



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

### **Goal Leaders**

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### Challenge

- The Federal Government invests approximately \$150 billion annually<sup>1</sup> 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.

<sup>1</sup>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**

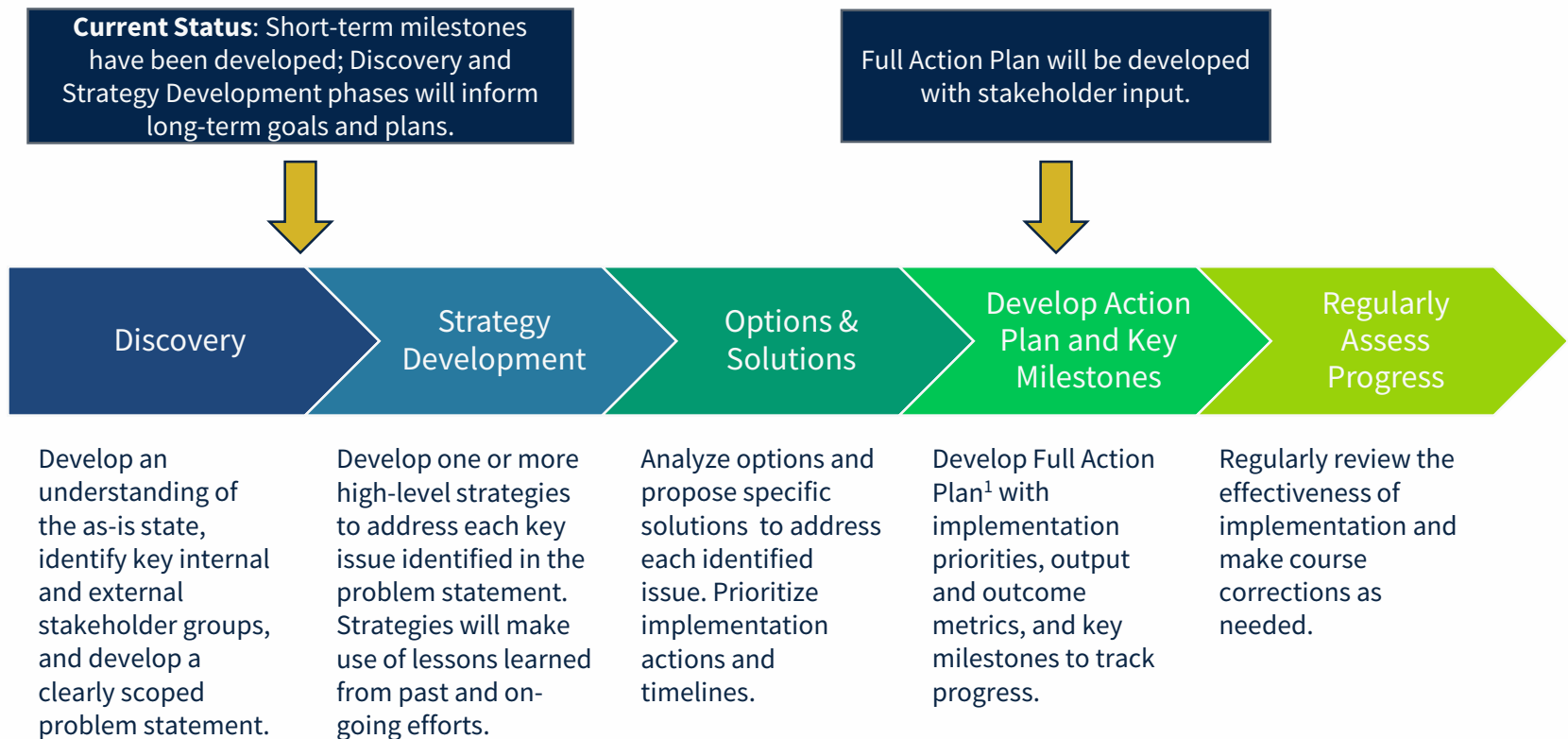
See <http://www.nist.gov/tpo/lab-to-market.cfm> for descriptions of participating working groups

\*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.





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.



<sup>1</sup>CAP Goal Leadership (OSTP and DOC) will review and approve the Full Action Plan prior to its implementation.



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.



## Summary of Progress

### Strategy 1: Regulatory and Administrative Improvements

- NIST published a FAQ for the 2018 Bayh-Dole regulatory update, <https://www.nist.gov/tpo/bayh-dole-regulations-federally-funded-inventions>

### Strategy 2: Private Sector Engagement

- Army Research Laboratory opened its newest Open Campus hub in April 2018 at the George J. Kostas Research Institute for Homeland Security at Northeastern University, <https://www.arl.army.mil/www/default.cfm?article=3190>
- Army Expeditionary Technology Search (xTechSearch) kicked off, <https://www.challenge.gov/challenge/army-expeditionary-technology-search-xtechsearch/>
- DOT Connected Vehicle (CV) Pilot Deployment Program successful joint technology testing demonstrated interoperability with key CV interfaces and standards, [https://www.its.dot.gov/pilots/crosssite\\_cvp.htm](https://www.its.dot.gov/pilots/crosssite_cvp.htm)
- SBA coordinated 2018 SBIR Road Tour with representatives from 20 Federal agencies, including MBDA and the Federal Lab Consortium, visiting 18 states in 4 regions, with over 2600 attendees, <http://www.sbirroadtour.com/>
- SBA launched two “Train-the-Trainer” courses on helping potential SBIR/STTR applicants and working with first time awardees, with 100+ business service providers participating. In addition, a partnership with USDA trained extension agents at Regional Rural Development Centers to train additional USDA staff and potential SBIR applicants in rural areas.

### Strategy 3: Entrepreneurial Workforce

- NSF awarded its ninth I-Corps node, the New England Regional Innovation Node (NERIN), [https://nsf.gov/awardsearch/showAward?AWD\\_ID=1832931&HistoricalAwards=false](https://nsf.gov/awardsearch/showAward?AWD_ID=1832931&HistoricalAwards=false)
- I-Corps at NIH hosted 2 cohorts of 43 NIH/CDC SBIR/STTR Phase I company teams in 2018, <https://sbir.cancer.gov/programseducation/icorps>

### Strategy 4: Tools & Services

- DOE launched the Lab Partnering Service, <https://www.labpartnering.org/>
- NASA debuted online toolkit to promote commercial use of satellite data, <https://www.nasa.gov/press-release/nasa-debuts-online-toolkit-to-promote-commercial-use-of-satellite-data>
- NIH provided in-kind mentoring and support to reduce technology development risk for nearly 250 SBIR/STTR awardees through their Niche Assessment Program and Commercialization Accelerator Program, <https://sbir.nih.gov/tap>

### Strategy 5: S&T Trends and Benchmarks

- SBA and Census initiated project to develop platform to evaluate SBIR/STTR awardee company outcomes, completing initial dataset matching.





- **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 21<sup>st</sup> 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.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Hold kick off event: “ <i>Unleashing American Innovation: Lab-to-Market</i> ” on April 19, 2018	Q3FY18	Complete	233 registered attendees	DOC, OSTP	<i>Goal leads invite input from senior leadership across government, academia, and industry.</i>
Publish Request For Information (RFI) and hold public forums to gather input	Q4FY18	Complete	4 Public Forums with 341 registered participants; 104 RFI responses received	NIST	<i>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.</i>
Recommend improved practices, policies, and regulatory actions based on input	Q1FY19	On track	Interagency strategy team established to gather and evaluate stakeholder input, and develop recommendations	L2M SC	<i>Analyze input and develop recommendations of improved practices and policies, regulatory actions, and/or requests for legislative changes</i>



- **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.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Summarize models for private investment and growth	Q4FY18	On track	Interagency strategy team collecting and evaluating existing models	L2M SC	<i>Examine existing models, including agency foundation and investment mechanisms.</i>
Identify additional milestones based on stakeholder input	Q1FY19	On track	Interagency strategy team established to gather and evaluate stakeholder input, and develop recommendations	L2M SC	<i>Analyze input and develop recommendations for additional milestones to increase private sector engagement</i>
Develop recommendations for making federally funded technologies, knowledge, and capabilities more attractive for private investment	Q4FY19	On track	Not yet started	NIST, GSA	<i>Develop recommendations through Presidential Innovation Fellow's assessments</i>







## 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.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Identify existing entrepreneurial training programs for the R&D workforce	Q4FY18	On track	Initial input gathered from agencies	L2M SC	<i>Examine existing entrepreneurial training programs and models.</i>
Identify conflict-of-interest policy challenges	Q4FY18	On track	Interagency strategy team collecting and evaluating COI policies and practices at agencies and universities	L2M SC	<i>Examine differences in conflict-of-interest policies and how they impact ability of personnel to engage in entrepreneurial activities.</i>
Identify additional milestones based on stakeholder input	Q1FY19	On track	Interagency strategy team established to gather and evaluate stakeholder input, and develop recommendations	L2M SC	<i>Analyze input and develop recommendations for additional milestones to increase entrepreneurship in the R&amp;D workforce</i>
Expand agency participation in R&D entrepreneurial training programs, such as I-Corps	Ongoing	On track	Federal I-Corps Community of Practice transitioning leadership	L2M SC	<i>Increase agency team participation in programs such as I-Corps and Cyclotron Road</i>





- **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.

Key Milestones	Milestone Due Date	Milestone Status	Change from last quarter	Owner	Description
Identify additional milestones based on stakeholder input	Q1FY19	On track	Interagency strategy team established to gather and evaluate stakeholder input, and develop recommendations	L2M SC	<i>Analyze input and develop recommendations for additional milestones for new tools and services that will meet stakeholder needs</i>
Execute Joint Venture Partnership to develop new tools that enhance use of public and private data supporting technology commercialization.	Q4FY18	On track	N/A	NIST	<i>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</i>
Gather stakeholder input to refine FLC Business website	Q1FY19	On track	FLC Business is being updated to version 3.0 per user and stakeholder input. Currently in final testing with planned release for this summer.	FLC	<i>Survey agencies and customers to determine priority actions for implementation</i>



- **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.

Key Milestones	Milestone Due Date	Milestone Status	Progress	Owner	Description
Complete a study of global practices in technology transfer and commercialization.	Q4FY18	On track	Draft paper received for comment	NIST	<i>Study will be used to inform decisions and future plans.</i>
Complete a study of state programs in technology transfer and commercialization.	Q4FY18	On track	Draft paper received for comment	NIST	<i>Study will be used to inform decisions and future plans.</i>
Publish empirical technology transfer study	Q4FY18	On track	Draft paper received for comment	NIST	<i>Complete a quantitative and qualitative study of federal tech transfer across multiple agencies</i>
Identify additional milestones based on stakeholder input	Q1FY19	On track	Interagency strategy team established to gather and evaluate stakeholder input, and develop recommendations	L2M SC	<i>Analyze input and develop additional milestones for improved metrics and economic analysis</i>
Develop platform to evaluate economic impact of SBIR/STTR awardees	Q1FY19	On track	Interagency agreement established. Dataset matching completed.	SBA	<i>Identify administrative and business data sources to evaluate company-level economic impacts of SBIR/STTR in collaboration with Census and USPTO</i>
Complete study on issues in reporting data, software, and apps	Q4FY20	On track	Contract initiated with National Academy of Sciences	NIST	<i>Make recommendations based on study of issues in reporting data, software and apps that may expand the definition of technology transfer.</i>





## 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)

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### **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)

