

FINANCING SCIENCE



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The Flashing Light on America's Dashboard

The Case for a National Innovation Agenda

By Tom Kalil

EARLIER THIS YEAR, the National Science Board released “Science and Engineering Indicators 2008,” the Board’s biennial report on the state of science and engineering research and education in the United States. But in addition, the governing board of the National Science Foundation also felt compelled to release a companion report to highlight the policy implications of their findings.

This report, entitled “Research and Development: Essential Foundation for U.S. Competitiveness in a Global Economy,” concludes that the current decline in support for basic research by both industry and government could “have severe implications for U.S. competitiveness in international markets and for highly skilled and manufacturing jobs at home.” Specifically, the National Science Board—established by Congress in 1950 to provide policy advice to the president and Con-

gress on a wide range of science and engineering issues—found that:

- The U.S. high-tech trade deficit has jumped to \$132 billion in 2005, the last year complete data was available, from \$32 billion in 2000.
- Federal government support for academic research and development began falling in 2005 for the first time in a quarter-century.
- Private industry support for basic research has also been stagnant or declining. Basic research published in peer reviewed journals by industrial researchers declined by 30 percent in the last decade. The number of physics publications by industrial researches dropped to only 300 in 2005, from nearly 1,000 in 1988.

Another study commissioned by the National Science Foundation concluded that if current trends

continue, “China will soon pass the United States in the critical ability to develop basic science and technology, turn those developments into products and services—and then market them to the world.”

The NSB’s report strengthens the case for bold, decisive action to restore America’s scientific and technological leadership. In “A National Innovation Agenda,” a Center for American Progress paper published last year, John Irons and I set forth a detailed set of policy recommendations for doing just that. As part of the Center’s economic plan for the next administration, we called for:

- Doubling the research budgets of key science agencies such as the National Institutes of Health, the National Institute of Standards and Technology, the Department of Energy’s Office of Science, and providing even larger increases (10 percent per year) for the National Science Foundation and the Defense Department.
- Maximizing the effect of this investment by increasing support for university–industry collaborations and high-risk, high-return research. This would help replace the void left by the decline of industrial basic research documented by the National Science Board.
- Harnessing science and technology to address some of the “grand challenges” of the 21st century, such as the transition to a low-carbon economy that will reduce our emissions of greenhouse gases while creating millions of “green collar jobs,” or the development of new learning technologies that are as effective as a personal tutor and compelling as the best video game.
- Spurring private sector investment in innovation by making the research and experimentation tax credit permanent and providing tax incentives for investment in next generation broadband networks.
- Ensuring that America’s workforce has world-class skills in science, technology, engineering, and mathematics. This will require upgrading the STEM skills of the existing workforce, improving K-12 math and science education, encouraging more students to receive undergraduate and graduate degrees in STEM fields, and creating a “fast track” employment-based visa for foreign students that receive an advanced technical degree from U.S. universities.

Of course, the National Science Board is only the latest in a long series of reports that document the erosion of America’s scientific and technological leadership. Unfortunately, although President Bush and Congress pledged to address this with the American Competitive Initiative and the America COMPETES legislation, they failed to make any significant progress on this agenda in 2007.

The National Science Foundation’s research received a paltry one percent increase, the budget of the National Institutes of Health budget is down 10 percent in real terms from 2004, and the research and experimentation tax credit was allowed to expire in December 2007 for the 13th time. Congress slashed funding in the Department of Energy’s high-energy physics budget, which will force institutions such as the Fermilab, the Argonne National Laboratory, and the Stanford Linear Accelerator Center to stop important research projects and fire scientists.

This failure to act is unacceptable. It is critical that the next president make science, technology, and innovation a top priority. The future economic prosperity of our nation and our people depends upon it. [sp](#)

Tom Kalil is a Senior Fellow at the Center for American Progress and an advisory board member of Science Progress.