

# Cross Agency Priority Goal Quarterly Progress Update

---

## Lab to Market

### **Goal Leaders:**

Tom Kalil, Deputy Director, Office of Science and Technology Policy;  
Jetta Wong, Director, Office of Technology Transitions, Department of Energy

### **Deputy Goal Leaders:**

TBD, Office of Science and Technology Policy;  
Rochelle Blaustein, Deputy Director, Office of Technology Transitions,  
Department of Energy



FY2016 Quarter 4

# Overview

---

## Goal Statement

- Increase the economic impact of federally-funded research and development by accelerating and improving the transfer of new technologies from the laboratory to the commercial marketplace.

## Urgency

- There is significant potential to increase the return on public investment through innovation, job creation, societal impact, competitiveness, and economic prosperity

## Vision

- To significantly accelerate and improve technology transfer by streamlining administrative processes, facilitating partnerships with industry, evaluating impact, and opening federal research and development (R&D) assets as a platform for innovation and economic growth

# Context and Framework

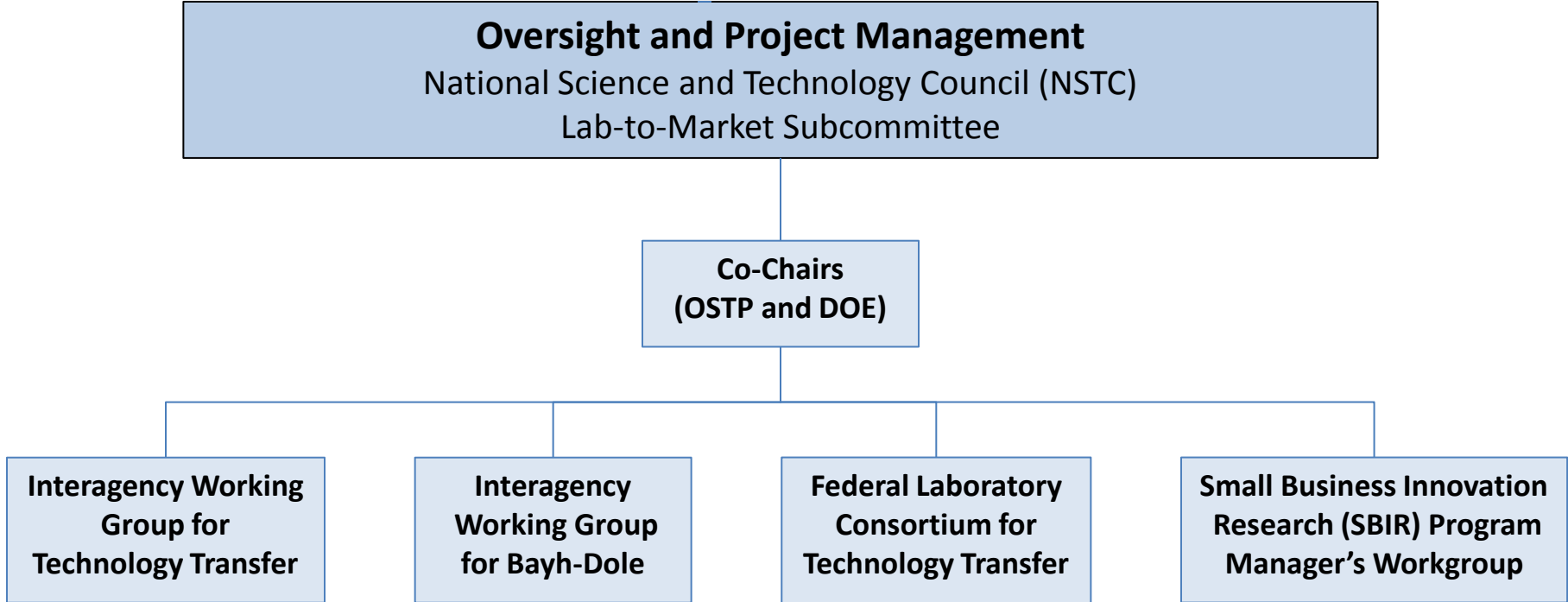
## Context

- The Federal Government invested \$138 billion on R&D during FY 2016, much of it conducted at universities and federal laboratories. This investment supports fundamental research that expands the frontiers of human knowledge, and yields extraordinary *long-term* economic impact through the creation of new knowledge and ultimately new industries – often in unexpected ways.
- The federal R&D enterprise must continue to support fundamental research that is motivated primarily by our interest in expanding the frontiers of human knowledge, and diffusing this knowledge through open data and publications.
- At the same time, some research discoveries show near-term potential for commercial products and services, and the purpose of this Cross Agency Priority (CAP) Goal is to accelerate these promising technologies from the laboratory to the marketplace.

## Implementation framework

- This action plan is a flexible framework, calling on agencies to tailor and prioritize Lab-to-Market activities specific to their missions, capabilities, and authorities. Agencies are likely to have different levels of participation in the elements of this action plan, and may also identify other initiatives that are agency-specific.
- Implementation must be informed by engagement with relevant stakeholders, including small businesses, large companies, technology investors, state economic development organizations, universities, researchers, and federal laboratory contractors.
- Current implementation efforts focus on three main goal areas: Developing Human Capital, Optimizing Effective Collaborations, and Opening R&D Assets.

# Goal Team and Governance Plan



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

Agency participants: EPA, DOC-NIST, DOC-NOAA, DOC-PTO, DOE, DHHS-CDC, DHHS-NIH, DHS, DOI, DOJ, DOT, GSA, NASA, NSF, SBA, USDA, VA (see page 9 for acronyms list)

# Action Plan Summary

| Sub-goal*                               | Major Actions to Achieve Impact  | Key Indicators   |
|---|--|--|
| (1) Developing Human Capital            | <ul style="list-style-type: none"> <li>Expand the number of individuals with private-sector experience serving in limited-term <b>technology transfer fellowships</b> within research agencies</li> <li>Establish clear ethical and policy guidelines that enable and encourage federal researchers to work outside government for limited periods on <b>industrial/entrepreneurial detail</b>, as appropriate</li> <li>Provide widespread opportunities for <b>experiential entrepreneurship education</b> among both students and investigators who work on federally funded R&amp;D projects</li> </ul> | <ul style="list-style-type: none"> <li>Number of researcher teams successfully completing a rigorous entrepreneurship education curriculum (e.g. NSF I-Corps)</li> </ul>               |
| (2) Empowering Effective Collaborations | <ul style="list-style-type: none"> <li>Increase the <b>priority level of R&amp;D commercialization</b> activities and outcomes at federal laboratories, consistent with agency mission and commercialization strategy</li> <li>Optimize <b>technology transfer authorities</b> and best practices across federal laboratories to remove barriers to collaboration with external entities, as appropriate</li> <li>Fully utilize existing authority for research agencies to <b>co-fund projects</b> between agencies and leverage charitable gifts to advance R&amp;D commercialization.</li> </ul>        | <ul style="list-style-type: none"> <li>Number of small business R&amp;D collaborations executed and in pipeline</li> </ul>   |
| (3) Opening R&D Assets                  | <ul style="list-style-type: none"> <li>Make all <b>relevant data</b> about both (a) federally funded intellectual property (IP) and (b) federal R&amp;D facilities open and machine-readable</li> <li>Reduce the time, cost, and complexity of <b>executing IP licenses</b></li> <li>Increase the <b>utilization of core facilities</b>, user facilities, and excess/surplus R&amp;D equipment by external innovators and entrepreneurs, where appropriate and consistent with agency mission</li> </ul>   | <ul style="list-style-type: none"> <li>Develop a single database for available federal technologies to be housed on FLC's website</li> <li>3<sup>rd</sup> Party use of data</li> </ul> |
| (4) Fueling Small Business Innovation   | <ul style="list-style-type: none"> <li>Make data on all open SBIR/STTR <b>solicitations</b> available to third parties in real time</li> <li>Streamline the SBIR/STTR <b>application process</b></li> <li>Reduce <b>undue burdens</b> on small businesses during the award performance period, wherever appropriate</li> <li>Publish and share <b>best practices for Phase III commercialization</b> from all agencies on a regular basis</li> <li>Align SBIR/STTR solicitation topics with <b>multi-agency science and technology priorities</b></li> </ul>   | <ul style="list-style-type: none"> <li>Develop a single API for all federal SBIR/STTR solicitations to be housed on SBA's website</li> </ul>   |
| (5) Evaluating Impact                   | <ul style="list-style-type: none"> <li>Report on metrics that capture R&amp;D commercialization inputs and outputs</li> <li>Develop outcome metrics that capture longer-term economic impact, in collaboration with the research community</li> </ul>  | <ul style="list-style-type: none"> <li>Continue to report new metrics in annual tech transfer report**</li> </ul>  |

\* Numbers on the next slide indicate milestone alignment in the current sub-goal areas.

\*\* Development of long-term metrics was completed and first reported in the [FY13 agency tech transfer report](#) published in 2015; agencies will continue to track and report these metrics in future reports

# Milestones met in Q4 of FY 2016

- A total of 829 teams completed the NSF I-Corps immersion course through Q4 FY16, with participation by 8 university nodes. (1)
- Ten universities piloted I-Corps through the NIH National Center for Advancing Translational Sciences program, and four awardees were announced for the launch of the USDA program. (1)
- OSTP hosted a summit on Grand Challenges and I-Corps models on July 25<sup>th</sup> to inform universities and other research institutions about how they can contribute to solving complex global problems through science and technology research and entrepreneurship. (1)
- USDA held an training on Export Control for agency researchers and conducted the first of three webinars on specific Technology Transfer considerations concerning plant breeding. (1)
- The Minority Business Development Agency launched the [Inclusive Innovation Initiative](#) (I-3) to provide information and resources to minority business owners on SBIR awards and collaborating with the federal labs (1, 2, 4)
- On September 27<sup>th</sup>, DOE announced three Technology in Residence collaborations, to streamline engagement and increase collaborative R&D by pairing national laboratories and private sector companies. (1, 2)
- On September 28<sup>th</sup>, DOE announced a new pilot program, Lab-Bridge, which will help address challenges that DOE national laboratories face in commercializing their technologies and in collaborating with outside partners. (2)
- DOT developed a [paper](#) on integrating tech transfer into the research process, leveraging information created by the Lab to Market group. In Q4 they engaged over 400 transportation stakeholders ([Play 7 from FLC's T2 Playbook](#)) through conference presentations; one event included every state department of transportation as well as DC and Puerto Rico. (2)
- The National Security Agency implemented a new exclusive patent license agreement with SW Complete, Inc. (SWC) to fill the demand from large commercial entities for Renoir implementation and training. Renoir is a powerful data analytics/reporting software developed and used throughout government but a challenging technology to commercialize. (2)
- USDA conceived of and implemented an “Innovation Fund” for its researchers to enable TT by moving technologies closer to commercialization. (2)
- The Federal Laboratory Consortium launched the beta version of [FLCBusiness 2.0](#) on September 30<sup>th</sup>. (3)
- SBIR tutorials were launched on the [SBA website](#). (4)
- The SBIR/STTR program was [nominated](#) for a FedScoop50 best tech program award. (4)
- USDA continued its SBIR-TT program, and 9 out of 11 submitted SBIRs have been funded. (4)

# Work plan

## 2016-2017 Milestone Summary

| Key Milestones   | Milestone Due Date                           | Milestone status               | Owner                     |
|--|--|--------------------------------|---------------------------|
| <i>(1) Developing human capital.</i> Scale up experiential entrepreneurship training for Federally funded scientist teams                          | Q4 of FY 2017                                | On Track<br>(Ongoing for FY17) | Co-Chairs                 |
| <i>(1) Developing human capital.</i> Implement final rule authorizing tech transfer personnel exchanges among academia, industry, and Federal labs | <del>Q4 of FY 2016</del><br>Q1 of FY 2017*   | On Track                       | NIST / IAWGTT             |
| <i>(2) Empowering effective collaborations.</i> Expand small business R&D collaborations with Federal labs   | Q4 of FY 2017                                | On Track<br>(Ongoing for FY17) | Co-Chairs                 |
| <i>(2) Empowering effective collaborations.</i> Implement final rule updating Bayh-Dole regulations of Federally funded R&D at universities        | <del>Q1 of FY 2017</del><br>Q2 of FY 2017**  | On Track                       | NIST / IAWGBD             |
| <i>(3) Opening R&amp;D assets.</i> Federal lab intellectual property (IP) data posted in machine-readable format on data.gov                       | <del>Q4 of FY 2017</del><br>Q1 of FY 2017*** | On Track                       | NIST / FLC                |
| <i>(3) Opening R&amp;D assets.</i> Improve validation and use of federal lab facilities data   | Q4 of FY 2016                                | Complete                       | NIST / FLC                |
| <i>(4) Fueling small business innovation.</i> Continue to improve access to SBIR/STTR solicitation data  | Q4 of FY 2016                                | Complete                       | SBA/SBIR Program Managers |

\* Revised from Q4 of FY 2016 due to delay in agency review process; final rule will publish October 24<sup>th</sup>, 2016

\*\* Revised from Q1 of FY 2017 due to delay in agency review process; proposed rule will publish November 7<sup>th</sup>, 2016

\*\*\* Revised from Q4 of 2016 due to development delays; beta website published September 30<sup>th</sup>, 2016 and data delivery will begin in Q1 of 2017

# Key indicators

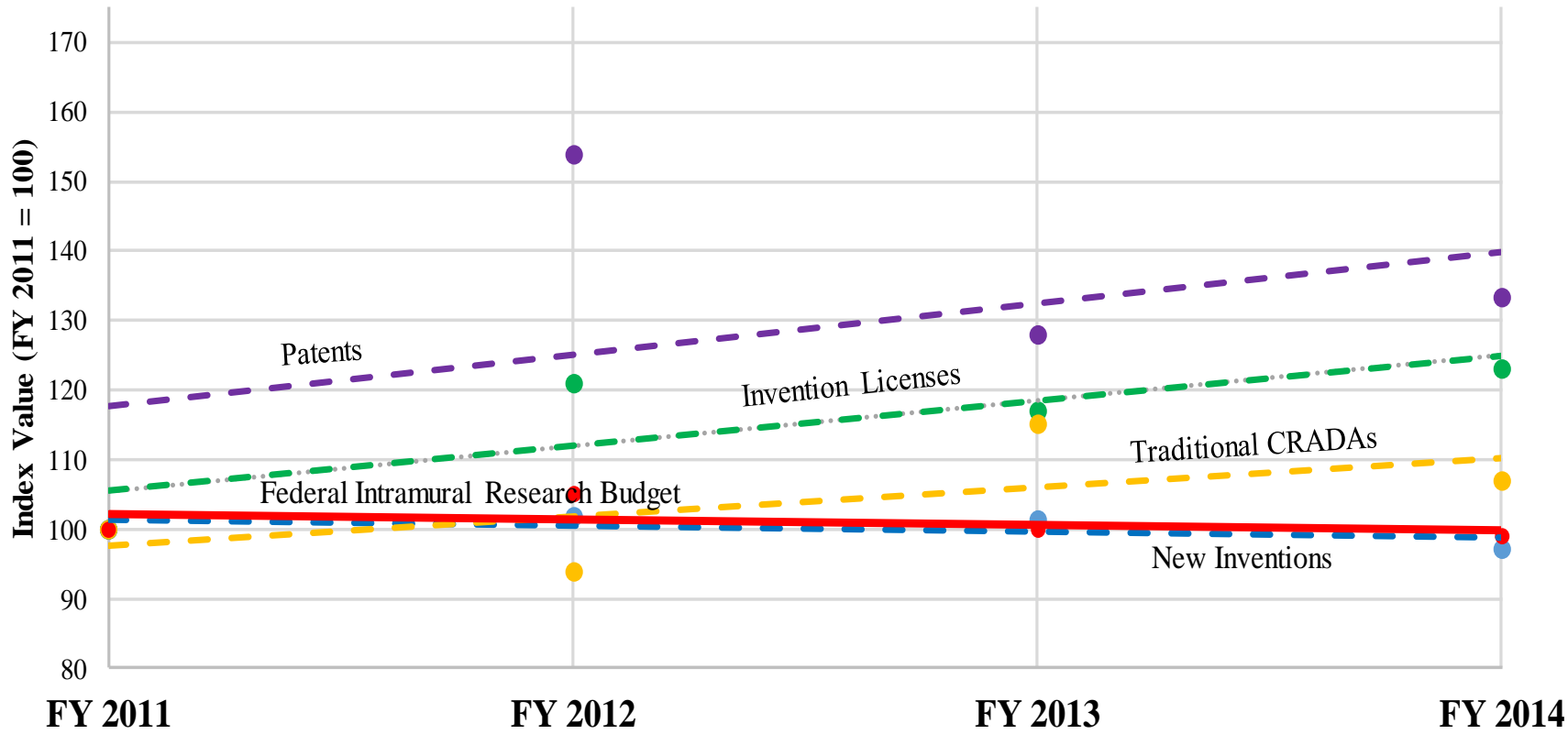
## Key Implementation Data

| Indicator  | Source                 | Baseline                        | Target                          | Frequency | Latest data  | Trend |
|--|------------------------|---------------------------------|---------------------------------|-----------|--|-------|
| <i>(1) Human Capital:</i> Scale up experiential entrepreneurship training for Federally funded scientist teams   | NSF and other agencies | 332 teams in pipeline for FY16  | 356 teams in pipeline for FY17  | Annual    | 829 teams completed immersion course to date.                              | ↗     |
| <i>(1) Human Capital:</i> Implement final rule authorizing tech transfer personnel exchanges among academia, industry, and Federal labs                    | NIST                   | N/A                             | Final rule published            | Annual    | Final rule will publish October 24, 2016                                   | N/A   |
| <i>(2) Collaborations:</i> Expand small business R&D collaborations with Federal labs  | DOE and other Agencies | 76 agreements completed in FY16 | 80 agreements completed in FY17 | Annual    | 76 awards made in two funding rounds in 2016                               | →     |
| <i>(2) Collaborations:</i> Implement final rule updating Bayh-Dole regulations of Federally funded R&D at universities                                     | NIST                   | N/A                             | Final rule published            | Annual    | Federal Register notice will publish and public meeting will be held in Q1 | N/A   |
| <i>(3) Opening R&amp;D Assets:</i> Consolidate Federal lab intellectual property (IP) data and push to data.gov  | FLC                    | 1 agency API                    | 1 database for all agencies     | Annual    | Database launched in Q4; data push will begin in Q1 2017.                  | N/A   |
| <i>(3) Opening R&amp;D Assets:</i> Increase use of Available Technologies data by third parties  | FLC                    | N/A                             | 3 use cases                     | Annual    | Three of three use cases identified for Q4 release of database.            | →     |
| <i>(3) Opening R&amp;D Assets:</i> Implement annual validation of current facility data  | Agencies               | N/A                             | 12 agency validations           | Annual    | Agency data validated with FLCBusiness 2.0 release                         | ↗     |
| <i>(3) Opening R&amp;D Assets:</i> Increase use of Facilities data by third parties  | FLC                    | N/A                             | 3 use cases                     | Annual    | Provided data to National Security Subcommittee and data.gov               | ↗     |
| <i>(4) Small Business:</i> Development of a single API consolidating all agency SBIR/STTR solicitations via <a href="http://www.sbir.gov">www.sbir.gov</a> | SBIR PM workgroup      | 11 agency datasets              | 1 agency API                    | Annual    |  | N/A   |



# Activity Trends since 2011 Presidential Memorandum

## Trends in Federal Technology Transfer Activities (FY 2011 - FY 2014)



While the Federal Intramural Research Budget and New Invention Reports have been mainly flat since 2011, several metrics of technology transfer have been trending upwards since the 2011 Presidential Memorandum – including the number of Patents, Invention Licenses, and Cooperative Research and Development Agreements (CRADAs). These trends will continue to be measured in future Annual Technology Transfer Reports; FY 2015 numbers are anticipated in Q2 of 2017.

# Data.gov Status – Available IP and Facilities

## Agency Intellectual Property (IP)

- Eight agencies currently have individual agency IP datasets on Data.gov:
  - [DOC-NIST](#)
  - [DOC-NOAA](#)
  - [DOE](#)
  - [DOT](#)
  - [EPA](#)
  - [HHS-NIH](#)
  - [NASA](#)
  - [USDA](#)
- A single consolidated database launched in Q4 2016 and will provide machine-readable data automatically delivered to Data.gov in Q1 2017.
- Supplying this consolidated data in a machine-readable format through Data.gov will allow third parties to more readily use the data in their own applications, in addition to improving search functionality.

## Agency User Facilities

- The complete agency user facility data set extracted from FLCBusiness is available [on Data.gov](#) with data from 12 agencies; two agencies (NOAA and DOJ) do not have user facilities.
- Supplying this data in a machine-readable format through Data.gov will allow third parties to more readily use the data in their own applications, in addition to improving search functionality.

# Regulations Status – Personnel Exchanges and Bayh-Dole

## Personnel Exchanges (15 CFR 17)

- NIST released a [Notice of Proposed Rulemaking](#) on June 27<sup>th</sup>, 2015 to create implementing regulations for personnel exchanges under 15 USC 3712.
- The proposed rulemaking clarifies how agencies may use Cooperative Research and Development Agreements to exchange personnel with outside parties.
- After receiving Public Comment through July 27<sup>th</sup>, 2016 , a final rule was drafted and will publish on October 24<sup>th</sup>, 2016.

## Bayh-Dole (37 CFR 401 and 404)

- NIST will release a Notice of Proposed Rulemaking on November 7<sup>th</sup>, 2016 to update implementing regulations for the management of federally-funded inventions and licensing of government-owned inventions under 35 USC 202-209.
- The proposed rulemaking updates provisions of the implementation of the Bayh-Dole Act to comply with Executive Orders and the America Invents Act, clarifies the management of jointly-owned inventions, revises certain timelines for reporting, and creates a new determination of exceptional circumstances.
- After holding a public meeting on November 21<sup>st</sup>, 2016 and receiving public comment through December 9<sup>th</sup>, 2016, NIST will draft a final rule which is anticipated to publish in Q2 of 2017.

# Contributing Programs

## **Agencies supporting this effort include:**

- Department of Homeland Security
- Department of Commerce (National Institute of Standards and Technology, National Oceanic and Atmospheric Administration, US Patent and Trademark Office)
- Department of Defense
- Department of Energy
- Department of Interior
- Department of Justice (Federal Bureau of Investigation)
- Department of Transportation
- Environmental Protection Agency
- Department of Health and Human Services (National Institutes of Health, Centers for Disease Control)
- National Aeronautics and Space Administration
- National Science Foundation
- Department of Agriculture
- Department of Veterans Affairs
- US Small Business Administration

## **Regulations impacting this effort include:**

- 37 CFR 401: Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts, and Cooperative Agreements
- 37 CFR 404: Licensing of Government-Owned Inventions
- Regulations under 15 USC 3712 for personnel exchanges

## **Other partners and agency programs include:**

- Interagency Working Group for Technology Transfer, Interagency Working Group for Bayh-Dole, Federal Laboratory Consortium for Technology Transfer, agency-specific university partners, NASA Agency Technology and Innovation Program, NSF I-Corps Program, DOE Lab-Corp Program, agency SBIR Programs.

# Acronyms

- API: Application Programming Interface
- CAP: Cross Agency Priority
- CDC: Centers for Disease Control and Prevention
- CFR: Code of Federal Regulations
- CRADA: Cooperative Research and Development Agreement
- DHHS: Department of Health and Human Services
- DHS: Department of Homeland Security
- DOC: Department of Commerce
- DOD: Department of Defense
- DOE: Department of Energy
- DOI: Department of the Interior
- DOJ: Department of Justice
- DOT: Department of Transportation
- EPA: Environmental Protection Agency
- FLC: Federal Laboratory Consortium
- FY: Fiscal Year
- GSA: General Services Administration
- HHS: Health and Human Services
- IAWGBD: Interagency Working Group for Bayh-Dole
- IAWGTT: Interagency Working Group for Tech Transfer
- IP: Intellectual Property
- MOU: Memorandum of Understanding
- NASA: National Aeronautics and Space Administration
- NCATS: National Center for Advancing Translational Sciences
- NIH: National Institutes of Health
- NIST: National Institute of Standards and Technology
- NOAA: National Oceanic and Atmospheric Administration
- NSA: National Security Agency
- NSF: National Science Foundation
- NSTEP: NIST Science and Technology Entrepreneurship Program
- OMB: Office of Management and Budget
- OSTP: Office of Science and Technology Policy
- PTO: Patent and Trademark Office
- R&D: Research and Development
- RFI: Request for Information
- SBA: Small Business Administration
- SBIR: Small Business Innovation Research
- SBIR PM WG: Small Business Innovation Research Program Managers Working Group
- STTR: Small Business Tech Transfer Research
- USC: United States Code
- USDA: United States Department of Agriculture
- USPTO: United States Patent and Trademark Office
- VA: Department of Veterans Affairs