

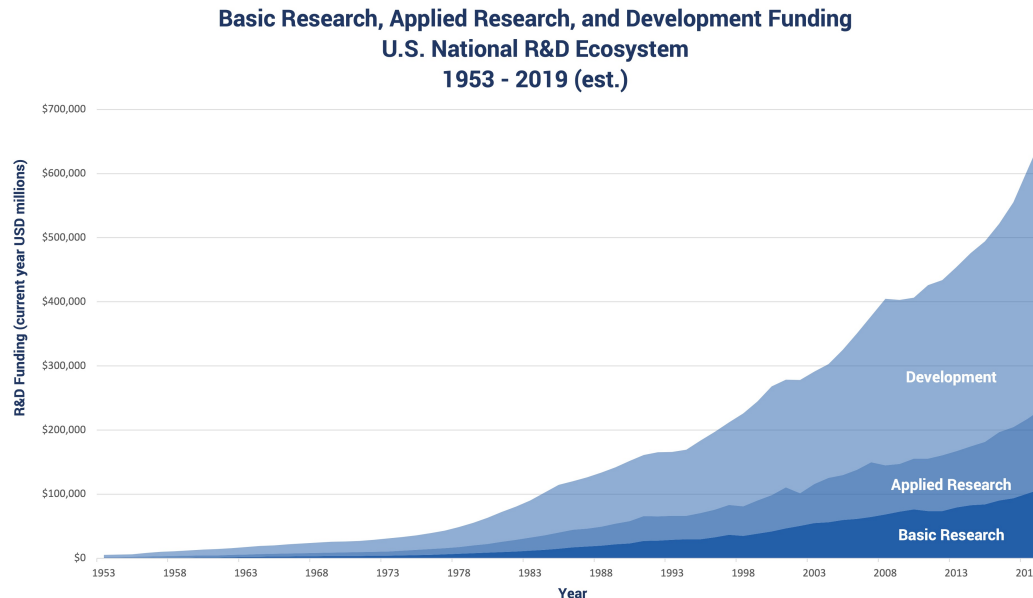


# National R&D Investment Trends

*1953-2019*

# National R&D Investment Trends

- \$656 billion\* invested in 2019
  - Basic Research - 16%
  - Applied Research - 19%
  - Development - 65%
- Business sector is the largest investor in
  - Applied Research
  - Development

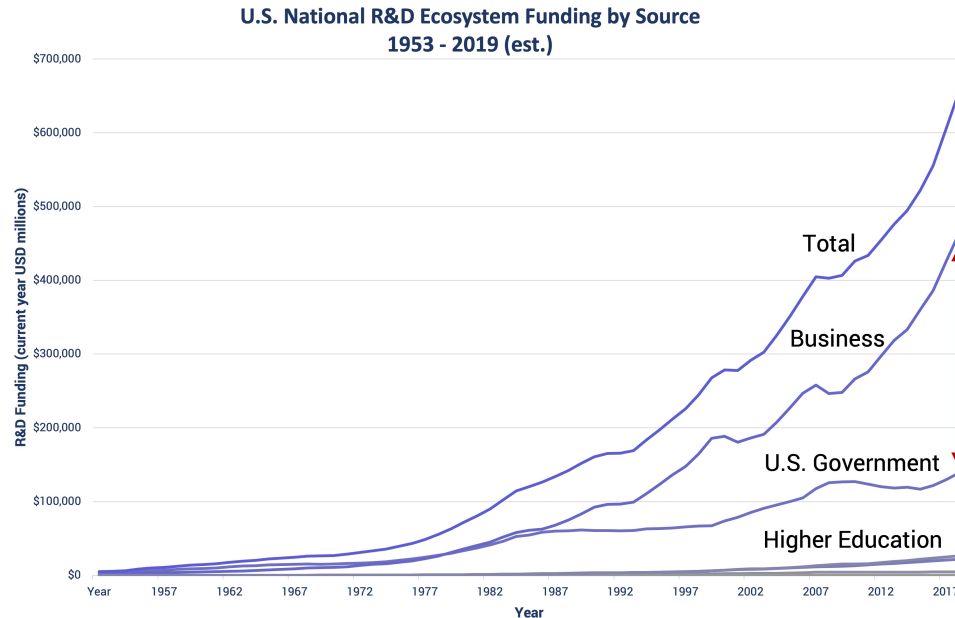


\*Some data for 2018 are preliminary and may later be revised; data for 2019 are estimates.

National Center for Science and Engineering Statistics (NCSES). 2021. *National Patterns of R&D Resources: 2018–19 Data Update*. NSF 21-325. Alexandria, VA: National Science Foundation. Available at <https://ncses.nsf.gov/pubs/nsf21325>.

# National R&D Investment Trends

- Business sector
  - Drives total R&D funding
  - ~3.3 x U.S. Government funding
- Deviation between Business and Government sectors *continues to increase*
- Three largest sources
  - ~\$629.3 billion (~96%)
  - Business (~71%)
  - Government (~21%)
  - Non-Profit Organizations (~4%)

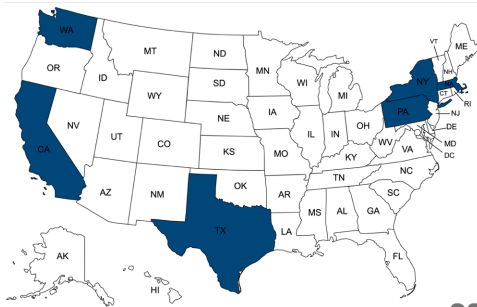


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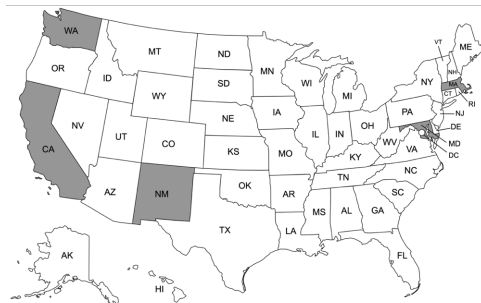
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# Top Performing R&D States (2018)

2018 R&D Expenditures



2018 R&D Intensity



- Top five states by **expenditures**

- California - \$164,398 (28%)
- Massachusetts - \$35,535 (6%)
- Washington - \$33,815 (6%)
- Texas - \$27,213 (5%)
- New York - \$25,824 (4%)

- Top five states by **R&D Intensity**

- New Mexico
- Massachusetts
- Washington
- Maryland
- California

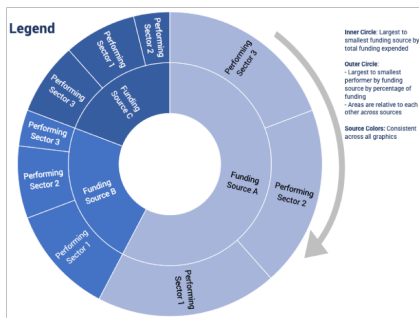
**R&D Intensity** is the ratio of total R&D performed in a state to its state GDP.

National Center for Science and Engineering Statistics (NCSES). 2021. *National Patterns of R&D Resources: 2018-19 Data Update*. NSF 21-325. Alexandria, VA: National Science Foundation. Available at <https://ncses.nsf.gov/pubs/nsf21325>.

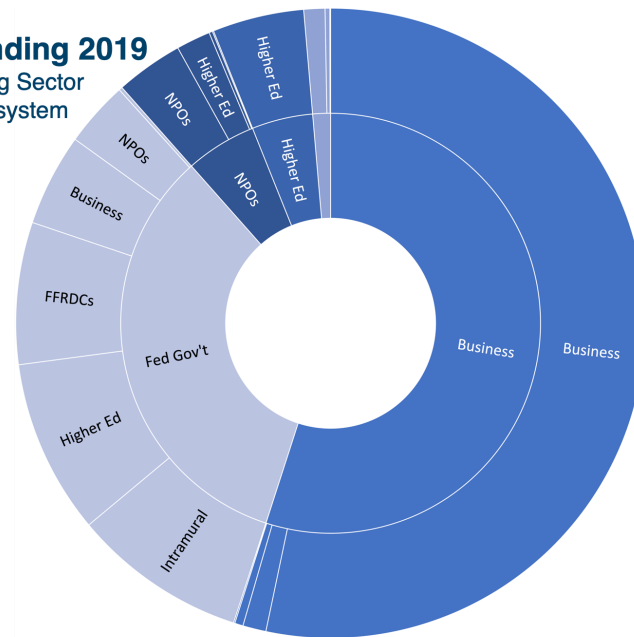


# Applied Research Investments

- \$124.8 billion
- Top funders
  - Business - 55%
  - Federal Government - 33%
  - Higher Education - 5%
  - Non-Profit Organizations - 5%



**Applied Research Funding 2019**  
by Source and Performing Sector  
U.S. National R&D Ecosystem

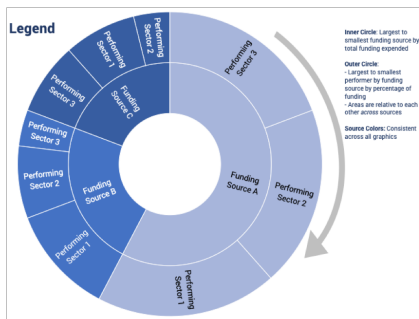


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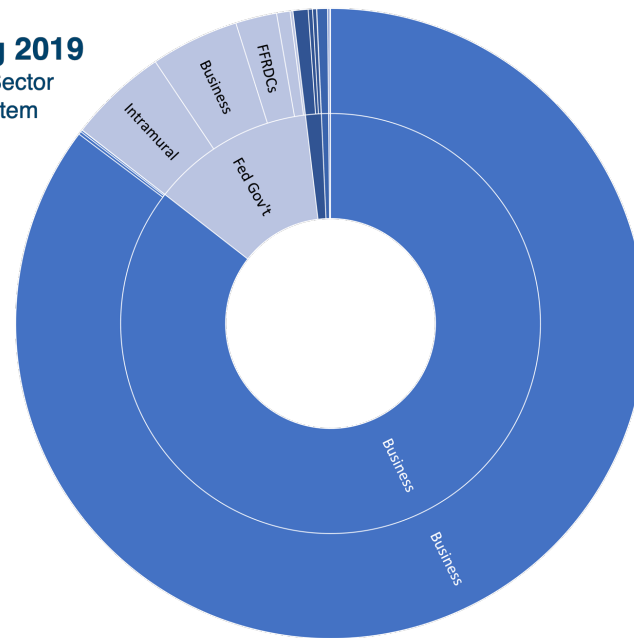
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# Development Investments

- \$423.4 billion
- Top funders
  - Business - 86%
  - Federal Government - 13%
  - Higher Education - 1%
  - Non-Profit Organizations - 1%



**Development Funding 2019**  
by Source and Performing Sector  
U.S. National R&D Ecosystem

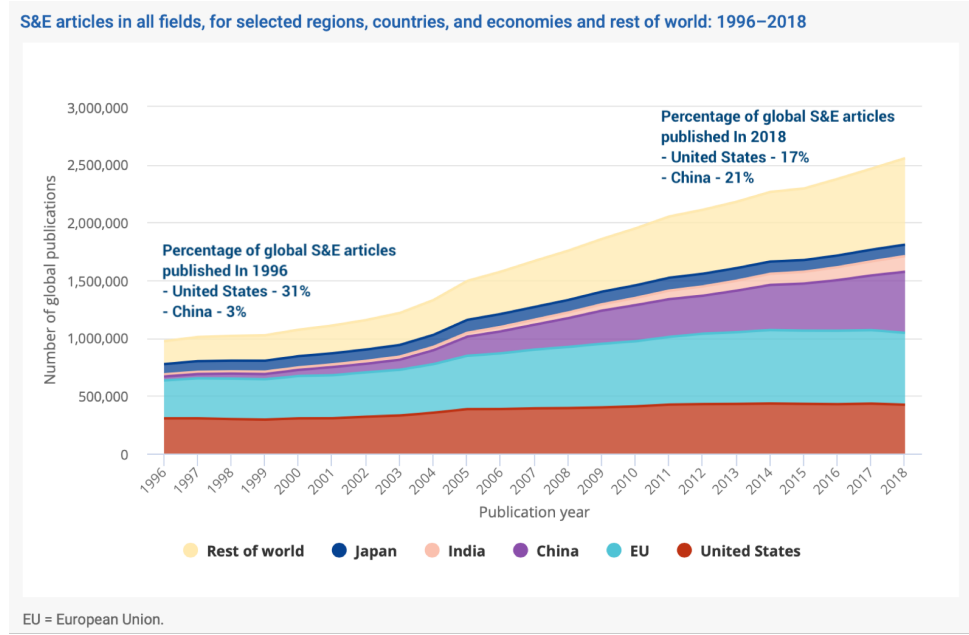


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# Science and Engineering Outputs

- Top global contributors (%)
  - Rest of World - 29%
  - European Union - 24%
  - China - 21%
  - United States - 17%
- Top global contributors (number)
  - Total - 2,555,960
  - Rest of World - 748,183
  - European Union - 622,125
  - China - 528,263
  - United States - 422,808
- **United States is behind and continues to lag**



National Center for Science and Engineering Statistics, National Science Foundation; Science-Metrix; Elsevier, Scopus abstract and citation database, accessed June 2019.