

The Federal Government and U.S. Research Universities: Driving Innovation that Fuels the Economy

Innovation fueled by basic scientific research has been a cornerstone of America's economy for more than the last half-century, leading to the creation of countless companies, jobs, technologies and products. At the root of this success is the partnership, forged during World War II, between the United States government and U.S. universities to conduct basic research on behalf of the American people.

Here's what you need to know about our system of research and why it is important that the United States maintain its position as the world's innovation leader.

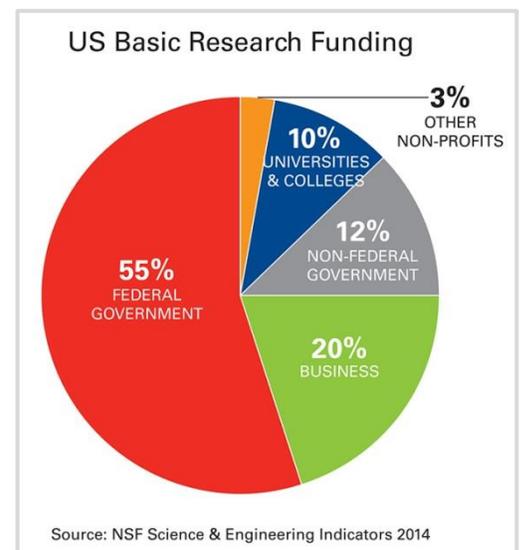
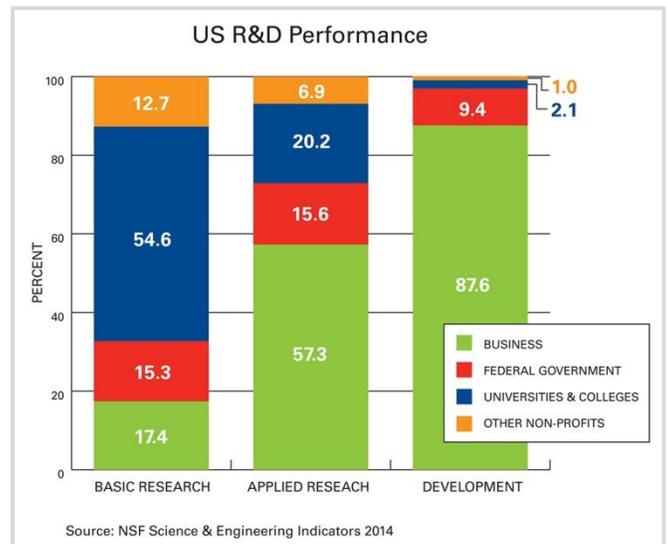
Basic scientific research is essential to scientific discovery and understanding. It is the first step in the innovation process.

Universities conduct the majority of basic scientific research in the United States— 55 percent in 2011. While industry is the largest performer of R&D in the United States, it conducts less than 20 percent of basic research. Industry focuses instead on the later-stage applied research and development that is required to commercialize a product or technology. Industry depends on the basic research conducted at universities and national laboratories to help fuel its innovation pipeline.

The federal government is the primary source of funding for basic scientific research conducted in the United States, funding about [55 percent](#) of U.S. basic research in 2011.

Federal support for basic research is based on scientific merit and competitive peer review. In order to receive funding, researchers submit proposals to one of several federal agencies responsible for scientific research in the United States. These include the National Institutes of Health, the Department of Defense (Air Force, Navy, DARPA), the Department of Energy's Office of Science, the Department of Commerce (NIST, NOAA), the National Science Foundation, and NASA, among others.

Applications for federal research grants far exceed the availability of funds. This is a highly competitive process where only the very best proposals – as judged by other scientists – receive funding. Only [19](#) percent of the 66,769 grant applications reviewed by the National Institutes of Health in FY2013 were funded. At the National Science Foundation, [22](#) percent of new grant applications competitively reviewed were funded in FY2013 – 10,844 of the 49,014 received. The number of new grants awarded at NSF was the [lowest](#) since FY 2006.



While the U.S. continues to lead the world in global R&D expenditures from [all sources](#) (including from industry), other nations are investing aggressively in R&D to enhance their innovation capabilities. According to the National Science Board's [2014 Science and Engineering Indicators](#), China's pace of growth over the past decade has been exceptionally high at about 18 percent. The rate of growth of South Korea's R&D also has been quite high, averaging 10.9 percent. Over this same period, 2001-2011, the pace of growth of U.S. R&D was 4.4 percent and our share of total worldwide R&D slipped from 37 percent to just below 30 percent.

U.S. leadership in science and innovation is important to our economic and national security. That other nations are investing in R&D is not a bad thing. It's that they are doing this while federal funding for research in the United States has stagnated, jeopardizing our leadership.

R&D has not exceeded 5 percent of the federal budget since 1990 and hit a historic low in 2013 at just 3.8 percent of the budget. While Congress provided temporary relief from sequestration for fiscal years 2014 and 2015, tight budget caps continue to depress funding for R&D and keep it below pre-sequester levels.

Federally funded basic research is what keeps this nation's innovation pipeline primed and what fuels the economy. Economists agree that more than half of U.S. economic growth since World War II can be traced to science-driven technological innovation.

If America wants to maintain its innovative edge, create meaningful jobs and realize economic growth, then investment in scientific research must be given a higher priority.

