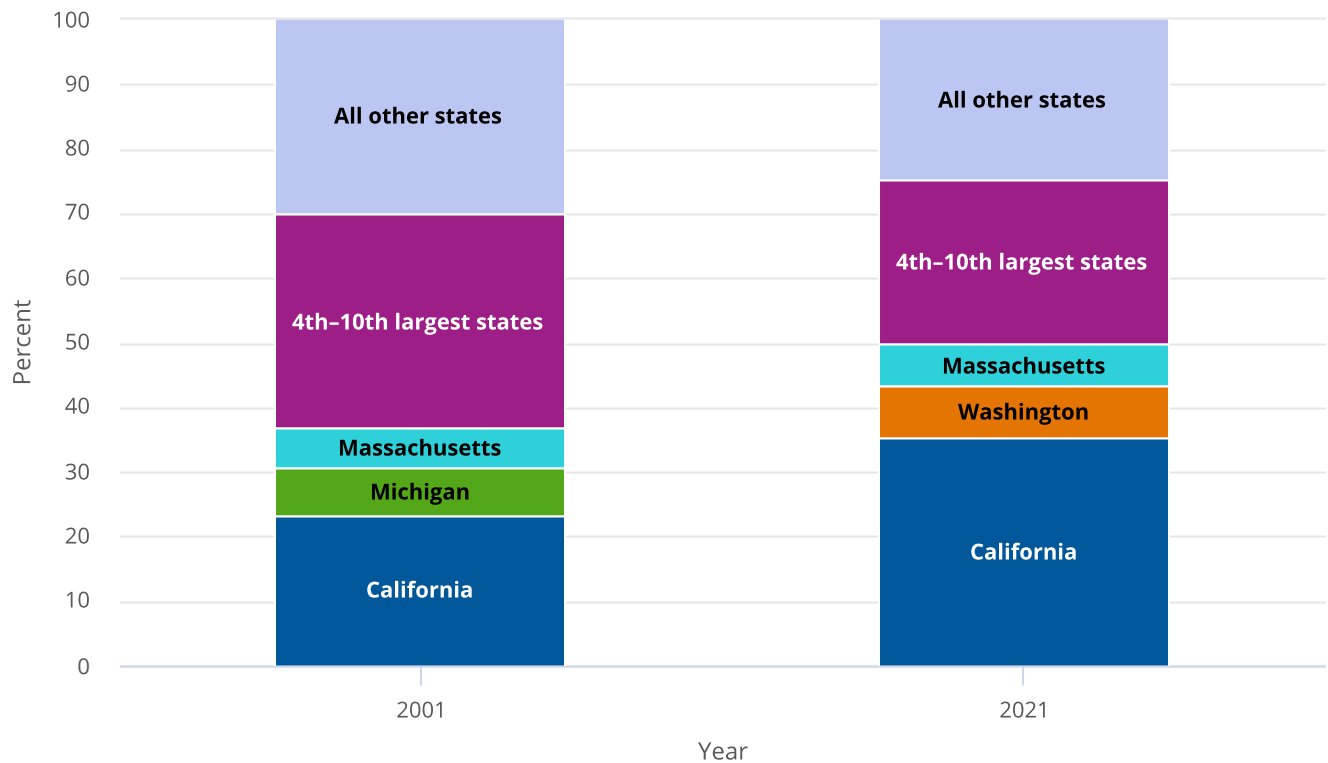
InfoBrief

# Geographic Distribution of Business R&D Performance in 2021

NSF 25-340 | July 01, 2025

From 2001 to 2021, expenditures for research and development (R&D) performed by for-profit businesses in the United States doubled in real terms. Over half of the growth in U.S. business R&D over this period can be attributed to 2 states: California and Washington. In 2001, the 10 largest states in terms of business R&D accounted for 70% of the national estimate that could be attributed to a state, and the 3 largest states (California, Michigan, and Massachusetts) accounted for 37%.<sup>1</sup> Business R&D was more geographically concentrated in 2021, with the 10 largest states accounting for 75% of the national estimate and the 3 largest (California, Washington, and Massachusetts) accounting for 50% ([figure 1](#) and [table 1](#)). Data are from the Business Enterprise Research and Development (BERD) Survey, cosponsored by the National Center for Science and Engineering Statistics within the U.S. National Science Foundation and the Census Bureau.

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**Figure 1. Distributed business R&D performance by state: 2001 and 2021****Note(s):**

States are sized in proportion to the distributed total of business R&D performance within the United States. The undistributed total includes data that were not allocated to a specific state by multi-establishment companies. For single-establishment companies, data reported were allocated to the state in the address used to mail the survey form. The three largest states in 2001 were California, Michigan, and Massachusetts and in 2021 were California, Washington, and Massachusetts. Data for all states are available in [table 1](#). Detail may not sum to 100% due to rounding.

**Source(s):**

National Center for Science and Engineering Statistics and Census Bureau, Survey of Industrial Research and Development, 2001 and Business Enterprise Research and Development Survey, 2021.

**Table 1. Business R&D performance by state: 2001 and 2021**

(Millions of constant 2021 dollars)

State	2001	2021
United States	299,420	602,499
Distributed total	284,887	601,718
Alabama	1,341	2,910
Alaska	101	207
Arizona	4,012	9,386
Arkansas	376	497
California	66,146	211,615
Colorado	4,568	8,098
Connecticut	6,945	8,429
Delaware	1,826	3,592
District of Columbia	359	744
Florida	5,565	9,688
Georgia	2,834	6,448
Hawaii	138	409
Idaho	1,310	2,258
Illinois	12,201	16,485
Indiana	5,311	9,514

**Table 1. Business R&D performance by state: 2001 and 2021**

(Millions of constant 2021 dollars)

State	2001	2021
Iowa	1,211	3,045
Kansas	1,925	2,748
Kentucky	943	1,486
Louisiana	468	530
Maine	369	499
Maryland	5,457	6,432
Massachusetts	17,424	39,749
Michigan	21,170	22,381
Minnesota	6,455	8,248
Mississippi	325	343
Missouri	2,656	7,060
Montana	104	261
Nebraska	454	1,067
Nevada	430	1,033
New Hampshire	1,985	3,183
New Jersey	15,065	25,049
New Mexico	342	1,693
New York	16,132	26,319
North Carolina	6,576	15,490
North Dakota	514	343
Ohio	9,922	11,545
Oklahoma	805	1,056
Oregon	3,968	11,292
Pennsylvania	13,290	17,555
Rhode Island	1,681	837
South Carolina	1,365	1,857
South Dakota	129	221
Tennessee	2,228	2,776
Texas	14,583	28,264
Utah	1,739	3,962
Vermont	502	456
Virginia	4,383	8,179
Washington	13,240	49,083
West Virginia	313	522
Wisconsin	3,659	6,781
Wyoming	42	93
Undistributed total	14,533	781

**Note(s):**

Data that were not allocated to a specific state by multi-establishment companies are reported as undistributed. For single-establishment companies, data reported were allocated to the state in the address used to mail the survey form.

**Source(s):**

National Center for Science and Engineering Statistics and Census Bureau, Survey of Industrial Research and Development, 2001 and Business Enterprise Research and Development Survey, 2021.

Over this period, business R&D expenditures as a percentage of private industry output in the United States grew from 2.20% to 2.90%, indicating an overall increase in the intensity of R&D activity among businesses in the United States.<sup>2</sup> Figure 2 shows this indicator for the 50 U.S. states and the District of Columbia in 2021. The 3 largest states in terms of business R&D expenditures also have the highest values of this indicator. Each are estimated to have business R&D expenditures as a percentage of private industry output over twice the national average. In contrast, Texas and New York, 2 of the top 10 states in terms of business R&D performance, have business R&D expenditures as a percentage of private industry output that are about half the national average, placing them close to the median value of this indicator. The relatively low business R&D



**Table 2. Industry profile of top 10 states with the highest level of business R&D performed and paid for by companies from companies' own funds: 2021**

(Millions of U.S. dollars and percent)

State	R&D performed and paid for by the company (millions of dollars)	Largest R&D industry in state and NAICS number	Largest industry's share of state's R&D (%)	Sum of ICT industries' share of state's R&D (%)
United States	527,804	Pharmaceuticals and medicines (3254)	17	49
California	199,157	Other information (512, 515, 519)	20	65
Illinois	15,398	Pharmaceuticals and medicines (3254)	29	21
Massachusetts	33,937	Pharmaceuticals and medicines (3254)	51	28
Michigan	19,420	Motor vehicles, bodies, trailers, and parts (3361–63)	71	6
New Jersey	20,091	Pharmaceuticals and medicines (3254)	56	19
New York	23,939	Other information (512, 515, 519)	24	52
Oregon	10,954	Semiconductor and other electronic components (3344)	62	79
Pennsylvania	14,541	Pharmaceuticals and medicines (3254)	52	18
Texas	24,495	Semiconductor and other electronic components (3344)	14	53
Washington	47,644	Software publishers (5112)	34	59

ICT = information and communications technologies; NAICS = 2017 North American Industry Classification System.

**Note(s):**

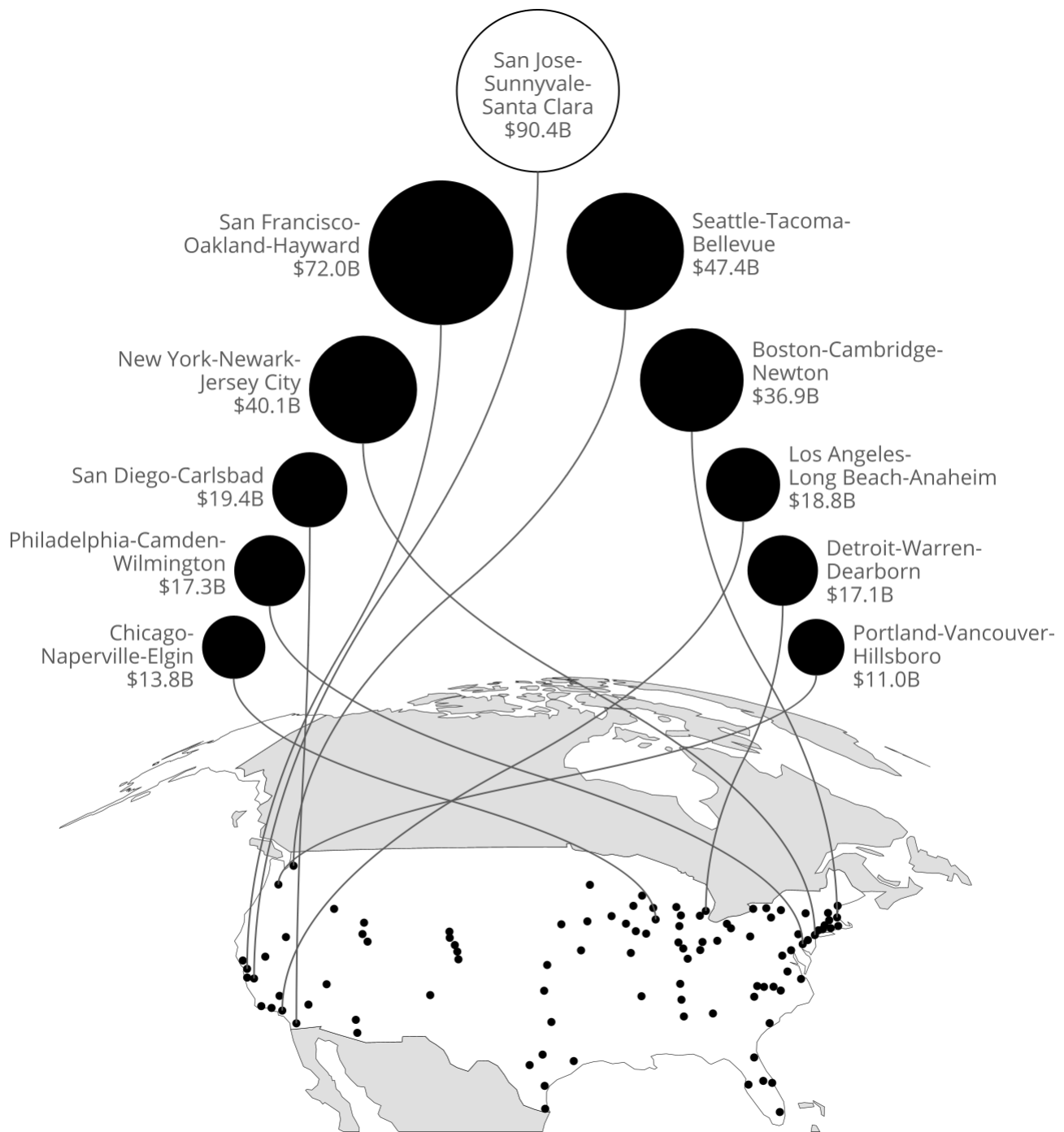
Industry classification is based on the dominant business code for domestic R&D performance, where available. For companies that did not report business codes, the classification used for sampling was assigned. Statistics are representative of companies located in the United States that performed or funded \$50,000 or more of R&D and are not comparable with estimates published for years prior to 2018. ICT manufacturing comprises NAICS 334 (computer and electronic products), and ICT services comprises NAICS 5112 (software publishers), NAICS 517 (telecommunications), NAICS 518 (data processing, hosting, and related services), NAICS 5415 (computer systems design and related services), and the remaining industries within NAICS 51 (information) other than traditional paper publishers.

**Source(s):**

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2021.

## Business R&D by Metropolitan and Micropolitan area

The BERD Survey estimates that about 95% of U.S. business R&D in 2021 was performed in 100 metropolitan and micropolitan statistical areas—collectively referred to as core-based statistical areas (CBSAs). These CBSAs are marked on the map in [figure 3](#), and detailed information is shown for the 11 locations with the largest R&D estimates. The San Jose-Sunnyvale-Santa Clara metropolitan area remains the largest CBSA in terms of R&D, accounting for 15% of U.S. business R&D performance. The combined business R&D of this metro area and its neighbor, the San Francisco-Oakland-Hayward metro area, is roughly the same as the sum of the next five largest CBSAs in terms of R&D. These two CBSAs account for about three-quarters (77%) of California's business R&D. Seattle-Tacoma-Bellevue, the third-largest CBSA in terms of business R&D, accounts for 96% of Washington's business R&D. Oregon's R&D is similarly concentrated in the Portland-Vancouver-Hillsboro CBSA.

**Figure 3. Domestic R&D performed by companies, by core-based statistical area: 2021****Note(s):**

Detail may not add to total because of rounding. 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. A core-based statistical area (CBSA) is a U.S. geographic area that consists of one or more counties (or equivalents) anchored by an urban center of at least 10,000 people plus adjacent counties that are socioeconomically tied to the urban center by commuting. CBSAs are defined by the Office of Management and Budget in the Executive Office of the President. An estimate range may be displayed in place of a single estimate to avoid disclosing operations of individual companies. Data that were not allocated to a specific state by multi-establishment companies are reported as undistributed. For single-establishment companies, data reported were allocated to the state in the address used to mail the survey form. For some totals, more than 50% of the estimate is a combination of imputation and reweighting to account for nonresponse; see the figure's data view/Excel download for imputation flags.

**Source(s):**

National Center for Science and Engineering Statistics and Census Bureau, Business Enterprise Research and Development Survey, 2021.

In the Midwest, the largest centers of business R&D were the Detroit-Warren-Dearborn CBSA and the Chicago-Naperville-Elgin CBSA. On the East Coast, the largest centers of business R&D were the New York-Newark-Jersey City, Boston-Cambridge-Newton, and Philadelphia-Camden-Wilmington CBSAs.

## Data Source, Limitations, and Availability

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The sample for the BERD Survey was selected to represent all for-profit, nonfarm companies that were publicly or privately held, had 10 or more employees in the United States, and performed or funded R&D either domestically or abroad. For 2021, a total of 47,500 companies were sampled for the BERD Survey, representing 1,137,000 companies.

In this InfoBrief, money amounts are expressed in terms of 2021 U.S. dollars. Money amounts from years other than 2021 are adjusted for inflation using gross domestic product implicit price deflators from the Bureau of Economic Analysis.

The estimates in this InfoBrief are based on responses from samples of different populations of organizations and may differ from actual values because of sampling variability or other factors. As a result, apparent differences between the estimates for two or more groups may not be statistically significant. All comparative statements in this InfoBrief have undergone statistical testing and are significant at the 90% confidence level unless otherwise noted.

NCSES has reviewed this product for unauthorized disclosure of confidential information and approved its release (NCSES-DRN25-027).

## Notes

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**1** In 2001, 4.9% of U.S. business R&D performance could not be assigned a state location. In 2021, 0.1% of the same measure could not be assigned a state location. All location shares of U.S. R&D presented in this InfoBrief exclude these undistributed amounts.

**2** Private industry output is a measure of industries' sales or receipts and is estimated by the Bureau of Economic Analysis.

**3** For this InfoBrief, the ICT sector is defined as the sum of ICT manufacturing, which comprises North American Industrial Classification System (NAICS) 334 (computer and electronic products) and ICT services, which comprises NAICS 5112 (software publishers), NAICS 517 (telecommunications), NAICS 518 (data processing, hosting, and related services), NAICS 5415 (computer systems design and related services), and the remaining industries within NAICS 51 (information) other than traditional paper publishers.

## Suggested Citation

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