

# DOE SBIR/STTR Updates

Manny Oliver, Director, Office of SBIR/STTR Programs  
Office of Science  
Nuclear Physics Exchange Meeting, Gaithersburg, Md  
August 14, 2024



U.S. DEPARTMENT OF  
**ENERGY**

Office of  
Science

[Energy.gov/science](https://www.energy.gov/science)

# DOE SBIR/STTR Programs Office

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Tech to Market Advisor <i>Carol Rabke</i>	Omnisync <i>Partnering Website</i>	ORISE <i>vP3, Workshops</i>
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Cybersecurity Specialist <i>Florence Carr</i>	Accenture <i>Cybersecurity Support</i>
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Tech to Market Advisor <i>Dave McCarthy</i>	Larta <i>Phase I TABA</i>	AST <i>Phase Shift</i>	ORISE <i>PI Meetings</i>
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# Outline

- Foreign Risk Due Diligence
- Tracking Program Participation
- Improving Program Outcomes

# SBIR and STTR Extension Act of 2022

- Requires Federal agencies to establish due diligence programs to address risks of illicit foreign acquisition of SBIR/STTR technologies
  - “Assess, using a risk-based approach as appropriate, the cybersecurity practices, patent analysis, personnel analysis, and foreign ownership of a small business concern seeking an award, including the financial ties and obligations (which shall include surety, equity, and debt obligations) of the small business concern and its personnel to a foreign country, foreign person, or foreign entity”
- Requires small business applicants to disclose their foreign relationships as part of a Phase I or II application
  - If selected for award, the awardee must update the disclosure if there any changes during the award period
  - Awardees may be required to repay the amount of the award, if they have failed to disclose these relationships

# Foreign Relationships

- What foreign relationships?
  - “(A) the identity of all owners and covered individuals of the small business concern who are a party to any foreign talent recruitment program of any foreign country of concern, including the People’s Republic of China;
  - “(B) the existence of any joint venture or subsidiary of the small business concern that is based in, funded by, or affiliated with any foreign country of concern, including the People’s Republic of China;
  - “(C) any current or pending [or occurring during the 5-year period preceding submission of the proposal] contractual or financial obligation or other agreement specific to a business arrangement, or joint venture-like arrangement with an enterprise owned by a foreign state or any foreign entity;
  - “(D) the percentage, if any, of venture capital or institutional investment by an entity that has a general partner or individual holding a leadership role in such entity who is affiliated with any foreign country of concern, including the People’s Republic of China;
  - “(E) any technology licensing or intellectual property sales to a foreign country of concern, including the People’s Republic of China, during the 5-year period preceding submission of the proposal;
  - “(F) any foreign business entity, offshore entity, or entity outside the United States related to the small business concern; and
  - “(G) if the small business concern is wholly owned in the People’s Republic of China or another foreign country”

# DOE Due Diligence Process

- DOE has created a new Office of Research, Technology & Economic Security to address risks associated with its financial assistance awards and loan programs
- Our foreign risk due diligence process is evolving and has led to some delays in issuing awards on schedule.

**Research, Technology & Economic  
Security**

Office of International Affairs

# Small Business Due Diligence

- Foreign countries of concern are active in seeking to acquire U.S. technology
- Small businesses should make sure they understand the ownership and relationships of the investors, customers, manufacturers, or other business partners
  - In addition to potential loss of technology, such relationships may hinder your ability to receive Federal awards



**SAFEGUARDING OUR INNOVATION**  
PROTECTING U.S. EMERGING TECHNOLOGY COMPANIES FROM INVESTMENT BY FOREIGN THREAT ACTORS

**THREAT**

Venture capital (VC), private equity, and other foreign-origin private investment can provide vital funding for United States (U.S.) technology startups. Foreign threat actors can also use these investments to exploit U.S. startups and harm U.S. economic and national security interests.

- **U.S. startups can lose market share and fall** if foreign threat actors obtain their proprietary data in the investment process, then use it to compete against them in global markets.
- **Startups can be denied U.S. government contracts or funding** if foreign threat actors gain a footing in their firms.
  - To help mitigate foreign risk, federal agencies that grant Small Business Innovation Research or Small Business Technology Transfer awards are required to have due diligence programs to assess small businesses seeking these awards.
- **Startups can also suffer undue foreign influence** that forces corporate decisions or direction benefiting foreign threat actors at the expense of the U.S. company.
- **Foreign threat actors can acquire data and technology** from U.S. startups that advances their nation's economic and military capabilities at the expense of the U.S.
- **Foreign threat actors can also target startups** that contract with the U.S. government—and other critical U.S. sectors—to threaten U.S. national security.

U.S. startups seeking capital can face challenges in determining the ownership and intent of foreign investors. For example, foreign threat actors may:

- **Structure their investments to avoid scrutiny** from the Committee on Foreign Investment in the United States (CFIUS), which reviews certain mergers, acquisitions, and investments into the U.S. for national security risks.
- **Route investments through intermediaries** in the U.S. or other third countries to obscure the money's origin.
- **Use minority and limited partner investments.**
- **Attempt to acquire sensitive and proprietary data** from U.S. startups under the guise of due diligence, before investing.

In 2018, the U.S. Trade Representative warned that the **People's Republic of China (PRC) government directs the investment in, and acquisition of, U.S. companies by China-based firms** to obtain technologies and Intellectual Property (IP), and to facilitate technology transfer to support PRC state plans. VC investment from China has focused on U.S. emerging technology sectors like Artificial Intelligence and other PRC government priorities. Recent developments have heightened these concerns:

- **In January 2024, the U.S. Department of Defense (DOD) added IDG Capital, a China-based VC/private equity firm, to its list of "Chinese military companies"** operating directly or indirectly in the U.S. The firm has invested in more than 1,600 companies, including several in the U.S.
- Last year, the CEO of a U.S. startup (which is suing defendants in China for trade secret theft) told U.S. Congress that **some China-based VC firms may target and pay employees of U.S. startups to acquire technology**, then fund competitors in China who try to monetize the stolen technology.
- Some U.S. and European firms have alleged **China-based investors offered them investments, then withdrew the offers** after obtaining their proprietary data in the due diligence process.
- One U.K. firm, after agreeing to a takeover by an investor in China, began transferring technology to its would-be acquirer in exchange for part of the firm's sales price. The investor in China later abandoned the acquisition. **The U.K. firm was left facing bankruptcy after sharing its IP.**

# Cybersecurity Due Diligence

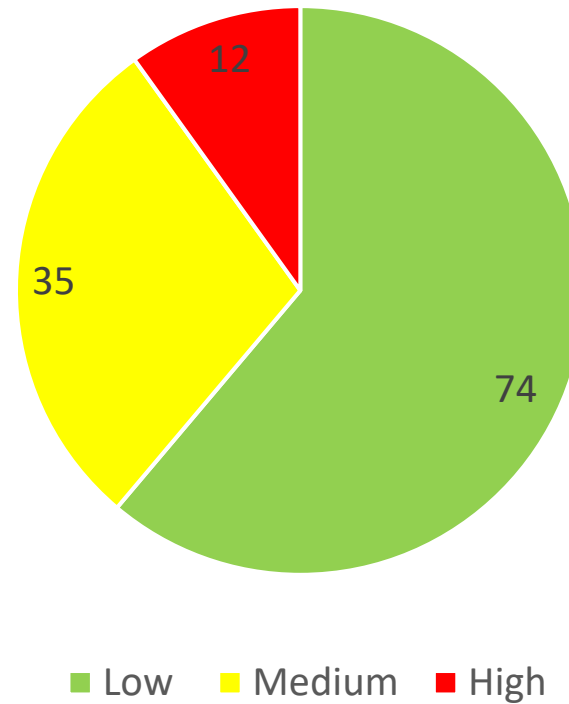


- The Office of SBIR/STTR Programs has implemented new requirements to evaluate the cybersecurity practices of Phase II applicants
  - You must disclose the state of implementation of selected cybersecurity practices as part of your Phase II application.
  - We will provide you with a risk assessment based on your practices
  - You will need to mitigate these risks by fully implementing the selected practices during the initial period of our Phase II award
- We will be rolling out new implementation guidance designed specifically for small businesses
  - You should be implementing the selected cybersecurity practices prior to your Phase II application



# Applicant Cybersecurity Risk Profile

FY 2024 Phase II Release 1 Applicants

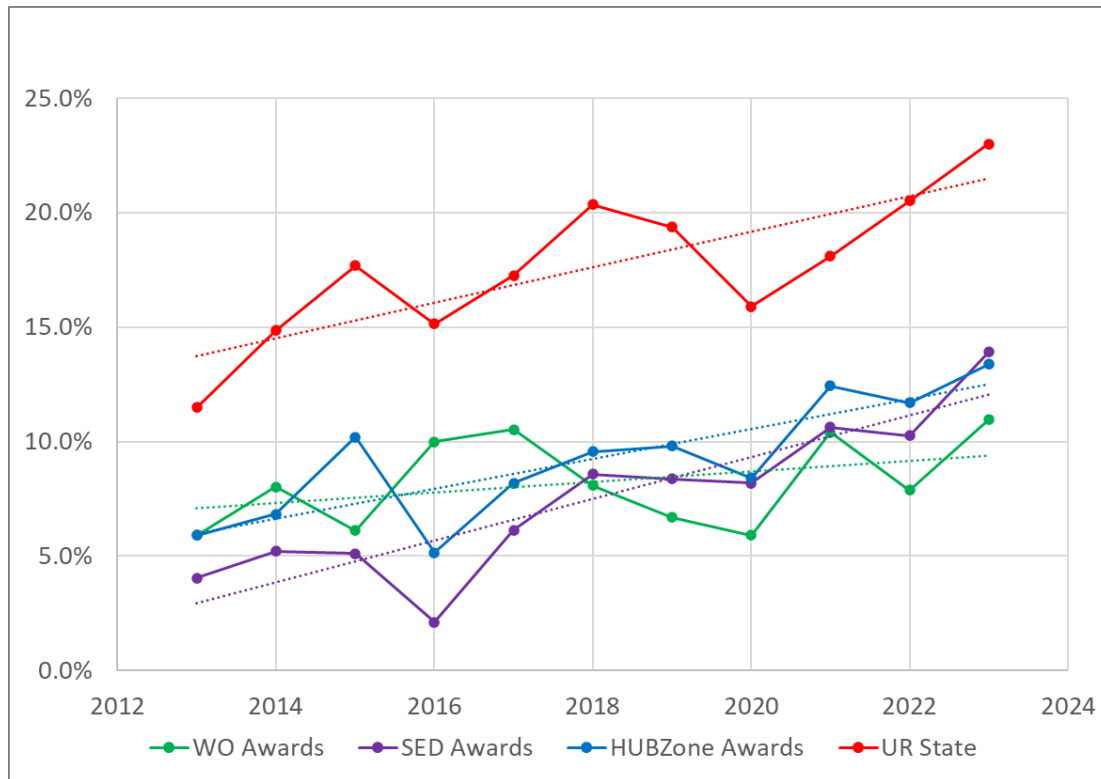


# Tracking Participation in the SBIR/STTR Programs

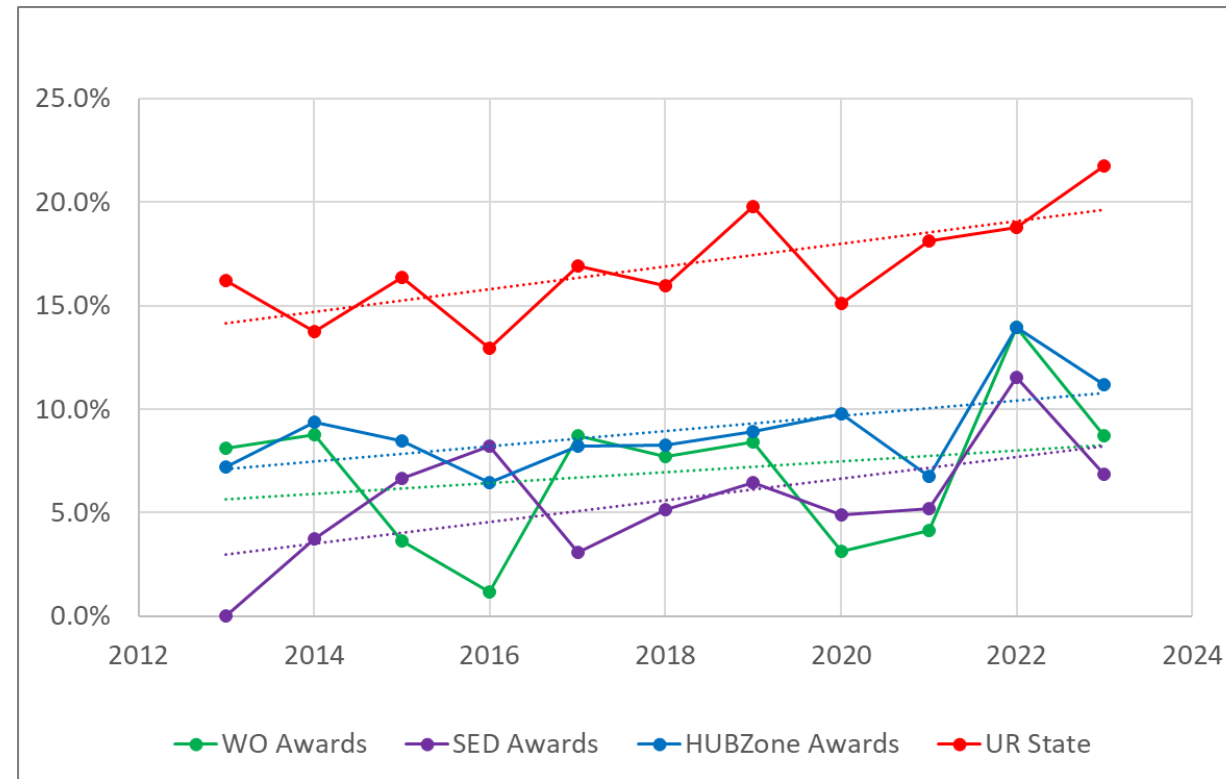
- Historically small business ownership (public information) has been used to measure participation by underrepresented groups. This information is reported annually to the Small Business Administration and included in the annual report to Congress.
- We are beginning to collect information on principal investigators and key personnel to measure participation by individuals participating in the research (SBIR program goal)

# Tracking Participation in the SBIR/STTR Programs

DOE SBIR/STTR Phase I under-represented groups' award rates as % of total awards



DOE SBIR/STTR Phase II under-represented groups' award rates as % of total awards



WO: women-owned small business

SED: socially and economically disadvantaged small business

HUBZone: small businesses located in historically underutilized business zones

UR State: small businesses located in states underrepresented in the DOE SBIR/STTR programs

These charts are published on the SC SBIR/STTR website:

<https://science.osti.gov/sbir/About/Diversity-Equity-and-Inclusion>

# Tracking Participation in the SBIR/STTR Programs

- Improving Data Collection: More detailed business ownership
  - SAM.gov captures ownership data at a more detailed level
  - Discussions have taken place between SBA and the agencies on potential changes to the collection of business ownership data

## Minority Owned Small Business

- Asian-Pacific American Owned
- Subcontinent Asian (Asian/Indian) American Owned
- Black American Owned
- Hispanic American Owned
- Native American Owned

## Women Owned Small Business

- Economically Disadvantaged Women Owned Small Business

# Tracking Participation in the SBIR/STTR Programs

- Improving Data Collection: Tracking individuals
  - SC began collecting data on personnel registering in PAMS beginning in 2012
    - Data: Gender, Race and Ethnicity
    - Collection: Optional
  - In 2021, gender, race, and ethnicity fields were made mandatory, however consistent with the Privacy Act, an option was provided for those who did not wish to disclose this information
    - In addition, principal investigators and key personnel associated with an application receive an email notification to register in PAMS and complete this information when an application is received
    - **Please encourage your employees to register in PAMS and fill out this information**
  - Examination of the reported data for SBIR/STTR principal investigators indicate that individual participation in the SBIR/STTR programs by both women and minorities exceeds the participation rate based on business ownership

# Improving Commercialization Outcomes

- Technical and Business Assistance (TABA)
  - \$6500 for Phase I
    - DOE vendor or you can use your own vendor(s)
  - \$50,000 for Phase II
    - You must use you own vendor(s)
  - Draft legislation
    - We have seen draft legislation that would amend TABA
      - To allow the funding to be used by the small business
      - To allow the funding to be used for cybersecurity

# Improving Commercialization Outcomes

- Phase Shift I: Customer Discovery during Phase I (formerly Energy I-Corps for SBIR/STTR)
  - Has grown from 25 teams in FY 2020 to 106 teams in FY 2023
  - 6-week training course requiring 30 customer interviews
  - Extremely positive small business feedback
- Phase Shift II: Business Model Discovery during Phase II
  - Deeper dive on financial models, cash flow and customer sales cycles
  - 4-month training, lower intensity
  - Leveraging curriculum developed from NSF I-Corps GO Program



# Improving Commercialization Outcomes

- Commercialization Workshops
  - focus on topics that are typical areas of weakness for SBIR awardees; [recordings and FY24 schedule posted](#):
  - FY22 Q4 - *Commercialization and the Power of Partnering*
  - FY23 Q1 - *Preparing to Pitch*
  - FY23 Q2 - *Financial Modeling*
  - FY23 Q3 - *Navigating Phase III Contracting*
  - FY23 Q4 - *Licensing*
  - FY24 Q1 - *Preparing to Manufacture*
  - FY24 Q2 - *Financial Modeling based on Cash Flow*
  - FY24 Q3 - *Preparing for Product Launch*





# Improving Commercialization Outcomes

- Virtual Partner Pitch Program
  - Provides opportunity for Phase II awardee/technology to be promoted to potential strategic partners/investors
  - 97 DOE funded SBIR/STTR technologies presented in 14 individual pitch sessions organized by topic/technology in the first year (2023)
  - >200 strategic partners/investors registered, with an average attendance of 7 per pitch session
- SBIR Partnering Website
  - A public facing, self-supporting searchable website launched in November 2023
  - Objective: provide a repository where SBIR/STTR applicants/awardees can find potential partners and partners can access 1000+ vetted technologies
    - Partners and Innovators register independently
    - AI used for search/matchmaking
    - Platform includes confidential messaging

Cybersecurity & Data Management  
September 24, 11AM (ET)

Cybersecurity, Network Security, Digital Forensics, Cyber Threat Detection

**Abstract**  
This company has developed a cybersecurity SaaS platform, DynamiteLab, for analyzing computer network traffic. The technology provides automated analysis of network packet-capture files (PCAPs) for digital forensics and cyber threat detection. The platform lowers the learning curve of network traffic analysis through automation, visual analysis, and AI, making it very popular among younger professionals, who are less incline...

TRL	Location	Presentation Time (ET)	
Later Stage/Market Ready (TRL8-TRL9)	Peachtree Corners, GA	9/24/24 11:05 AM	<a href="#">Register to Attend!</a>



# Phase III Guidance

- DOE General Counsel recently made a determination that Phase III awards are exempt from EPACT cost share requirements (20% for R&D, 50% for demonstration)
  - The Office of SBIR/STTR has issued Phase III Guidance for small businesses
  - Available here: <https://science.osti.gov/sbir/Phase-III-Guidance>
  - One of our recent commercialization workshops covered Phase III in more detail: <https://vimeo.com/869686647/6e464c2cd4?share=copy>

# Tracking Commercialization Outcomes

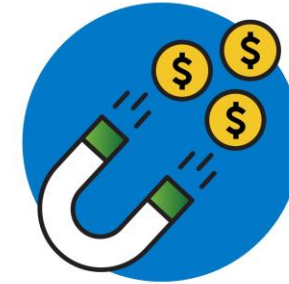
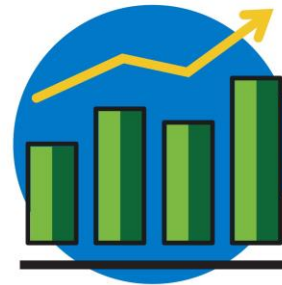
- Historically, DOE relied on the evaluations by the National Academies of Science, Engineering and Medicine (NASEM) to track commercialization outcomes
  - The example data shown are from the 2016 NASEM evaluation in which past Phase II awardees were surveyed
  - The most recent NASEM evaluation (2020) changed its study methodology and did not survey our awardees or collect commercialization data. It recommended that DOE collect this information.

**50%**

of DOE SBIR/STTR award recipients that responded **reported sales** and an additional

**23%**

**anticipate future sales**



**78%**

of DOE SBIR/STTR unique small business awardees that responded received **additional investment funding** for their surveyed project

**71%**

Reported that the **DOE SBIR/STTR Program is "critically needed"**

**45%**

**Innovative small business companies started entirely or in part** because of participating in the DOE SBIR/STTR Program

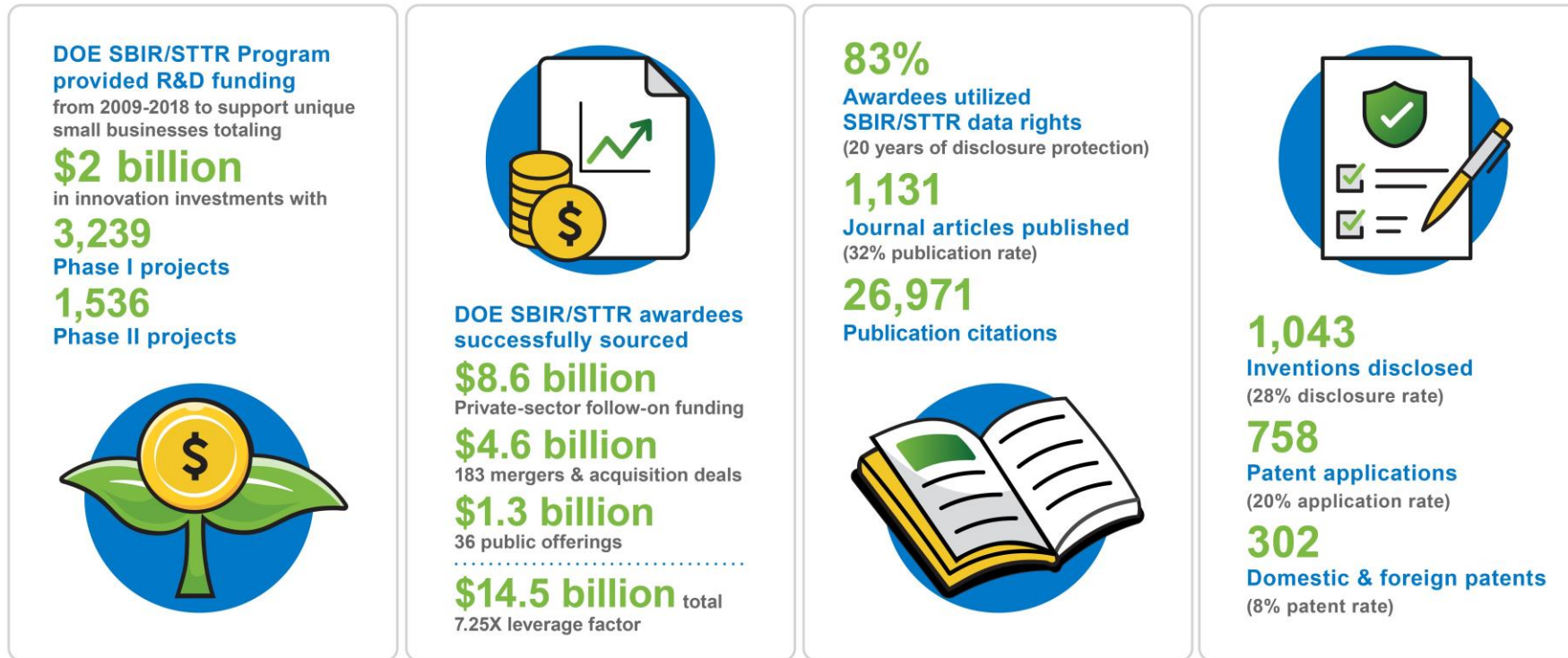
**61%**

Awardees responded that the DOE SBIR/STTR Program had a **"highly positive or transformative effect"** on their small business



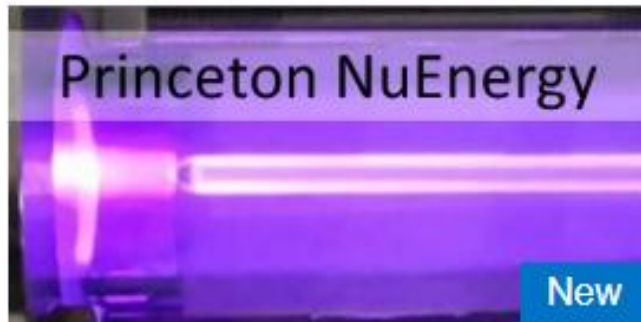
# Collecting Commercialization Outcomes

- The Office of Science consulted with ARPA-E and other agencies that collect commercialization data from public and private sources
  - Preliminary outcome metrics are shown below for FY 2009-2018 awardees and will be published on our website later this year



# Tracking Private Sector Commercialization

- Phase III Success Stories
  - Outcome metrics fail to capture the mission impact of the SBIR/STTR programs
  - SC has developed detailed stories of commercialization success for individual awardees that are published on the SBIR/STTR website:  
<https://science.osti.gov/sbir/Success-Story-Listing-Page>



## Princeton NuEnergy is Redefining the Battery Recycling Supply Chain

*Program(s): Energy Efficiency and Renewable Energy (EERE)*



## FY23 Updates - Advancing Communications for Harsh Environments

*Program(s): Nuclear Energy (NE); National Nuclear Security Administration (NNSA)*



## Luna Innovations Shines Light on SBIR Opportunities

*Program(s): Nuclear Physics (NP)*

# National Academies Study

- The National Academies of Sciences, Engineering and Medicine will conduct an evaluation of the DOE SBIR/STTR programs.
  - Kickoff meeting for the study took place in July.
  - One area that they will be investigating is collaborations between small businesses and research institutions
    - How do these collaborations originate?
    - How can DOE foster further collaborations?
  - If you are contacted as a DOE applicant/awardee, please answer questions to assist with the study