U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON TECHNOLOGY AND INNOVATION

HEARING CHARTER

Best Practices in Transforming Research into Innovation:
Creative Approaches to the Bayh-Dole Act

Tuesday, June 19, 2012
10:00 a.m. – 12:00 p.m.
2318 Rayburn House Office Building

I. Purpose

On Tuesday, June 19th, the Committee on Science, Space, and Technology Subcommittee on Technology and Innovation will hold a hearing to learn about different approaches universities and nonprofits are taking to transfer the results of federally-funded research.

II. Witnesses

Dr. Todd T. Sherer, President, The Association of University Technology Managers

Ms. Catherine Innes, Director, Office of Technology Development, University of North Carolina at Chapel Hill

Mr. Ken Nisbet, Executive Director, University of Michigan Technology Transfer

Mr. Robert Rosenbaum, President and Executive Director, Maryland Technology Development Corporation

III. Background

In fiscal year 2012, the Federal government funded more than $135 billion in research and development activities. Colleges and universities conduct the majority of basic research in the United States, and cumulatively receive more than half of their total research funding from federal agencies.[1] Because of the large amount of funding expended by the federal government on basic research by nonprofits, efforts to improve the transfer of federally-funded research are of interest to both the federal government and stakeholders across the nation.

[1] Congressional Research Service, January 2012, Federal Support for Academic Research http://www.crs.gov/pages/Reports.aspx?PRODCODE=R41895&Source=search

The Amendments to the Patent and Trademark Act of 1980 (P.L. 96-517), commonly known as the Bayh-Dole Act, were designed to improve collaboration between commercial concerns and nonprofit organizations, including universities, in addition to promoting the utilization of inventions arising from federally supported research and development. In order to encourage the two sectors to work together to generate new goods, processes, and services for the marketplace, the Act gave U.S. universities, small businesses, and nonprofits intellectual property control of their inventions and other intellectual property that resulted from such funding,. This alignment of ownership and control was a major change from the previous system where the Federal government retained title and right to license for inventions. Prior to the passage of the Bayh-Dole Act, there was limited incentive to commercialize early stage, high-risk technologies. The U.S. government had licensed fewer than 5 percent of 28,000 accumulated patents.[2] Bayh-Dole changed the incentive structure for nonprofits and small businesses to patent and license inventions. In 1980, 390 patents were awarded to universities;[3] by 2009, the number increased to 3,088.[4]

Bayh-Dole is generally considered a success by most stakeholders. In 2003, the President's Council of Advisers on Science and Technology prepared a report examining how to improve technology transfer, *Technology Transfer of Federally Funded R&D*, which found that the model of allowing universities to retain intellectual property rights to the results of federally-funded research and development"…has not only dramatically improved the Nation's ability to move ideas from research and development into commerce, but also helped enhance the return on this substantial taxpayer investment"`[5]. Furthermore, the 2010 National Research Council report, *Managing University Intellectual Property in the Public Interest* found that, "[t]he system put in place by the Bayh-Dole Act, that is, university ownership of inventions from publicly funded research and latitude in exercising associated intellectual property rights subject to certain conditions and limitations, is unquestionably more effective than its predecessor system—government ownership subject to waiver in circumstances that varied from agency to agency—in making research advances available to the public."[6]

In October 2011, President Obama released a Presidential Memorandum to agencies titled *Accelerating Technology Transfer and Commercialization of Federal Research in Support of High Growth Businesses.* The memorandum required agencies that conducted intramural research to improve their technology transfer results by "establish[ing] goals and measure performance, streamlin[ing] administrative processes, and facilitate[ing] local and regional

[2] Wendy H. Schacht, *The Bayh-Dole Act: Selected Issues in Patent Policy and the Commercialization of Technology*, Congressional Research Service, March 16, 2012, at 5.

[3] National Science Board, Science and Engineering Indicators—1993 (Washington, National Science Foundation, 1993), 430.

[4] National Science Board, Science and Engineering Indicators, 2012 (Washington, National Science Foundation, 2010), Appendix table 5-48, available at http://www.nsf.gov/statistics/seind12/append/c5/at05-48.pdf.

[5] The President's Council of Advisors on Science and Technology, Report on Technology Transfer of Federally Funded R&D (2003), *available at* http://www.whitehouse.gov/sites/default/files/microsites/ostp/pcast-03-techtransfer.pdf

[6] National Research Council, *Managing University Intellectual Property in the Public Interest* (2010), *available at* http://www.nap.edu/openbook.php?record_id=13001&page=2.

partnerships in order to accelerate technology transfer and support private sector commercialization."[7] The Department of Commerce's National Advisory Council on Innovation and Entrepreneurship has also partnered with research university leaders to find ways to improve technology transfer of federally-funded research.[8]

Many universities have hired professional technology managers and created technology transfer offices to work with faculty and to address patents and establish guidelines to cover industry-university relationships, with education and publication remaining academic priorities.[9]

Due in part to Bayh-Dole, academia has become a major source of innovation and new business creation. In 2010, the Association of University Technology Managers' survey identified 657 new products marketed because of academic R&D. The survey also found that more than 650 new companies were founded to commercialize university research with over five thousand new licenses or options granted mostly to small businesses.[10] A recent report found that "without accounting for product substitution effects…over the period 1996 to 2007, university licensing agreements based on product sales contributed at least $47 billion and as much as $187 billion to the U.S. GDP."[11] However, university technology managers report that the major reason for patent licensing is commercialization (or product creation), not profit, particularly since the cost of a patent is so high.[12]

There have been concerns that accelerating technology transfer at primarily research institutions may promote industry-research collaboration and result in business-dictated research. However, there are safeguards, such as university's limitations on outside research, mandated expeditious publication obligations for some federally-funded research and development, and conflict of interest provisions, which are able to insulate research from outside direction by the business community.[13]

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[7] Presidential Memorandum , Accelerating Technology Transfer and Commercialization of Federal Research in Support of High-Growth Businesses (Oct. 28, 2011), *available at* http://www.whitehouse.gov/the-press-office/2011/10/28/presidential-memorandum-accelerating-technology-transfer-and-commerciali

[8] April 2011 letter to Secretary Gary Locke; http://www.aau.edu/policy/letters_statements_testimony.aspx?id=11960

[9] Technology Transfer: Administration of the Bayh-Dole Act by Research Universities.

[10] Association of University Technology Managers, AUTM U.S. Licensing Activity Survey Highlights: FY2010, available at http://www.autm.net/AM/Template.cfm?Section=FY_2010_Licensing_Survey&Template=/CM/ContentDisplay.cfm&ContentID=6874.

[11] David Roessner, Jennifer Bond, Sumiye Okubo, and Mark Planting, The Economic Impact of Licensed Commercialized Inventions Originating in University Research, 1996-2007, Final Report to the Biotechnology Industry Organization, September 3, 2009, 32, available at http://www.bio.org/ip/techtransfer/BIO_final_report_9_3_09_rev_2.pdf.

[12] Ann M. Thayer, "University Technology Moves to Market via Patenting, Licensing,: Chemical and Engineering News, August 24, 1992, 17-18.

[13] *See* Wendy H. Schacht, *The Bayh-Dole Act: Selected Issues in Patent Policy and the Commercialization of Technology*, Congressional Research Service, March 16, 2012.

IV. Institutional Efforts to Improve Technology Transfer

Universities, nonprofits, and other interested stakeholders are attempting to improve the transfer of technology through a number of methods. Some of the areas of focus include:

- **Reducing the barriers to commercialization** to ensure that technologies developed in academic and nonprofit settings make it to the public through activities such as reducing legal fees, minimizing licensing negotiations, restructuring organizational units, and building industry relationships;

- Universities and nonprofits are working with both students and faculty on **promoting entrepreneurship**. Cross-discipline and cross-college programs have helped to connect individuals and share expertise and innovative ideas;

- Increasing **collaboration** between industry and innovator through federal agency research components, collaborative models, and commercialization potential in grant proposals;

- Linking technology transfer to **economic development** through regional and local partnerships; and

- **Sharing of best practices** between institutions with different levels of technology transfer capacity and experience.

V. Issues for Examination

How has university technology transfer evolved since the passage of Bayh-Dole?

What are universities across the country doing today to expeditiously transfer the results of federally-funded research? Are there any model technology transfer activities being replicated across the Nation?

How have university-industry partnerships impacted technology transfer?

What are the most innovative practices stakeholders are using to develop ideas that have commercial opportunities or societal impact?

How is the successful transfer of technology measured?