

# POWERING AMERICA'S RESEARCH ENTERPRISE

## AMERICA'S WORLD-CLASS HIGHER EDUCATION RESEARCH INSTITUTIONS

Since World War II, public sector investments in basic scientific research have formed the backbone of American innovation and ingenuity – helping our nation lead the world in scientific discovery, technological advancement, and economic growth.

Many of the best and brightest discoveries – transformational advancements that improve our daily lives and keep us safe – came from federally funded scientific research conducted at American universities. Modern computing, smart phones, GPS, radar and x-ray technology, jet engines, more resilient and versatile crops, search engine algorithms, cures and treatments for a whole host of diseases, and more all grew out of basic research efforts.

Robust and sustained federal investments in basic scientific research at American colleges and universities position our nation as a world-class leader in science and technology and help us seize the tremendous economic benefits that come with that leadership position – including a strong annual GDP, high revenue, sustained growth, and good-paying jobs.

### RETURN ON INVESTMENT

The Federal Reserve Bank of Dallas found that government investments in scientific research and development have yielded returns of 150% to 300% since the post-World War II period.

A study from the London School of Economics estimates that a 1% increase in research and development funding in the U.S. creates more than a 1% increase in annual growth.

According to United for Medical Research, every \$1 in federal research funding from the National Institutes of Health generates nearly \$2.56 of economic activity.

## BENEFITS OF BASIC RESEARCH

American higher education research institutions step in to fill a critical gap in America's research enterprise: conducting basic scientific research.

Basic research expands our knowledge about science and technology by proposing and testing new theories – and by leading to breakthrough discoveries. Basic scientific research often pays long-term, transformational dividends that drive economic growth and help increase productivity.

Even though most private-sector companies rely on basic research to fuel new innovations and discoveries, they tend to focus their scientific investments on commercialized applied research. American research universities often fill the gap, conducting basic scientific research with the federal government's support.

## EFFICIENT NETWORKS AND CONSORTIUMS

Existing networks and consortiums across the nation – including American higher education research institutions – serve as the load-bearing walls of America's research enterprise.

These existing labs and technology innovation hubs help catalyze new scientific breakthroughs in aerospace, battery development, defense, artificial intelligence, quantum computing, nuclear energy, and many other high-growth areas.



# DRIVING AMERICA'S SCIENTIFIC DOMINANCE

America leads the world in scientific advancement, technological innovation, and economic might because it relies on federal research agencies, like:

- The National Institutes of Health;
- National Science Foundation;
- U.S. Department of Energy;
- U.S. Department of Agriculture; and
- U.S. Department of Defense.

These agencies centralize and standardize our nation's investments in basic scientific research. These agencies help avoid duplicative research efforts with robust communication and coordination, ensure high-quality peer review processes to safeguard scientific integrity, and enable each presidential administration to drive its respective research priorities.

## STRENGTHENING AMERICA'S WORKFORCE

Basic scientific research at American colleges and universities provides opportunities for young and talented researchers to access hands-on training and develop real-world skills. This science and technology workforce pipeline – enabled by federal investments in scientific research – helps create a strong talent pool for private-sector companies and strengthens our nation's global leadership and competitiveness.

By 2030, the U.S. expects to have 1.4 million unfilled jobs in computer science, engineering, and other high-tech industries. Robust and sustained federal investments in basic scientific research at colleges and universities can help train the next generation of American workers and ensure that our nation maintains a strong and agile pipeline of workforce talent.