



RESEARCH UNIVERSITIES AND THE FUTURE OF AMERICA

Ten Breakthrough Actions Vital to Our Nation's Prosperity and Security (2013)

Through their research and innovation, America's universities have long contributed to the nation's economic prosperity, health, and security. But these institutions now face an array of challenges, from unstable revenue streams to increasing competition from universities abroad. Expressing concern that America's universities are at risk, the U.S. Congress asked the National Research Council to assess the competitive position of the nation's universities and identify the top 10 actions that Congress, the federal government, state governments, research universities, and others can take to ensure that their excellence and contributions to the nation continue.

Revitalizing a Partnership for Innovation

As America pursues economic growth and other national goals, its research universities have emerged as a major national asset – perhaps even its most potent one. This did not happen by accident. It is the result of forward-looking federal policies, beginning with the Morrill Act of 1862, which established a partnership between the federal government and the states to build universities that would meet the challenges of creating a modern agricultural and industrial economy for the 20th century.

This government-university partnership, which grew over time to include industry and philanthropy, has led to significant benefits for America's economy and quality of life. Lasers, radar, synthetic insulin, blood thinners, computers, and rocket fuel are among the countless innovations in which university research has played an essential role. And talented graduates of these institutions have created and populated many new businesses that have employed millions of Americans.

Yet America's research universities now confront critical pressures, such as unstable or declining revenue streams from federal and state governments, burdensome regulatory and reporting requirements, and research sponsors that do not pay the full cost of the research they procure. These institutions also face growing competition from their counterparts abroad, as other countries strengthen their universities to compete for the best international students and for faculty, resources, and reputation.

It is essential that we as a nation reaffirm, revitalize, and strengthen substantially the unique partnership that has long existed among the nation's research universities, the federal government, the states, and philanthropy by enhancing their individual roles and the links among them and by providing incentives for stronger partnership with business and industry. In doing so, we will encourage the ideas and innovations that will lead to more high-end jobs, increased incomes, and the national security, health, and prosperity we expect.

Ten Strategic Actions

The actions below are designed to revitalize the research partnership, strengthen and improve the productivity of research institutions, and build America's pipeline of talent. A full list of steps needed to implement each recommendation can be found in the report.

Recommendation 1. Within the broader framework of U.S. innovation and R&D strategies, the federal government should adopt stable and effective policies, practices, and funding for university-performed R&D and graduate education so that the nation will have a stream of new knowledge and educated people to power our future, helping us meet national goals and ensure prosperity.

The federal government should review and modify policies and practices governing university research that have become burdensome and inefficient, such as unnecessary regulation. In addition, over the next decade as the economy improves, the federal government should invest in basic research and graduate education sufficient to produce the new knowledge and educated citizens the nation needs, including providing full funding of the amount authorized by the America COMPETES Act.

Recommendation 2. Provide greater autonomy for public research universities so that these institutions may leverage local and regional strengths to compete strategically and respond with agility to new opportunities. At the same time, restore state appropriations for higher education, including graduate education and research, to levels that allow public research universities to operate at world-class levels.

An alarming erosion in state support for higher education over the past decade has put the quality and capacity of public research universities at great risk. State governments should provide their public research universities with sufficient autonomy to navigate an extended period with limited state support. And as state budgets recover from the current recession, states should strive to restore and maintain per-student funding for higher education to the average level for the 15-year period 1987-2002, as adjusted for inflation.

Recommendation 3. Strengthen the business role in the research partnership, facilitating the transfer of knowledge, ideas, and technology to society, and accelerate "time-to-innovation" in order to achieve our national goals.

The federal government should continue to fund and expand research support mechanisms that promote collaboration between businesses and universities. New federal tax policies should offer incentives to business to develop partnerships with universities for research that results in new economic activities located in the United States. In addition, the relationship between business and higher education should become more peer-to-peer in nature, stressing collaboration in areas of joint interest rather than remaining in a traditional customer-supplier relationship, in which business procures graduates and intellectual property from universities.

Recommendation 4. Increase university cost-effectiveness and productivity in order to provide a greater return on investment for taxpayers, philanthropists, corporations, foundations, and other research sponsors.

The nation's research universities should set and achieve bold goals in cost containment, efficiency, and productivity in business operations and academic programs. Universities should strive to limit the cost escalation of all ongoing activities to the inflation rate or less. To help universities determine the most effective ways to contain costs and improve productivity, university associations should develop and make available more powerful tools for financial management and cost accounting.

Recommendation 5. Create a Strategic Investment Program that funds initiatives at research universities critical to advancing education and research in areas of key national priority.

The federal government should design the new program to be a "living" program that responds to changing needs and opportunities. It should begin with two 10-year initiatives: an endowed faculty chairs program to facilitate the careers of young investigators, and a program to advance campus cyberinfrastructure in order to increase productivity and collaboration in research. Support for these initiatives should be provided by the federal government, with universities obtaining matching grants from other partners.

Recommendation 6. The federal government and other research sponsors should strive to cover the full costs of research projects and other activities they procure from research universities in a consistent and transparent manner.

Currently, universities often have to subsidize sponsored research by drawing on resources intended to support other important university missions, such as undergraduate education and clinical care. The federal government and other research sponsors should strive to support the full cost, direct and indirect, of research and other activities they procure from universities.

Recommendation 7. Reduce or eliminate regulations that increase administrative costs, impede research productivity, and deflect creative energy without substantially improving the research environment.

Federal policymakers and regulators and their state counterparts should review the costs and benefits of federal and state regulations, eliminating those that are redundant, ineffective, inappropriately applied to the higher education sector, or that impose costs that outweigh the benefits to society. The federal government also should make regulations and reporting requirements more consistent across agencies so that universities can maintain one system for all federal requirements rather than several, thereby reducing costs.

Recommendation 8. Improve the capacity of graduate programs to attract talented students by addressing issues such as attrition rates, time-to-degree, funding, and alignment with both student career opportunities and national interests.

Research universities should restructure doctoral education to enhance pathways for talented undergraduates, improve completion rates, shorten time-to-degree, and strengthen the preparation of graduates for careers both in and beyond the academy. These efforts should be implemented across the full spectrum of graduate programs, including the social and behavioral sciences, the humanities, and the arts.

In addition, the federal government should significantly increase its support for graduate education through fellowships, traineeships, and research assistantships provided by all science agencies that depend on individuals with advanced training. And employers that hire master's- and doctorate-level graduates should more deeply engage universities by providing internships, student projects, advice on curriculum design, and information on employment opportunities.

Recommendation 9. Secure for the United States the full benefits of education for all Americans, including women and underrepresented minorities, in science, mathematics, engineering, and technology.

Research universities should strive to improve education for all students at all levels by reaching out to K-12 school districts and by taking steps to improve access and completion in their own undergraduate and graduate programs. Research universities also should help improve the education and preparation of those who teach science, technology, engineering, and mathematics (STEM) subjects in grades K-12. And all stakeholders should take urgent, intensive action to increase the participation and success of women and underrepresented minorities across all disciplines, especially in science, mathematics, and engineering.

Recommendation 10. Ensure that the United States will continue to benefit strongly from the participation of international students and scholars in our research enterprise.

Federal agencies should ensure that visa processing for international students and scholars who wish to study or conduct research in the United States is as efficient and effective as possible, consistent with homeland security considerations. The federal government should streamline the processes for non-U.S. doctoral researchers to obtain permanent residency or U.S. citizenship and should consider granting residency (a green card) to each non-U.S. citizen who earns a doctorate in an area of national need from an accredited research university.

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