PRESIDENT'S MANAGEMENT AGENDA

Improve Transfer of Federally-Funded Technologies from Lab-to-Market

Goal Leaders

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The White House

Overview

Challenge

- The Federal Government invests approximately $150 billion annually[1] in research and development (R&D) conducted at Federal laboratories, universities, and other research organizations.
- For America to maintain its position as the global leader in innovation, bringing products to market more quickly, growing the economy, and maintaining a strong national security innovation base, it is essential to optimize technology transfer and support programs to increase the return on investment (ROI) from federally funded R&D.

Goal Statement

- Improve the transition of federally funded innovations from the laboratory to the marketplace by reducing the administrative and regulatory burdens for technology transfer and increasing private sector investment in later-stage R&D;
- Develop and implement more effective partnering models and technology transfer mechanisms for Federal agencies; and
- Enhance the effectiveness of technology transfer by improving the methods for evaluating the ROI and economic and national security impacts of federally funded R&D, and using that information to focus efforts on approaches proven to work.

Strategies

- Identify regulatory impediments and administrative improvements in Federal technology transfer policies and practices.
- Increase engagement with private sector technology development experts and investors.
- Build an entrepreneurial R&D workforce.
- Support innovative tools and services for technology transfer.
- Improve understanding of global science and technology trends and benchmarks.

[1]Analytical Perspectives, Budget of the United States Government, Fiscal Year 2019, ch. 18. Available at https://www.gpo.gov/fdsys/pkg/BUDGET-2019-PER/pdf/BUDGET-2019-PER.pdf.

Goal Leadership

Office of Science and Technology Policy (OSTP)

CAP Goal Leadership

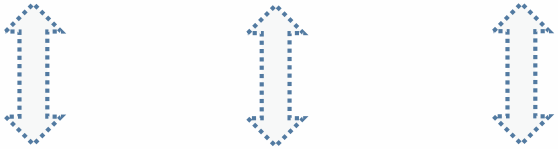
Department of Commerce (DOC)

National Science & Technology Council (NSTC)

Lab-to-Market Subcommittee (L2M SC)

Co-Chairs: OSTP, NIST, DOE

Coordinate, Review, and Implement Interagency Priorities



Small Business Innovation Research (SBIR) Program Managers Working Group

Interagency I-Corps Community of Practice

Interagency Working Group for Technology Transfer

Interagency Working Group for Bayh-Dole*

Federal Laboratory Consortium for Technology Transfer

Interagency Contributors

See http://www.nist.gov/tpo/lab-to-market.cfm for descriptions of participating working groups

*The Interagency Working Group for Bayh-Dole coordinates implementation of the Bayh-Dole Act; see 35 U.S.C. 200 and 37 C.F.R. 401 and 404.

Developing the Strategy and Action Plan

Technology transfer thought leaders from across the Federal government will work with U.S. industry, entrepreneurs, universities, and other stakeholders to develop the strategy. Federal stakeholders will develop the action plan and track implementation through this CAP Goal.

Current Status: Short-term milestones have been developed; Discovery and Strategy Development phases will inform long-term goals and plans.

Full Action Plan will be developed with stakeholder input.

Discovery	Strategy Development	Options & Solutions	Develop Action Plan and Key Milestones	Regularly Assess Progress
Develop an understanding of the as-is state, identify key internal and external stakeholder groups, and develop a clearly scoped problem statement.	Develop one or more high-level strategies to address each key issue identified in the problem statement. Strategies will make use of lessons learned from past and on-going efforts.	Analyze options and propose specific solutions to address each identified issue. Prioritize implementation actions and timelines.	Develop Full Action Plan[1] with implementation priorities, output and outcome metrics, and key milestones to track progress.	Regularly review the effectiveness of implementation and make course corrections as needed.

[1]CAP Goal Leadership (OSTP and DOC) will review and approve the Full Action Plan prior to its implementation.

CAP Goal Strategic Approach

The CAP goal will be accomplished through five strategic approaches:

Identify regulatory impediments and administrative improvements in Federal technology transfer policies and practices.

Increase engagement with private sector technology development experts and investors.

Build a more entrepreneurial R&D workforce.

Support innovative tools and services for technology transfer.

Improve understanding of global science and technology trends and benchmarks.

Strategy 1: Regulatory & Administrative Improvements

- **Identify regulatory impediments and administrative improvements in Federal technology transfer policies and practices.**
- *Problems Targeted:*
  - Technology transfer legislation was written in the 1980s and needs to be updated for the 21st century.
  - Inconsistent interpretation of law and regulation; inconsistent practices.
  - Inconsistent definition of technology transfer and stakeholder across organizations.
  - Partnerships not entered into due to unnecessary restrictions in policy, regulation, or statute.
  - Leadership, management, or cultural impediments that hinder adoption of best practices.
- **Action:** Gather input from stakeholders, including Federal agencies, academia, industry, and investors, to understand barriers and concerns, as well as use of authorities and promising practices, related to technology transfer.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Hold kick off event: *"Unleashing American Innovation: Lab-to-Market"* on April 19, 2018	Q3FY18	Completed	N/A	DOC, OSTP	*Goal leads invite input from senior leadership across government, academia, and industry.*
Publish Request For Information (RFI) and hold public forums to gather input	Q4FY18	In Progress	N/A	NIST	*Publish RFI notice in Federal Register and gather input from all concerned parties. Host public meetings for input and visit with well-established organizations in the field.*
Recommend improved practices, policies, and regulatory actions based on input	Q1FY19	Not Started	N/A	L2M SC	*Analyze input and develop recommendations of improved practices and policies, regulatory actions, and/or requests for legislative changes*

Strategy 2: Private Sector Engagement

- **Increase engagement with private sector technology development experts and investors.**
- *Problems Targeted*:
  - The private sector is a critical player in driving investment, but it can be challenging for them to engage with the Federal government.
  - Improved understanding of how federally-funded technologies, knowledge, and capabilities can be made more attractive for private investment, particularly angel and venture capital.
  - Improved systems usability so the private sector can find federally-funded technologies and key information (e.g. development stage, IP status) in their area of interest.
  - Earlier stakeholder engagement along with market-needs analysis for proposed technologies.
  - Increased stakeholder education of how federally-developed technologies and innovations are currently embedded and being used in technologies.
- **Action:** Engage private sector through stakeholder input process.
- **Action:** Examine existing models and promising practices for public-private partnerships.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Summarize models for private investment and growth	Q4FY18	In Progress	N/A	L2M SC	*Examine existing models, including agency foundation and investment mechanisms.*
Identify additional milestones based on stakeholder input	Q1FY19	Not Started	N/A	L2M SC	*Analyze input and develop recommendations for additional milestones to increase private sector engagement*
Develop recommendations for making federally funded technologies, knowledge, and capabilities more attractive for private investment	Q4FY19	Not Started	N/A	NIST, GSA	*Develop recommendations through Presidential Innovation Fellow's assessments*

Strategy 3: Entrepreneurial R&D Workforce

- **Build a more entrepreneurial R&D workforce. Support entrepreneurial education and training to develop the next generation of skilled innovators and entrepreneurs, and enable technology transfer and start-ups.**
- *Problems Targeted*
  - The R&D workforce, including researchers and managers, lacks exposure and knowledge about and incentive to take the steps required in translating research from the lab to the marketplace.
  - Conflict-of-Interest or other policies, culture, and processes that inadvertently discourage entrepreneurship or make it difficult to recruit and retain entrepreneurial employees.
  - Attitude and resulting culture created by some R&D leaders that the government should not be involved in the commercialization of technology.
- **Action:** Identify and address policy and practice challenges that discourage entrepreneurship within the R&D workforce, including Federal employees and federally-funded researchers at academic institutions.
- **Action**: Identify and implement entrepreneurial training programs and models, building on current comprehensive models that provide "learning by doing" skills development strategies and access to appropriate mentors and business relevant expertise.
- **Action:** Educate R&D leadership, management, and staff on mission-related benefits of technology transfer activities and an entrepreneurial mindset.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Identify conflict-of-interest policy challenges	Q4FY18	In Progress	N/A	L2M SC	*Examine differences in conflict-of-interest policies and how they impact ability of personnel to engage in entrepreneurial activities.*
Identify additional milestones based on stakeholder input	Q1FY19	Not Started	N/A	L2M SC	*Analyze input and develop recommendations for additional milestones to increase entrepreneurship in the R&D workforce*
Identify existing entrepreneurial training programs for the R&D workforce	Q4FY18	In Progress	N/A	L2M SC	*Examine existing entrepreneurial training programs and models.*
Expand agency participation in R&D entrepreneurial training programs, such as I-Corps	Ongoing	Not Started	N/A	L2M SC	*Increase agency team participation in programs such as I-Corps and Cyclotron Road*

Strategy 4: Tech Transfer Tools & Services

- **Support innovative tools and services for technology transfer. Improve and develop tools to support the discovery and transfer of technologies**.
- *Problems Targeted*
  - Complicated bureaucracy for citizens to navigate in order to engage in tech transfer.
- **Action:** Refine Federal Laboratory Consortium (FLC) Business tools to meet stakeholder needs.
- **Action:** Engage the private sector in a partnership to develop tools for efficient utilization of public and private data streams to enhance technology commercialization efforts.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Identify additional milestones based on stakeholder input	Q1FY19	Not Started	N/A	L2M SC	*Analyze input and develop recommendations for additional milestones for new tools and services that will meet stakeholder needs*
Execute Joint Venture Partnership to develop new tools that enhance use of public and private data supporting technology commercialization.	Q4FY18	In Progress	N/A	NIST	*Execute and begin partnership with NTIS (National Technical Information Service) to engage the private sector to develop tools for efficient utilization of public and private data to enhance technology commercialization efforts*
Gather stakeholder input to refine FLC Business website	Q1FY19	In Progress	N/A	FLC	*Survey agencies and customers to determine priority actions for implementation*

Strategy 5: Science and Technology Trends and Benchmarks

- **Improve understanding of global science and technology trends and benchmarks to measure progress and achieve results.**
- *Problems Targeted*
  - Increased need to demonstrate value of federal research investments to the Nation.
  - Designing metrics that take into account the variety of Agency missions and technologies.
  - Shifting the focus from outputs to mission-related outcomes.
  - Balancing reporting burdens with the ability to measure progress.
- **Action:** Initiate National Academy of Sciences study on issues in reporting on data and software technology transfer.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Complete a study of global practices in technology transfer and commercialization.	Q4FY18	In Progress	N/A	NIST	*Study will be used to inform decisions and future plans.*
Complete a study of state programs in technology transfer and commercialization.	Q4FY18	In Progress	N/A	NIST	*Study will be used to inform decisions and future plans.*
Publish empirical technology transfer study	Q4FY18	In Progress	N/A	NIST	*Complete a quantitative and qualitative study of federal tech transfer across multiple agencies*
Identify additional milestones based on stakeholder input	Q1FY19	Not Started	N/A	L2M SC	*Analyze input and develop additional milestones for improved metrics and economic analysis*
Develop platform to evaluate economic impact of SBIR/STTR awardees	Q1FY19	In Progress	N/A	SBA	*Identify administrative and business data sources to evaluate company-level economic impacts of SBIR/STTR in collaboration with Census and USPTO*
Complete study on issues in reporting data, software, and apps	Q4FY20	Not Started	N/A	NIST	*Make recommendations based on study of issues in reporting data, software and apps that may expand the definition of technology transfer.*

Summary of Progress in the Last Quarter

Strategy 1: Regulatory and Administrative Improvements

- NIST, in coordination with OSTP, held the Unleashing American Innovation Symposium on April 19, 2018 at the U.S. Institute of Peace in Washington, D.C.
- NIST published a Request for Information (RFI) in the *Federal Register* regarding federal technology transfer authorities and processes on May 1, 2018.
- NIST held four public forums in conjunction with the RFI: May 17 in San Jose, California; May 21 in Denver, Colorado; May 31 in Chicago, Illinois; and June 14 in Gaithersburg, Maryland.

Strategy 5: S&T Trends and Benchmarks

- Preliminary data from the Empirical Technology Transfer Study were presented at the Federal Laboratory Consortium's National Meeting on April 25, 2018.

Contributing Programs

Department of Agriculture (USDA)
Department of Commerce (DOC)
Department of Defense (DoD)
Department of Education (ED)
Department of Energy (DOE)
Department of Health and Human Services (HHS)
Department of Homeland Security (DHS)
Department of the Interior (DOI)
Department of State (State)
Department of Transportation (DOT)
Department of Veterans Affairs (VA)
Environmental Protection Agency (EPA)
National Aeronautics and Space Administration (NASA)
National Science Foundation (NSF)
Office of Management and Budget (OMB)
Small Business Administration (SBA)

Interagency Working Groups

- Interagency Working Group for Technology Transfer
- Interagency Working Group for Bayh-Dole
- Federal Laboratory Consortium for Technology Transfer
- SBIR Program Managers Working Group
- Interagency I-Corps Community of Practice

Lead Agencies

- Department of Commerce - National Institute of Standards and Technology (NIST)
- Executive Office of the President - Office of Science and Technology Policy (OSTP)

See http://www.nist.gov/tpo/lab-to-market.cfm for descriptions of participating working groups