Green Paper Response: Return on Investment Initiative

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Submitted by: Sandia National Laboratories

Sandia National Laboratories is a multiprogram engineering and science laboratory and federally funded research and development center (FFRDC) operated by National Technology & Engineering Solutions of Sandia, LLC ("Sandia") for DOE/NNSA. Sandia's unique mission responsibilities in the nuclear weapons program create a foundation of capabilities that help the laboratories to solve complex national security problems. Sandia works with government agencies, industry, and academia to accomplish its strategic missions, and conducts technology transfer to ensure the broader use and impact of federally funded innovations.

Sandia appreciates the opportunity to respond to NIST's Draft Green Paper on federal technology transfer strategies and actions. Sandia supports these efforts to maximize the impact of federally funded innovation and looks forward to working with NIST on this initiative.

High Value Actions

Sandia finds many of the strategies and intended actions presented highly valuable. A few representative examples follow.

- Strategy 2 to Increase Engagement with Private Sector Technology Development Experts addresses streamlining partnership mechanisms by **allowing Cooperative Research and Development Agreements (CRADAs) between GOCOs and federal agencies.** This strategy also addresses new/expanded partnership mechanisms which will **expand the use of nonprofit foundations, establish a new Research Transaction Authority** that will enable federal agencies to pursue faster agreement negotiations, and extend the **ACT authority to all GOCO Laboratories.**
- Strategy 3 to build a more entrepreneurial workforce addresses **designating a job series for technology transfer professionals** with a goal of, "recruit[ing], develop[ing], and retain[ing] well qualified professionals to pursue a career in Federal technology transfer and develop[ing] needed implementation guidance for government-wide adoption and use."
- Strategy 5 to improve understanding of global science and technology trends and benchmarks addresses the **creation of a common easy to use platform for federal intellectual property reporting** and **establishing metrics to capture, assess, and improve federal research and development impacts.** Though positive, new metrics could produce an additional burden on laboratories for which there may not be adequate budget available.

Licensing and Technology Maturation

Licensing & Copyright

Strategy 2 to Increase Engagement with Private Sector Technology Development Experts addresses streamlining partnership mechanisms (page 54). Sandia feels that **regulatory change for licensing** in this instance could restrict licensing and technology transfer capability in the future. We are concerned that standardization across agencies could reduce the ability of laboratories to structure the most effective licenses to meet our mission needs and select the best commercialization paths. The intended actions take a narrow view of the other terms in the license leaving the financial terms as the main negotiating tool. This is inconsistent with practice and weakens the ability to implement a workable license.

Strategy 1 to Identify Regulatory Impediments and Administrative Improvements in Federal Technology Transfer Policies and Practices addresses **Government Use**. Sandia finds that boundaries for government use are not well understood. Some recipients of IP for government use **have packaged our IP for government use with theirs and have licensed the package commercially**. (Pages 28-29) We struggle to find an effective way to ensure that government use is not used for non-government purposes.

The strategy additionally addresses software copyright. **Copyright protection for federal employees could potentially create added complexities for technology transfer** including complications in copyrighting material created by the government if federal employees own the copyright and understanding how those complexities will be dealt with. Additionally, if laboratories write code in collaboration with federal employees, will they need to pay the government (or government employees) royalties if that code is licensed commercially? Related to copyright protection is the protection and commercial use of data (information that is collected from resources and facilities at the laboratories) that is unaddressed. Data has value but is not currently treated as intellectual property in government agreements, which allows for no control over its use. Under current circumstances, the only option for data is to either make or not make it publicly available. (Page 42)

Technology Maturation

Though the Green Paper chose not to address **technology maturation** funding, it is probably the most pressing barrier to commercializing laboratory-developed technologies. An approved guidance (or policy) statement that clearly describes permissible activities by laboratories in post-research scale-up and/or demonstration of laboratory-developed concepts is needed.

A technology maturation program could allow small businesses that have licensed technology from a laboratory to apply for assistance to have national laboratory scientists and engineers help mature the technology and further develop products and services until they are market-ready or sufficiently developed to attract private investment. This would require sufficient funding and time to generate a return on investment, which could include increased licenses and start-ups catalyzed by this program, jobs created or retained, increased sales, higher average salaries, and subsequent funding attracted or leveraged.

For Additional Consideration

Strategy/Action	Response
Managing Conflict of Interest	There are Conflicts of Interest (COI) beyond financial that could present issues. For example, a competitor to a startup affiliated with a laboratory researcher could be denied access to laboratory resources. Although there is no direct financial conflict in this situation, it could be seen as favoring the startup affiliated with the laboratory. We previously suggested that improved guidance should be provided uniformly across all federal laboratories, including standardized mechanisms and criteria of what constitutes COI, especially with respect to technology transfer. Clarifications could be added to remove some of the difficulties associated with former federal laboratory employees who leave to start a company. This would also need to be expanded to support federal laboratory employees providing consulting assistance to companies trying to deploy technology from the laboratories. Right now, the current mechanisms (CRADA and SPP) are likely too expensive for many startups which would benefit from help by the inventors. One solution might be for federal laboratory employees to be able to provide a certain amount of consulting with limited prior approval (for example, 100 hours) before more rigorous COI rules are applied. (Page 81)
Fairness	The fairness requirements for intellectual property (and technology transfer generally) from federal laboratories further hinder tech transfer. Because of uncertainty with respect to what “fairness” means and the need for uniform application across the federal laboratory system, there is a strong incentive to overcompensate to be fair, which slows tech transfer. Universities can leverage existing relationships with companies to deploy technology, while federal laboratories must treat each technology as a separate item and ensure fairness for each interaction.
Funded Mission Objective	Reforming technology transfer legislation would support tech transfer as a funded mission objective. Technology transfer and commercialization should be a core mission objective that is integrated with the other missions of each laboratory, funded appropriately, and include accountability. Currently, technology transfer and commercialization are managed largely as relatively unfunded mandates, with a focus on adapting technologies developed for a mission assignment to commercial applications. If commercialization is truly important, it should be assigned and funded as a mission objective that is integrated with the other assigned missions of each laboratory and managed throughout the full R&D lifecycle.