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

Goal Leaders

Walter G. Copan, Ph.D.
Under Secretary of Commerce for Standards and Technology
Director, National Institute of Standards and Technology
U.S. Department of Commerce

Michael Kratsios
Chief Technology Officer of the United States
Office of Science and Technology Policy
The White House

January 2021

The 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.

The Goal

- 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;
- 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, using that information to focus efforts on approaches proven to work.

The 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 a more entrepreneurial R&D workforce.

- Support innovative tools and services for technology transfer.

- Improve understanding of global science and technology trends and benchmarks.

✓ Discovery | ✓ Strategy Development | ✓ Options & Solutions | ✓ Develop Action Plan and Key Milestones | **ONGOING** Implement and Assess Progress

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

By 2030, the strategies and actions of this CAP Goal are working toward a future in which:
Agencies will have the skills and resources to improve the transition of federally funded innovations from the laboratory to the marketplace; initiatives to ease administrative and regulatory burdens for federal technology transfer will increase private sector investment in early and later-stage R&D; innovative processes and services will support new businesses and industries; and more effective partnering tools and technology transfer mechanisms for federal agencies will be developed, clarified, and made known to stakeholders for relationship building and increased number of cooperative projects.

Outcomes
• Accelerated economic growth and increase in commercialization of federally funded research.
• U.S. innovation system is demonstrably improved through the discoveries and inventions arising from federally funded R&D at the nation's universities, research institutes, and federal laboratories as measured by increased levels of partnership agreements, licensing, and successful startups.
• Private funding for science and technology-based businesses increases and accelerates the launch of new products and services.
• Economic and public health resilience supported by technological innovations.

Operations
• Available technologies for development and research collaborations for all federal agencies are available on web-based Federal Laboratory Consortium's "Available Technologies Web Page" along with information on partnering instruments.
• Information on available technologies is available to the public and data on performance is collected and reported on overall performance of federally funded technologies.
• Entrepreneurial training and experiential learning for commercialization of science and technology-based businesses is broadly available, coordinated, and made available to the public.
• A modern and improved reporting system for federally funded inventions from sponsored research is launched to lower administrative burdens and ease the transition of products to the marketplace.
• Reduction of perceived administrative obstacles to transferring technologies will improve the ability to increase partnerships.

Walter Copan, Under Secretary of Commerce for Standards and Technology and Director, NIST

Michael Kratsios, Chief Technology Officer of the United States, The White House

Participating Agencies

Interagency Contributors[1]

National Science and Technology Council Lab-to-Market Subcommittee

Interagency Working Group for Technology Transfer

Interagency Working Group for Bayh-Dole[2]

Small Business Innovation Research (SBIR) Program Managers Working Group

Entrepreneurial Training Interagency Working Group

Federal Laboratory Consortium for Technology Transfer

1: See https://www.nist.gov/tpo/lab-market for descriptions of participating working groups and strategy team focus areas
2: 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.

NASA published Inventors Hall of Fame online

NIST and UK Research and Innovation (UKRI) signed MOU to collaborate on commercialization

SBA launched prize competition recognizing inclusive ecosystem builders

NIST launched PEER prize competition to stimulate extramural invention reporting

RFI published assessing transition of DOD-originated dual-use technology

NIH launched Small Business Success Stories website

DOE announced energy incubator prize selections

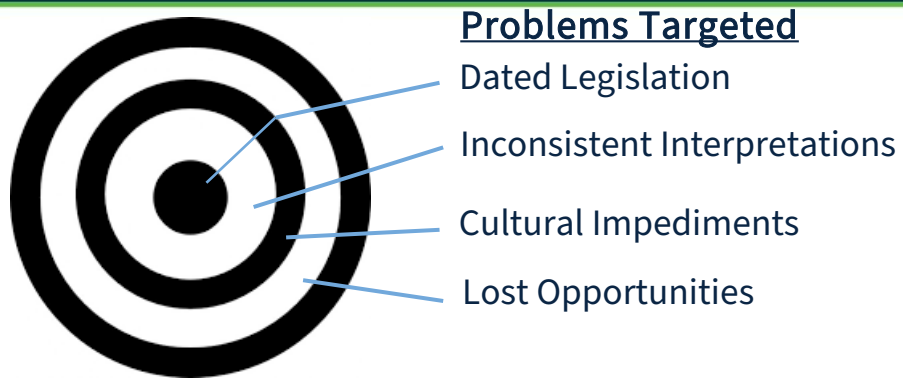**NIST held interagency cybersecurity showcase for CyberScoop's CyberWeek**

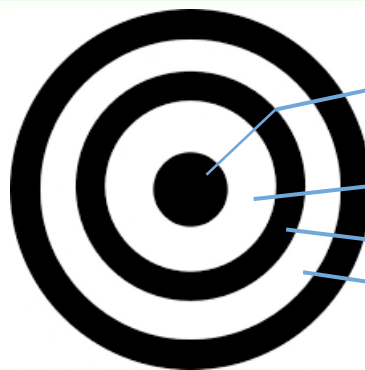**OSTP launched Quantum.gov, the official website of the National Quantum Coordination Office**

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

Problems Targeted

Dated Legislation

Inconsistent Interpretations

Cultural Impediments

Lost Opportunities

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner
Develop legislative proposal for revisions to Stevenson-Wydler Act	Q1FY21	Complete	Legislative request cleared for submission to Congress	NIST, IAWGTT
Publish Notice of Proposed Rule Making for public comment regarding the Bayh-Dole Act implementing regulations	Q1FY21	On Track	Notice of Proposed Rule Making in final agency clearance before publication	NIST, IAWGBD
Reduce administrative burden for SBIR/STTR programs	Ongoing	On Track	Milestone extended to ongoing to capture additional agency efforts	SBA SBIR PM

Strategy 2: Private Sector Engagement

Increase engagement with private sector technology development experts and investors.
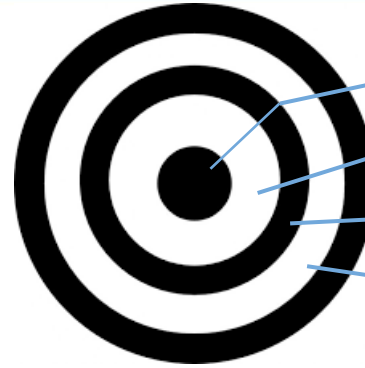
Problems Targeted

- Challenges working with Government
- Lack of Interest in Federal Technologies
- Mismatch with Market Needs
- Inability to Find Information

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner
Enhance interagency collaboration to support the R&D innovation ecosystem, such as through consortia and regional innovation clusters, to engage the private sector and leverage non-federal resources	Ongoing	On Track	Milestone extended to "ongoing" to continually capture agency efforts; FLC scoping FLCBusiness 3.0	L2M SC, FLC
Improve outreach activities from agencies to the private sector, such as demonstration and showcasing of federally-funded R&D	Ongoing	On Track	Milestone extended to "ongoing" to continually capture agency efforts; NIST held interagency T2 sessions for CyberScoop's CyberWeek; NIST and NNCO scoping interagency nanotechnology showcase	L2M SC, NIST

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

Lack of Knowledge

Lack of Incentives

Cultural Impediments
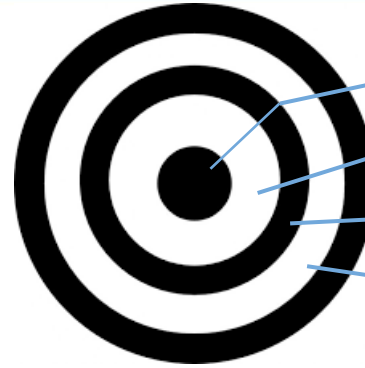
Policies that Discourage Entrepreneurship

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner
Improve and expand agency participation in R&D entrepreneurial training programs, such as I-Corps, the Lab-Embedded Entrepreneurship Program, and internships	Ongoing	On Track	Milestone extended to "ongoing" to continually capture agency efforts; ETIWG compiling Fed entrepreneurial programs on National Security Innovation Network platform	ETIWG
Submit proposal to designate a job series for federal technology transfer professionals	Q2FY21	On Track	NIST drafting job series requirements for review by IAWGTT; working with DOC HR, OSTP, and OPM on strategy	NIST, IAWGTT, OPM
Increase the participation of underrepresented groups in entrepreneurship to ensure a diverse and inclusive innovation community	Ongoing	On Track	Milestone extended to "ongoing" to continually capture agency efforts; SBA launched prize competition recognizing inclusive ecosystem builders	L2M SC, SBA

PRESIDENT'S MANAGEMENT AGENDA

Support innovative tools and services for technology transfer. Improve and develop tools to support the discovery and transfer of technologies.
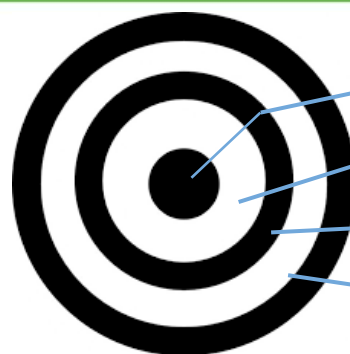
Problems Targeted

Lack of Awareness

Complicated Bureaucracy

Inconsistent User Experiences

Duplicative Tools

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner
Enable interagency sharing and leveraging of resources and expertise related to implementing intramural and extramural reporting tools to enable adoption and adaptation for agency-specific missions and improve the user experience	Ongoing	On Track	Milestone extended to ongoing to capture additional agency efforts; iEdison core functionality development and login.gov integration nearing completion	NIST, L2M SC
Develop enabling policies and guidance (federal-wide and agency-specific) to improve tools used for outreach and raising public awareness of federal R&D resources, including federally-funded R&D outputs	Ongoing	On Track	Milestone extended to ongoing to continue to capture agency efforts; FLC developing federal laboratory census	L2M SC, FLC
Issue a prize competition to solicit proposals/ideas for increasing extramural invention reporting	Q1FY21	Complete	NIST launched Partners Engaged in Extramural Reporting (PEER) prize competition	NIST, L2M SC
Identify common measures and mechanisms to improve the effectiveness of technology transfer tools and services used for outreach and to raise public awareness of federally-funded R&D outputs	Q2FY21	On Track	Federal Agencies reviewing model technology listing for future standardization across agencies	IAWGTT, FLC

Improve understanding of global science and technology trends and benchmarks to measure progress and achieve results.

Problems Targeted

Demonstrating Value

Varying Missions

Activities vs Outcomes

Reporting Burdens

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner
Compose a white paper on findings in TT and ROI literature and possible future studies	Q1FY21	On Track	White paper in final revisions; identifying appropriate publication outlet	L2M SC
Bundle publicly-available federal innovation data to support research in the field of science and innovation policy	Ongoing	On Track	Milestone extended to ongoing to capture additional agency efforts	L2M SC
Make recommendations based on study of issues in reporting data, software and apps that may expand the definition of technology transfer	Q2FY21	Delayed	Study committee has held four meetings	L2M SC

Completed Milestone	Completion Date	Strategy	Final Status	Owner
Hold kick off event: "Unleashing American Innovation: Lab-to-Market" on April 19, 2018	Q3FY18	1	233 registered attendees	DOC, OSTP
Publish Request For Information (RFI) and hold public forums to gather input	Q4FY18	1	4 Public Forums with 341 registered participants; 104 RFI responses received	NIST
Examine existing models for private investment and growth, including agency foundation and investment mechanisms	Q4FY18	2	Interagency strategy team produced list of existing agency models and mechanisms	L2M SC
Identify existing entrepreneurial training programs and models for the R&D workforce	Q4FY18	3	Initial input gathered from agencies	L2M SC
Examine differences in conflict-of-interest policies and how they impact ability of personnel to engage in entrepreneurial activities	Q4FY18	3	Interagency strategy team collected and evaluated COI policies and practices at agencies and universities	L2M SC
Execute and begin Joint Venture Partnership to engage the private sector to develop tools for efficient utilization of public and private data to enhance technology commercialization efforts	Q4FY18	4	Partnership executed and project underway	NIST
Complete a study of global practices in technology transfer and commercialization	Q4FY18	5	Study complete	NIST
Complete a study of state programs in technology transfer and commercialization	Q4FY18	5	Study complete	NIST
Survey agencies and customers to determine priority actions for FLCBusiness implementation	Q1FY19	4	FLCBusiness updated to version 3.0 per user and stakeholder input	FLC
Analyze input and develop additional milestones	Q2FY19	1-5	Milestones added to all strategy areas	L2MSC
Develop regulatory and/or legislative package timetables to carry out recommendations	Q2FY19	1	Timetables complete	NIST
Create an Interagency Working Group on entrepreneurial training to share practices and develop recommendations to improve federal entrepreneurial training programs	Q3FY19	3	Working Group formed	L2M SC, NSF
Complete a quantitative and qualitative study of federal tech transfer across multiple agencies	Q3FY19	5	Study published	NIST

Completed Milestone	Completion Date	Strategy	Final Status	Owner
Develop recommendations for making federally-funded technologies, knowledge, and capabilities more attractive for private investment through Presidential Innovation Fellow's assessments	Q1FY20	2	Recommendations published in National Academy of Inventors Journal	NIST, GSA
Examine existing authorities that foster and provide flexibility for R&D collaborations with the private sector	Q1FY20	2	Efforts will lead to additional milestones in future quarters	L2M SC
Improve outreach to extramural R&D performers (university technology transfer offices, SBIR/STTR awardees) to support effective reporting of federally-funded R&D outputs	Q1FY20	4	RFI for iEdison redevelopment closed with 47 submissions from extramural users	L2M SC
Identify administrative and business data sources to evaluate company-level economic impacts of SBIR/STTR in collaboration with Census and USPTO	Q1FY20	5	Pilot proof-of-concept studies completed to match datasets; special tabulations of the data will be available from Census	SBA
Update Federal-wide guidance by developing unified methodology for data collection/ sharing and clarify definitions/data collection processes	Q1FY20	5	Published on NIST website	IAWGTT, OMB
Enhance reporting guidance to add "a la carte" technology transfer metrics that agencies might include in their annual reporting	Q1FY20	5	Published on NIST website	L2M SC
Develop proposed updates to the Bayh-Dole Act implementing regulations for cross-agency and public feedback processes	Q3FY20	1	NIST drafted NPRM for formal interagency review and clearance	NIST, IAWGBD