The United States leads the world in several science and engineering (S&E) measures. The latest data in the National Science Board’s 2024 Science and Engineering Indicators report show that globally the U.S. invests the most in research and development (R&D), attracts the most venture capital, and is the leading producer of service output from knowledge-and technology-intensive industries.

Four benchmarks of Massachusetts’s S&E performance are highlighted here: The economics of the Skilled Technical Workforce, the cost and economic benefit of a bachelor’s degree, investment in state R&D, and state venture capital investment levels.

**Economics of the Skilled Technical Workforce**

The Skilled Technical Workforce (STW) includes workers whose jobs require significant science, technology, engineering, and math (STEM) knowledge and expertise and who do not have a bachelor’s degree. Associates degrees in science and engineering are one of the many pathways into the STW and open up opportunities for higher-paying jobs.

Nationally, the STW makes up 52% of the nation’s STEM workforce. These workers fill critical roles in the economy, from welding and fabrication to cybersecurity and healthcare.

![Jobs in STEM as a Percent of All Jobs](chart)

**The Cost and Benefit of a Bachelor’s Degree**

A STEM bachelor’s degree can provide a substantial return on investment and is one of several entry points to higher paying jobs associated with science, engineering, and many technical occupations.

Nationally, 39% of the total U.S. workforce has a bachelor’s degree or higher, but that rises to 48% in the STEM workforce.

![Average Annual In-State Cost of a Public 4-Year Institution](chart)
R&D spending is a driver of innovation. Investing today in science, engineering, and technology has ripple-effect benefits throughout a state’s economy over the long-term.

Annual state performance in R&D varies considerably, from $347 million (SD) to $193 billion (CA). Massachusetts is one of three states that performs more than $35 billion per year in R&D. In this figure, Massachusetts’ percent change in R&D spending is shown along with that for the U.S., with the shaded area representing the range of changes for the other three states performing more than $35 billion per year in R&D.

Venture capital investment supports U.S. businesses that take on the risk of developing and commercializing cutting-edge, emerging technologies. States with high values are successful at attracting venture capital to fuel new kinds of business, and ultimately, expand economic growth.

Source: National Center for Science and Engineering Statistics, National Patterns of R&D Resources

Source: PitchBook Venture Capital and Private Equity Database