

Science Policy: The History You May Not Know

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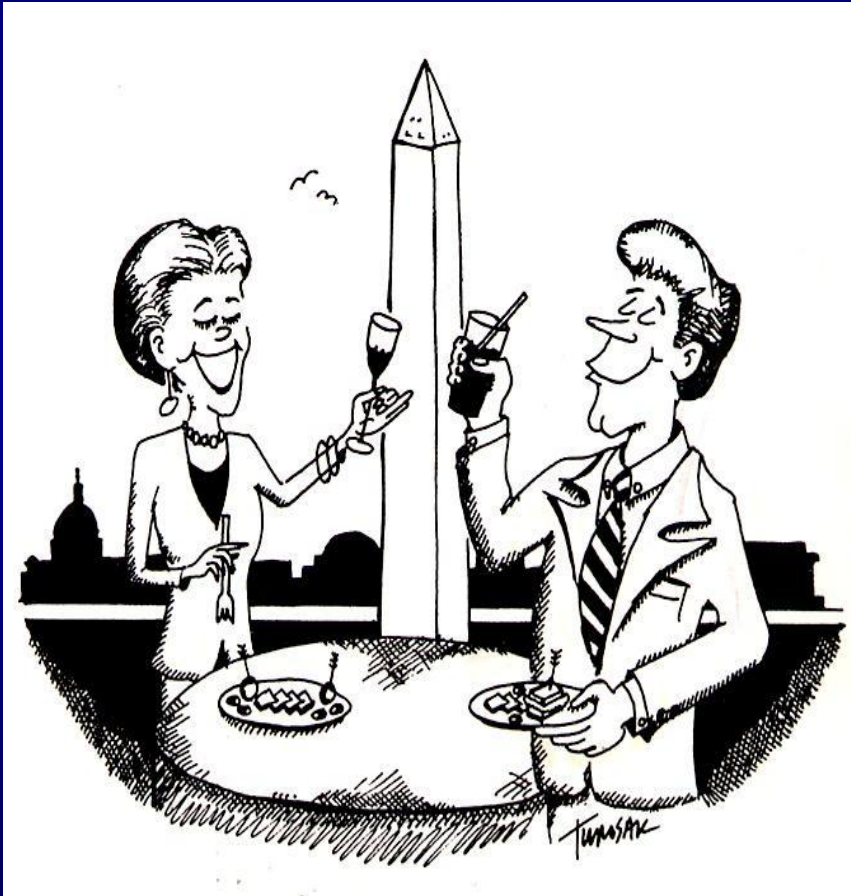
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About Me

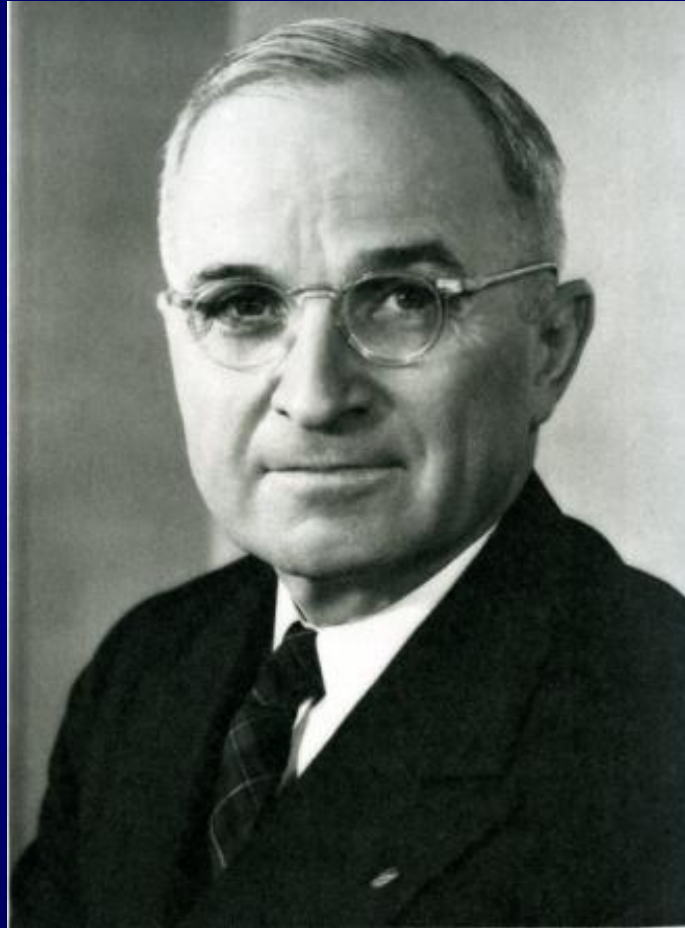
- Vice President for Policy at the AAU
- Research Funding and Science Policy Issues
 - Focus on innovation, competitiveness and energy issues
 - Advocacy, lobbying and coalition building
(Co-chair, Energy Sciences Coalition)
 - Federal regulations and compliance
 - Proactively shape government
and university policy
 - e.g. Undergraduate STEM Education Initiative
- “Cross cultural communications”
*The business of making the work of scientists
and engineers relevant to the “layperson”.*



Two Cultures: Politicians & Scientists

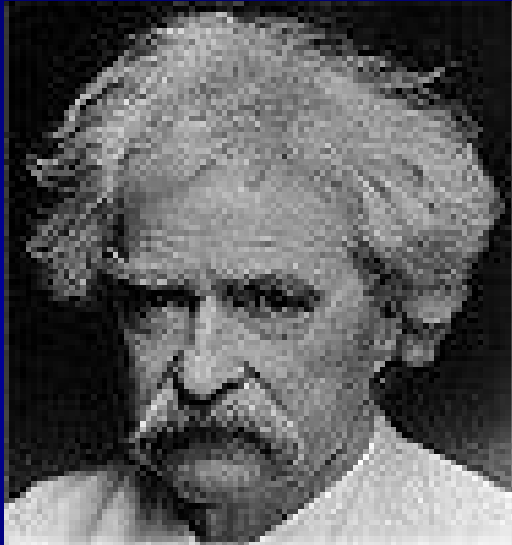


A Brief History Lesson in Science Policy



“There is nothing new in the
world except the history you do
not know.”

—Harry Truman



"History doesn't repeat
itself, but it does rhyme."

– Mark Twain

The Federal Government and U.S. Research Universities Prior to World War II

- Little federal support of university research outside of agriculture and aeronautics (USDA and the Natl. Council for Aeronautics)
- Focus of federal support for universities was primarily upon applied, not basic, research
- Universities feared government interference in research and believed it jeopardized academic freedom
- Basic research was primarily supported by private funding sources, particularly large corporate foundations (e.g. Rockefeller, Carnegie)

The Emergence of the Partnership Between the Federal Government and Universities

- 1933 - President Roosevelt's New Deal Relief Programs expanded the federal government's role in many areas
- Capital funds of the major foundations were depleted by the depression
- Universities faced significant financial challenges resulting from state cutbacks, losses in endowment yields, and reductions in private support
- Significant debate within the university community about the relationship between the federal government and universities (e.g. Fall AAU meeting, 1937)
- Enter World War II and Vannevar Bush

World War II

- Federal Government seeks to involve scientists in war effort
- In 1940, President Roosevelt creates the National Defense Research Committee (NDRC)
- Roosevelt asks Vannevar Bush to serve as Chair
- NDRC structure expanded and renamed Office of Scientific Research and Development (OSRD) in 1941



Los Alamos National Lab during the Manhattan Project

OSRD and the War Effort

- OSRD operates no laboratories directly; it instead uses government contracts to support research at universities and laboratories
- OSRD is credited with the success of the Manhattan Project, as well as many other major scientific advances developed as a part of the war effort (e.g. DDT, blood substitutes, new methods to fight infection)
- In 1944, Roosevelt asks Bush to write a report on post-war federal involvement in science

Science – The Endless Frontier

“Science, by itself, provides no panacea for individual, social, and economic ills. It can be effective in the national welfare only as a member of the team, whether the conditions be peace or war. But without scientific progress no amount of achievement in other directions can insure our health, prosperity, and security as a nation in the modern world.”

Science - The Endless Frontier, July 1945

Defining the U.S. Science Policy Debate: Vannevar Bush & Harley Kilgore



Historical Considerations: The Bush-Kilgore Debate

Issues in the Creation of the NSF:

- Merit vs. Geographical Diversity
- Social Science Research
- Fundamental vs. Applied Industrial Research
- Ownership of Intellectual Property from Government Funded Research
- Who Appoints the NSF Director

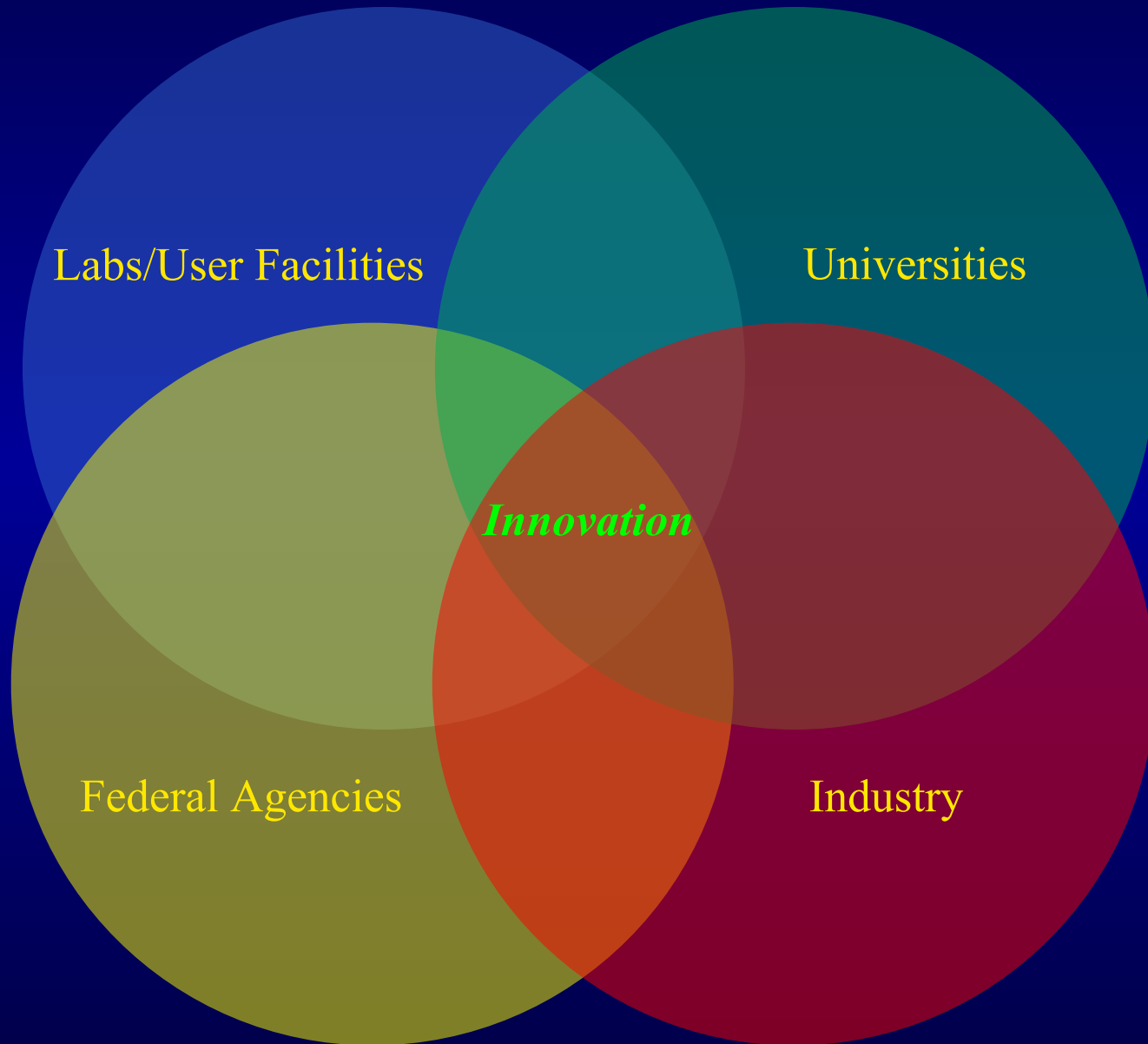
Five Year Long Debate Over NSF Blurs Bush's Original Vision

- NSF bill finally enacted on May 10, 1950
- DOD – ONR created in 1946; Army and Air Force follow with their own research establishments
- Atomic Energy Commission (AEC) created in 1946
- National Cancer Institute merged with the National Institute of Health in 1944 and in 1948 the National Institutes of Health was created
- By 1955, DOD accounted for 80 percent of all federal R&D expenditure, AEC for 10 percent, and HEW (including NIH) for 6.6 percent; NSF accounted for only 0.1 percent

What Happened to OSRD?

- OSRD was dismantled in December 1947
- OSRD policies defined the nature of future university-federal research relationships
 - Merit Based vs. Geographical Funding
 - Preserved Academic Autonomy
 - Contracts and Grants as the Funding Mechanisms
 - Payment of University Overhead

The U.S. Innovation Ecosystem is Unique



Thank you for your attention...



Additional Reading

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- Dickson, David , *The New Politics of Science*, Pantheon Books, 1987.
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- *The National Science Foundation: A Brief History*, NSF 88-16, July 15, 1994, <http://nsf.gov/about/history/nsf50/nsf8816.jsp>.
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- "Strengthening the Government-University Partnership in Science," National Academies, Committee on Science, Engineering, and Public Policy, 1983.
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