

Response to the National Institute of Standards and Technology Request for Information Regarding Federal Technology Transfer Authorities and Processes

Submitted by Oak Ridge National Laboratory
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Since its enactment in 1980, the Bayh-Dole Act has fostered a dynamic collaboration between research institutions and industry to efficiently deliver the research outputs of universities and national laboratories to private sector partners. Hailed by The Economist as “perhaps the most inspired piece of legislation to be enacted in America over the past half-century”, the university and national laboratory technology transfer enabled by the law has been credited by the Association of University Technology Managers with contributing to more than 500 billion dollars to the US gross domestic product since 1996. Given the importance of this enterprise and the nearly 40 years that have passed since Bayh-Dole was enacted, it is appropriate to review the nation’s technology transfer authorities and processes and explore opportunities for improvement.

Oak Ridge National Laboratory is one of 17 US Department of Energy National Laboratories. Unlike universities, the National Laboratories are owned by the federal government and are funded to execute portions of the Department of Energy’s mission. At a high level, the mission of the Energy Department is to ensure America’s security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions.

Broadly speaking, the technology transfer mission of each national laboratory is to leverage the unique resources, expertise, and intellectual property of the laboratory to create maximum economic benefit for the United States. The laboratories have a number of tools to execute this mission:

- Sharing research results through scientific publications and meetings. The laboratories annually produce more than 16,000 research publications.
- Providing access to world-class scientific user facilities staffed with experts available to assist more than 30,000 visiting scientists annually across the DOE complex. For example, ORNL is home to the new supercomputer Summit, which we believe will be named the world’s most powerful computer.
- Performing work sponsored by non-federal sponsors including companies, non-profit research institutions, and academic institutions. The labs have more than 2000 active industry-sponsored projects.
- Collaborating with industry and academic partners under Cooperative Research and Development Agreements. The labs have more than 700 active industry collaborations.
- Licensing intellectual property developed at the laboratory. The labs have more than 5000 active technology licenses.

This input, provided in response to the National Institute of Standards and Technology’s May 1, 2018 Request for Information, is offered from the perspective of a Department of Energy Government Owned Contractor Operated (GOCO) National Laboratory.

1. What are the core Federal technology transfer principles and practices that should be protected, and those which should be adapted or changed?

The basic structure of the Bayh-Dole Act, which enables universities, GOCO national laboratories managed by non-profit entities, and small businesses to retain title to innovations developed under federally funded research programs should be retained.

Today, the Department of Energy is placing increased emphasis on successful commercialization of laboratory research results, and the labs are visibly responding. Emphasis and support for technology transfer by a federal laboratory's parent agency is perhaps the most important driver of federal laboratory technology transfer success.

Greater flexibility in intellectual property licensing, similar to that enabled by the Bayh-Dole Act, should be extended to Government Owned Government Operated (GOGO) laboratories.

2. What are the issues that pose systemic challenges to the effective transfer of technology, knowledge, and capabilities resulting from Federal R&D, and

3. What is the proposed solution for each issue that poses a systemic challenge to the effective transfer of technology, knowledge, and capabilities resulting from Federal R&D?

While the Bayh-Dole Act enables and streamlines the commercialization of federally funded patents, it does not address the commercialization of federally funded computer software or data sets. Indeed, computer software and data were far less important forms of intellectual property when the Bayh-Dole was enacted. New, uniform processes to transfer title to federally funded software and data sets to universities and national laboratories similar to the existing election process for patentable inventions should be developed.

Today, Oak Ridge National Laboratory invests the majority of its license royalty income in research and development to prepare technologies for commercialization. While the program is very successful, with approximately 70% of the "matured" technologies being licensed, funding is limited. New initiatives to provide locally controlled and flexibly deployed funds to help validate and de-risk promising new technologies could significantly increase the nation's return on investment in scientific research.

The National Laboratories' most significant asset is the more than 20,000 scientists and engineers who work in these facilities. The most effective way to transfer these researchers' innovations to private sector partners is to enable and encourage collaboration. At Oak Ridge National Laboratory, an innovative Technical Collaborations Program funded by the Department of Energy's Advanced Manufacturing Office has brought more than 100 partners to the Department of Energy's Manufacturing Demonstration Facility at ORNL to collaborate under Cooperative Research and Development Agreements (CRADAs). These partners work with ORNL's scientific staff to solve problems relevant to their companies. In many cases, these partners license ORNL technologies, and use their CRADAs as vehicles to engage with the inventors as they adopt the new technology. We recommend building on this successful model to provide more opportunities for industry to collaborate with national laboratories.

4. What are other ways to significantly improve the transfer of technology, knowledge, and capabilities resulting from Federal R&D to benefit U.S. Innovation and the Economy?

We recommend clarification of US competitiveness provisions such as ‘substantial manufacture in the United States’ in relation to sponsored research and licensing activities conducted by the National Laboratories. Given the increased presence of multinational firms and global supply chains, even US companies struggle with this provision.

Licensing partners frequently express misgivings about March-in Rights. It would be helpful for NIST to provide clarification on the intended purpose, scope and appropriate uses of march-in rights to alleviate the uncertainty that can have a chilling effect on laboratory technology transfer.