IDA SCIENCE AND TECHNOLOGY POLICY INSTITUTE

Opportunities to Advance Department of Defense Technology Transfer With Partnership Intermediary Agreements

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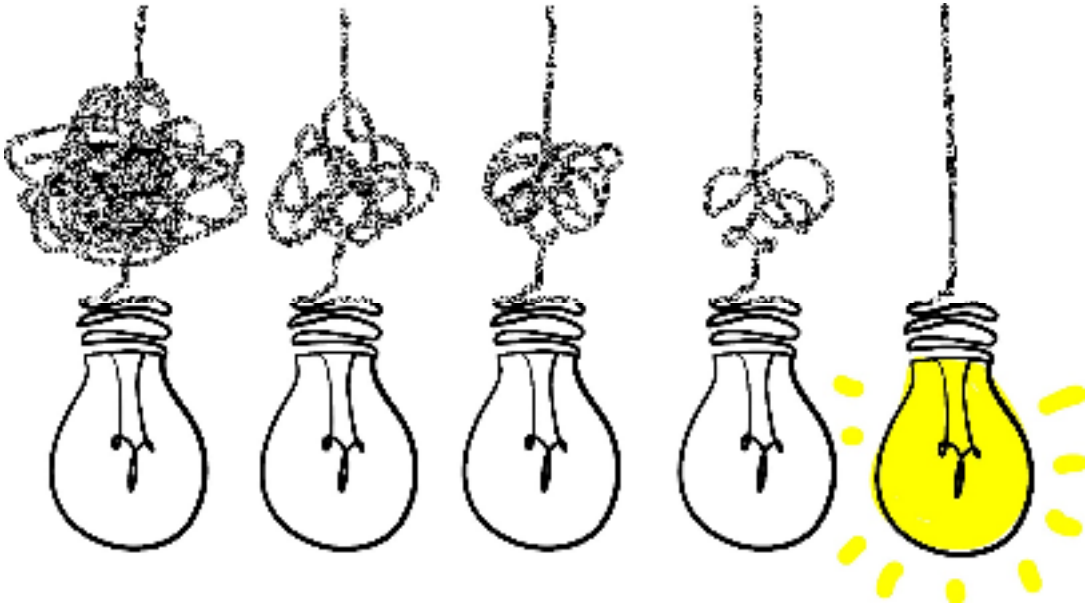
Overview

- Purpose
- Drivers for the Study
- Findings
  - Landscape of PIAs
  - Satisfaction
  - Predominant Challenges
  - Select Exemplar Practices
- STPI's Recommendations

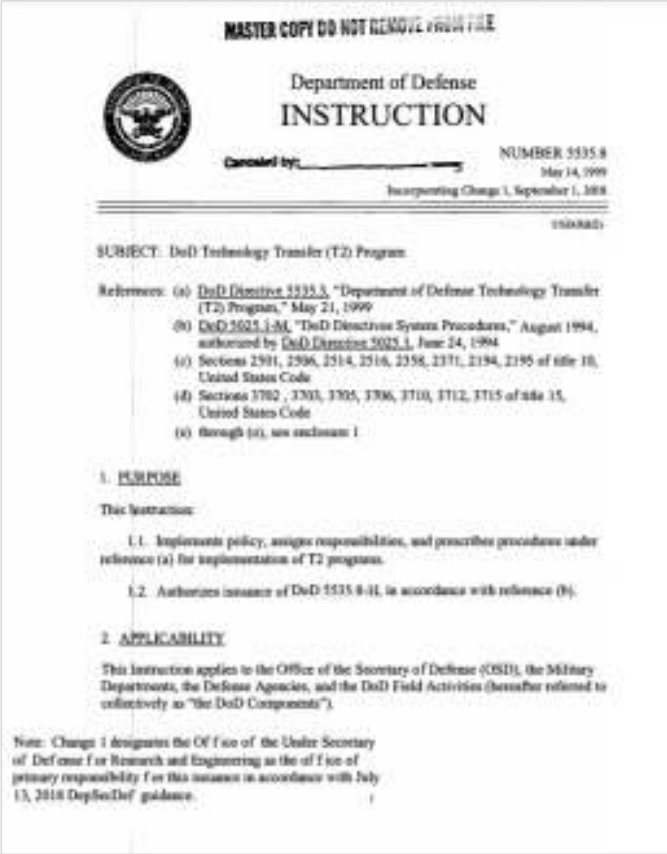


Purpose of the Study

- February 2020, ODL&P requested that STPI analyze and characterize the landscape of DoD's PIAs
  - the organizational and funding models of partnership intermediaries
  - activities performed under PIAs
- ODL&P also asked STPI to identify
  - exemplar practices
  - recommendations for improving the use of PIAs

DoD Drivers for the Study

- Perceived growth in
  - Interest to use PIAs
  - The use of PIAs
  - The breadth of activities under existing PIAs
- Inform revisions to DoD Instruction (DoDI) 5535.8 “DoD Technology Transfer (T2) Program”



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Department of Defense
INSTRUCTION

Canceled by: _____

NUMBER 5535.8
May 14, 1999
Incorporating Change 1, September 1, 2018

USD(R&E)

SUBJECT: DoD Technology Transfer (T2) Program

References: (a) DoD Directive 5535.3, “Department of Defense Technology Transfer (T2) Program,” May 21, 1999
(b) DoD 5025.1-M, “DoD Directives System Procedures,” August 1994, authorized by DoD Directive 5025.1, June 24, 1994
(c) Sections 2501, 2506, 2514, 2516, 2358, 2371, 2194, 2195 of title 10, United States Code
(d) Sections 3702 , 3703, 3705, 3706, 3710, 3712, 3715 of title 15, United States Code
(e) through (i), see enclosure 1

1. PURPOSE

This Instruction:

1.1. Implements policy, assigns responsibilities, and prescribes procedures under reference (a) for implementation of T2 programs.

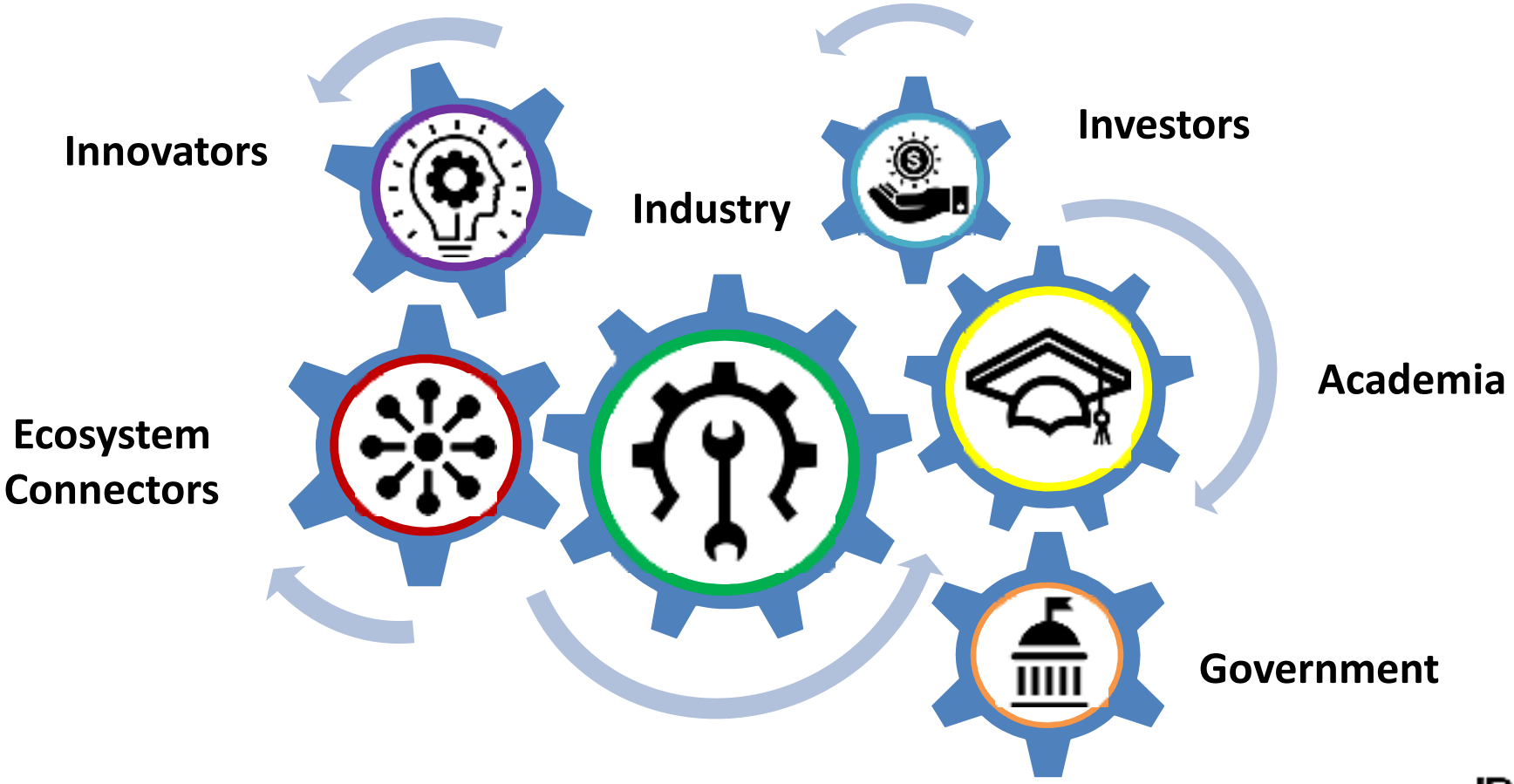
1.2. Authorizes issuance of DoD 5535.8-H, in accordance with reference (b).

2. APPLICABILITY

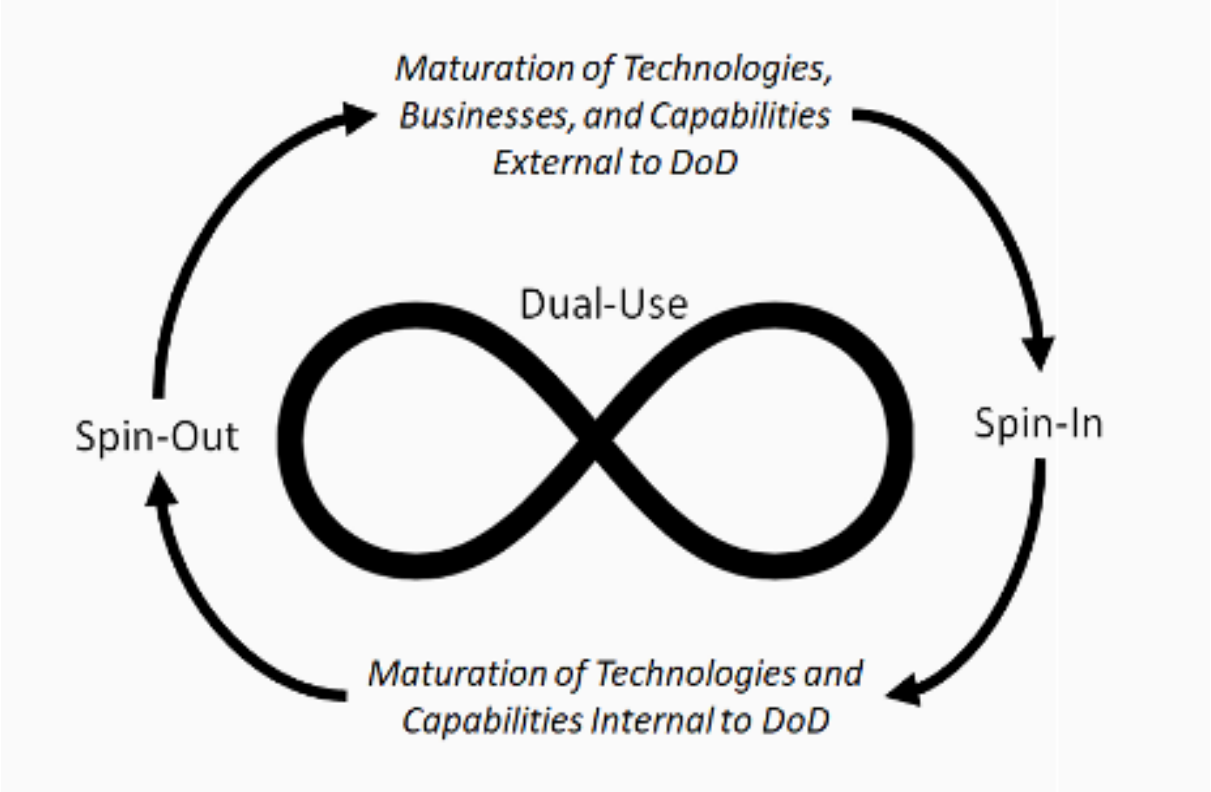
This Instruction applies to the Office of the Secretary of Defense (OSD), the Military Departments, the Defense Agencies, and the DoD Field Activities (hereafter referred to collectively as “the DoD Components”).

Note: Change 1 designates the Office of the Under Secretary of Defense for Research and Engineering as the office of primary responsibility for this issuance in accordance with July 13, 2018 DepSecDef guidance.

DoD's Science and Technology Enterprise is Vast and Part of Nation-Wide Innovation Ecosystems



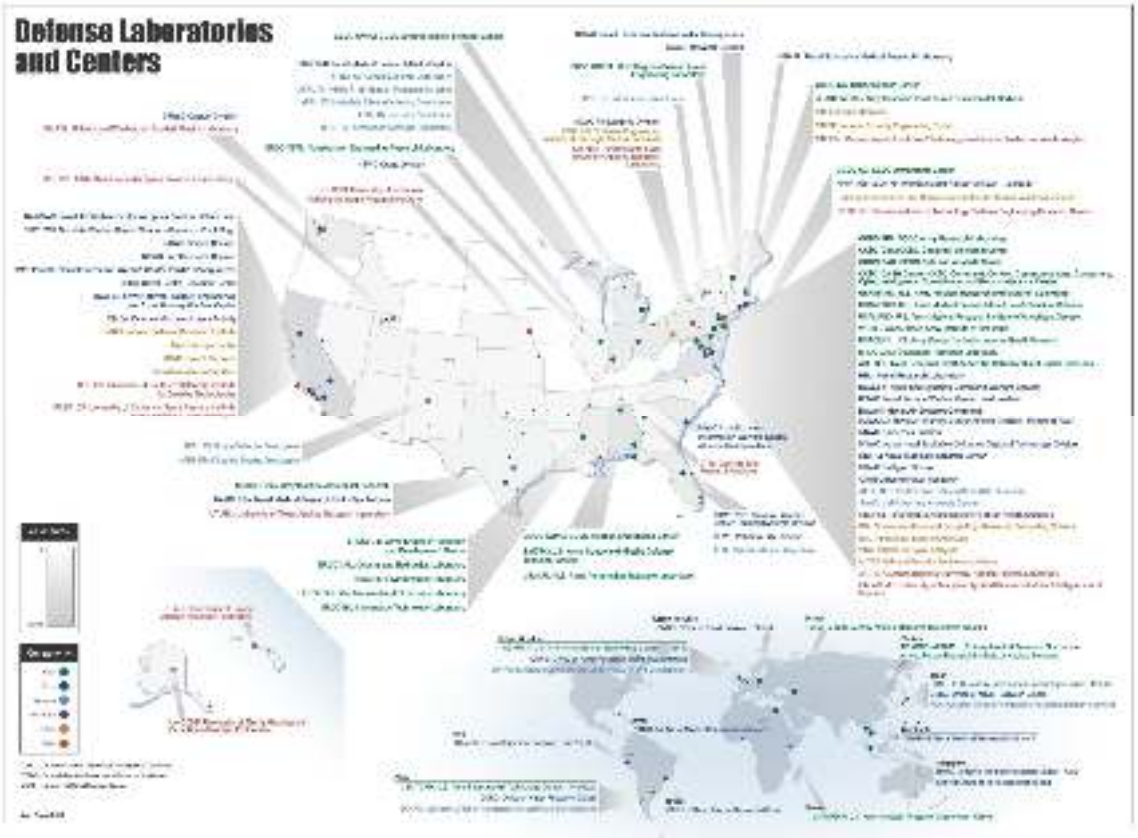
Technology Transfer in DoD's Mission Context Includes Reinforcing Roles of Spin-In, Spin-Out, and Dual-Use



DoD Technology Transfer Activities Extend Beyond the "Defense Laboratory Enterprise"

Combatant Commands

https://www.defense.gov/Our-Story/Combatant-Commands/



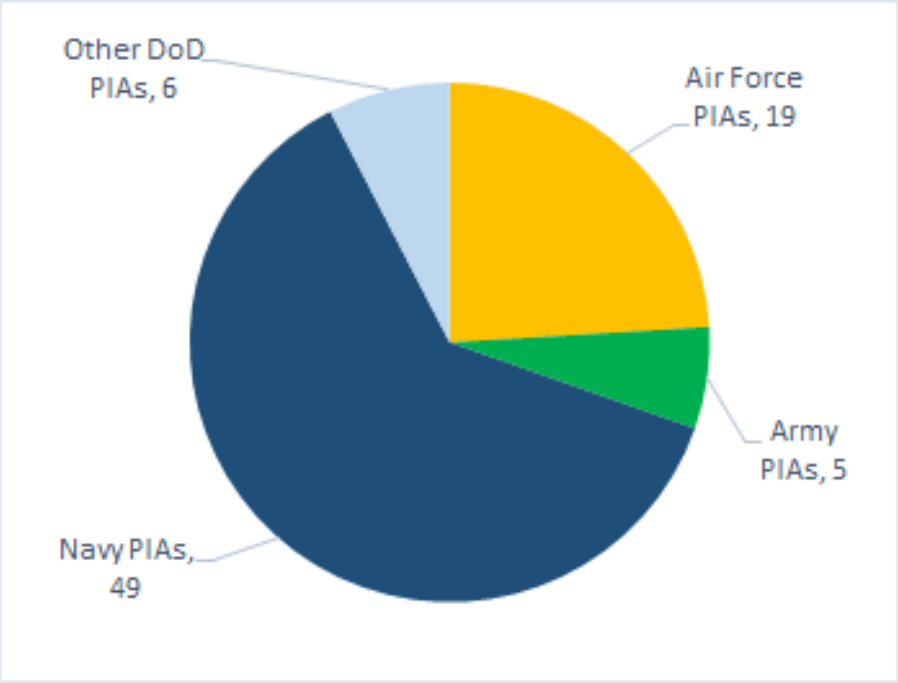
https://rt.cto.mil/rtl-labs/

Service-Level Major Commands and Military Academies

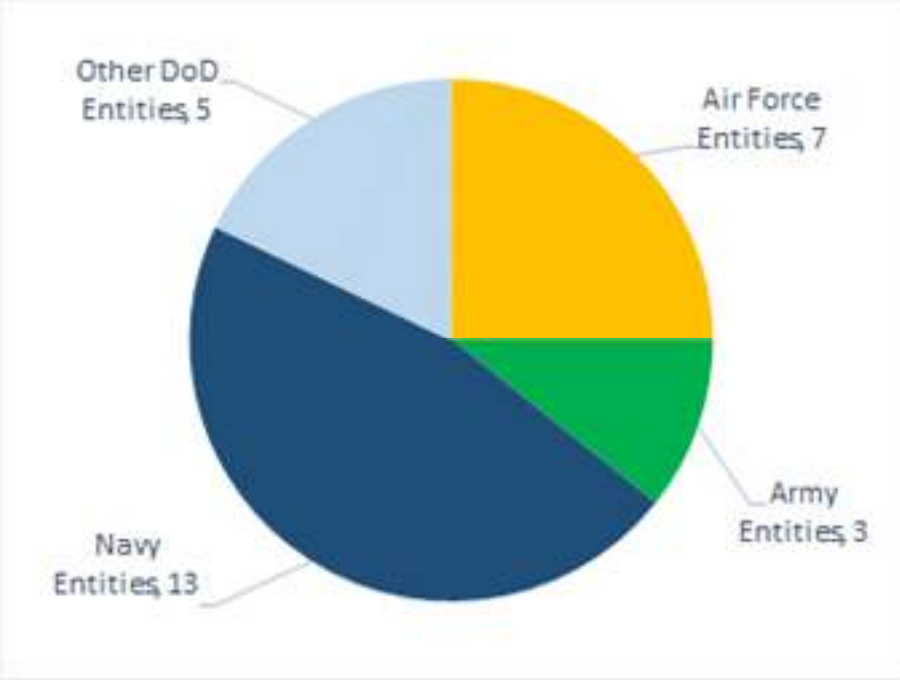
https://www.fox21news.com/,
AP Photo/Andrew Harnik

DoD's PIA Landscape Includes 79 Active PIAs Across 28 DoD Entities

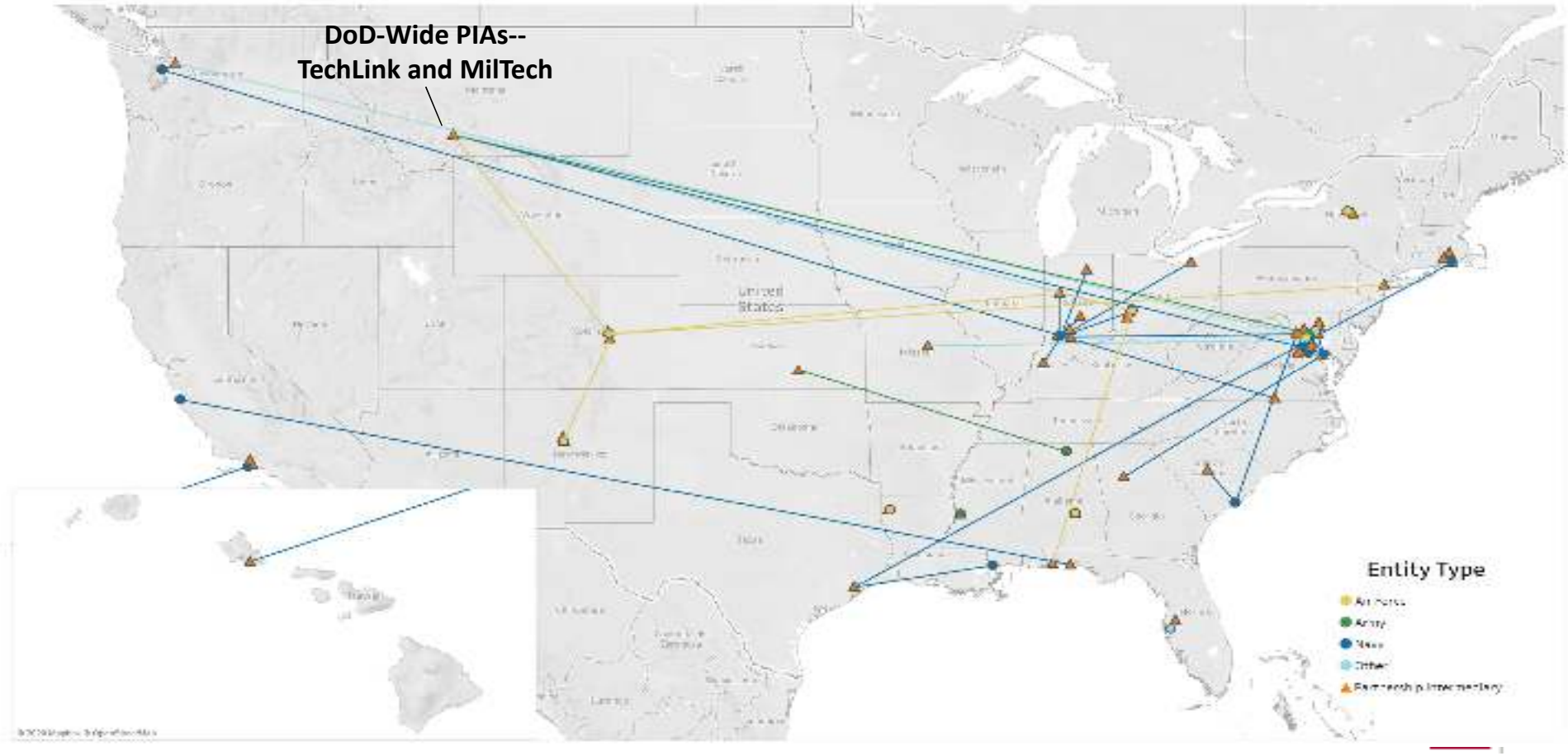
Active PIAs by Service and Other DoD Entities



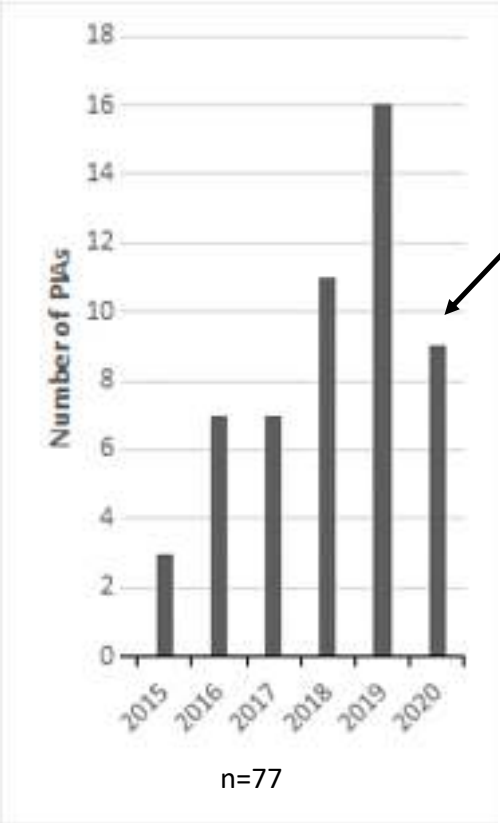
Service and Other DoD Entities Establishing PIAs



Some Partnership Intermediaries Have Multiple PIAs, 62 Organizations Located in 21 States Across

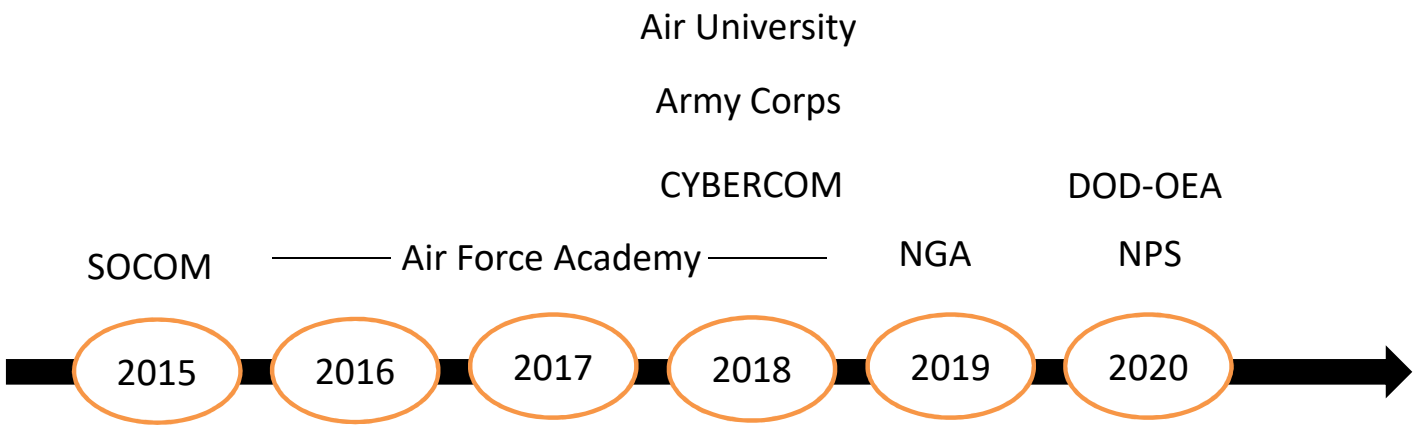


Rise in the Number of Active PIAs and Non-Traditional DoD Entity PIAs Over The Last 5 Years



STPI Identified 16 Forthcoming PIAs Planned in 2020

Non-Traditional DoD Entities Establishing PIAs in the Last 5 Years

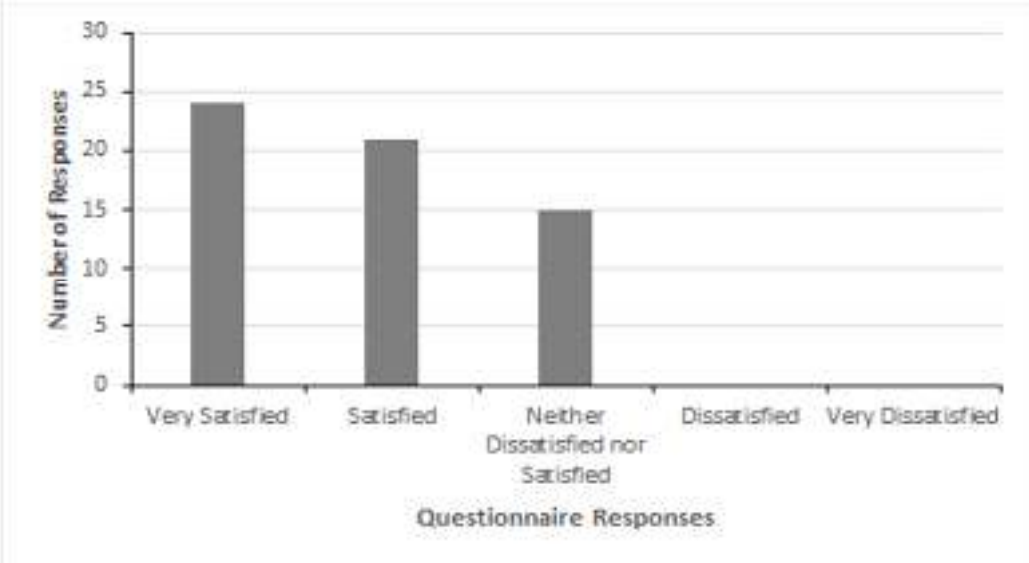


CYBERCOM = U.S. Cyber Command; NGA = National Geospatial Intelligence Agency; NPS = Naval Postgraduate School; OEA = Office of Economic Adjustment; SOCOM = U.S. Special Operations Command

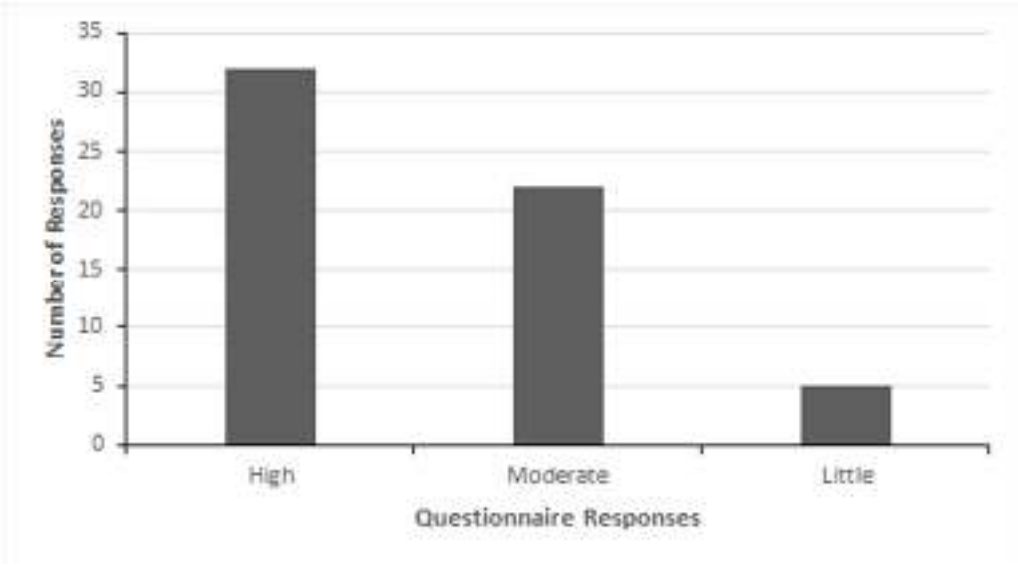
STPI could not make further conclusion about historical trends from the data beyond the last 5 years since the typical life-span of a PIA is about 5 years.

High Levels of Overall Satisfaction with PIAs and Their Value to Mission Across DoD Entities

DoD Entity Responses to Satisfaction with Each of Their PIAs, n=60

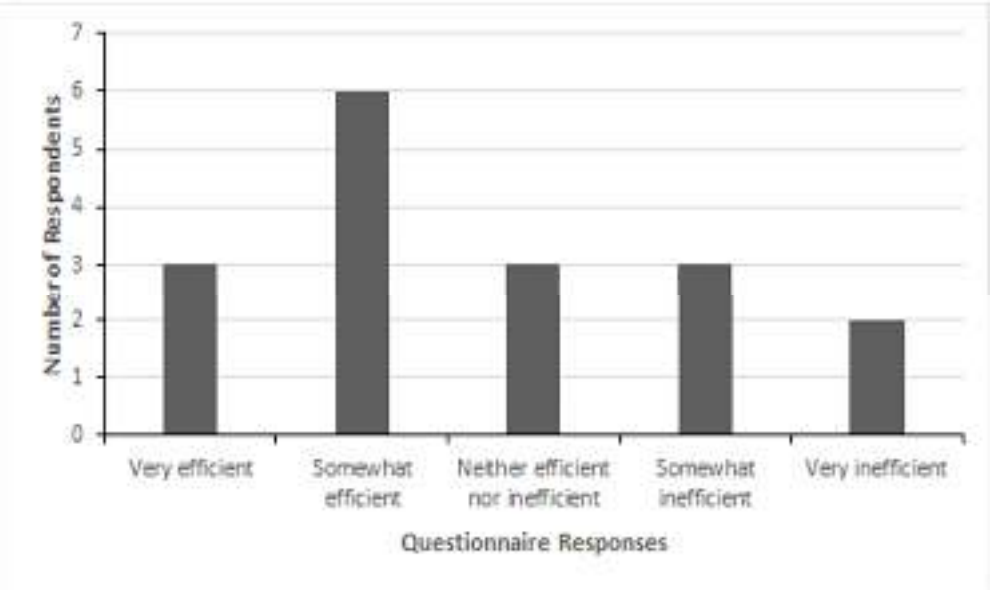


DoD Entity Responses to What Extent Activities Under PIAs Provided Value to the DoD Mission, n=59

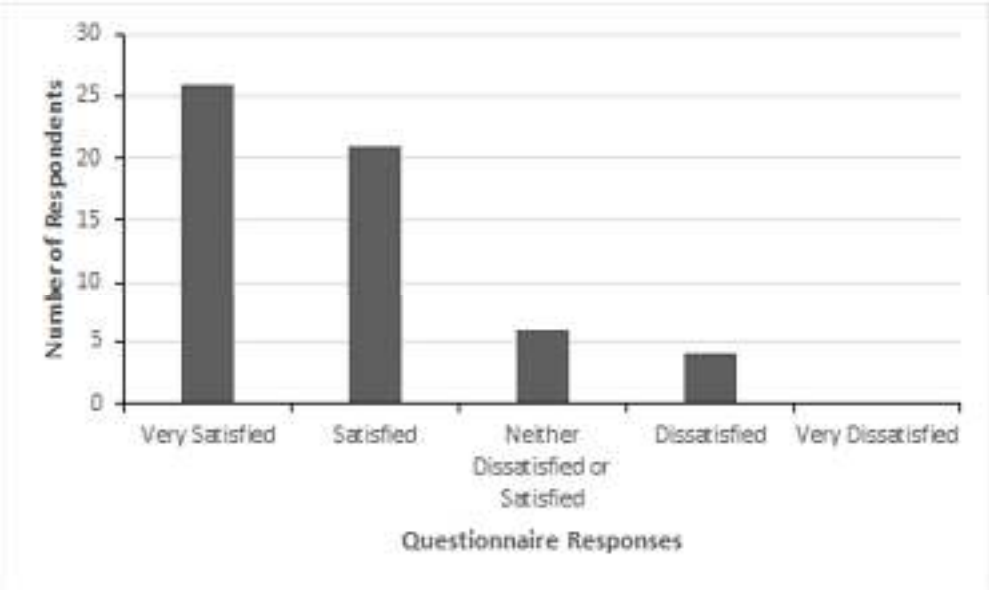


Varied Satisfaction with Processes and Activities Related to PIAs

DoD Entity Responses to What Extent the Process to Establish PIAs Was Efficient or Inefficient, n=17



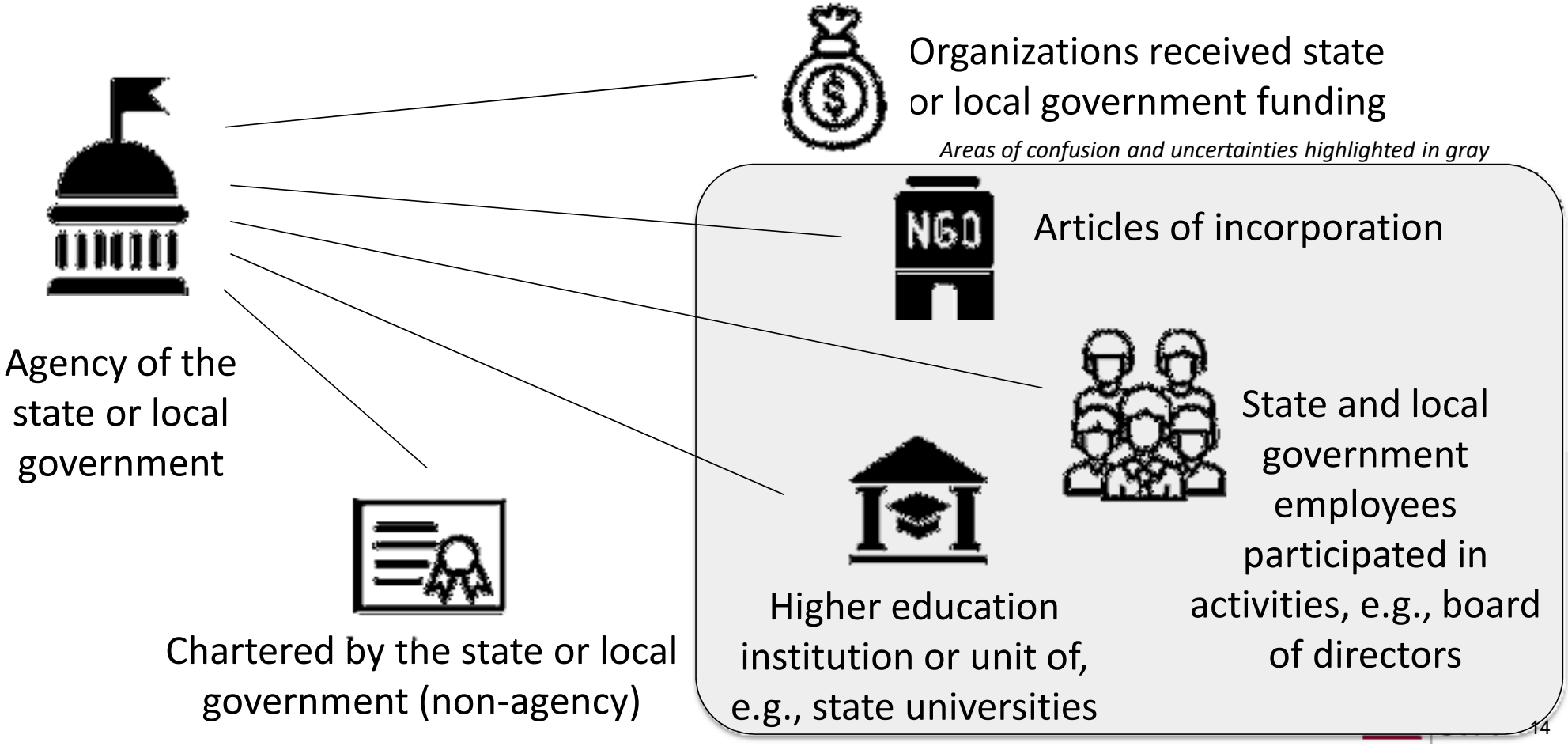
Partnership Intermediary Satisfaction with the Nature of the Work They Were Asked to Perform under PIAs, n=57



Predominant Challenges Experienced by Stakeholders

- Confusion or inconsistencies in interpretation and practice across technology transfer staff, legal counsel, and contracting officers
- Primary areas of confusion
  - State and local government affiliations of partnership intermediaries
  - Activities under PIAs
  - Funding, including the use of budgetary accounts
  - DoD oversight, including competition and evaluation of PIAs

Stakeholder Interpretations of State and Local Government Affiliations



STPI Categorized 10 Broad Activities Under PIAs

***Generally* Spin-Out** ⟷ ***Generally* Spin-In**

- Patent and IP management
- Collaboration spaces
- RDT&E collaborations and agreements
- SBIR and STTR program support
- Business incubation
- Technology and market research
- Prize competitions
- Technology showcases and events
- STEM education and workforce
- Prototyping and manufacturing

Areas of confusion and uncertainties highlighted in grey

Multiple Funders Can Support PIA Activities

DoD

- Congressional adds
- Unfunded
- Baseline and project-based funding

Non-DoD

- Other Federal funding
- State or local government funding
- Non-Federal funding

Areas of confusion and uncertainties highlighted in gray

DOD "Colors of Money"

Research, development, test, and evaluation (RDT&E)

Operations and maintenance (O&M)

Licensing, royalties, and other technology transfer funds

DoD Oversight of Competition and Evaluation

Competition in Selection

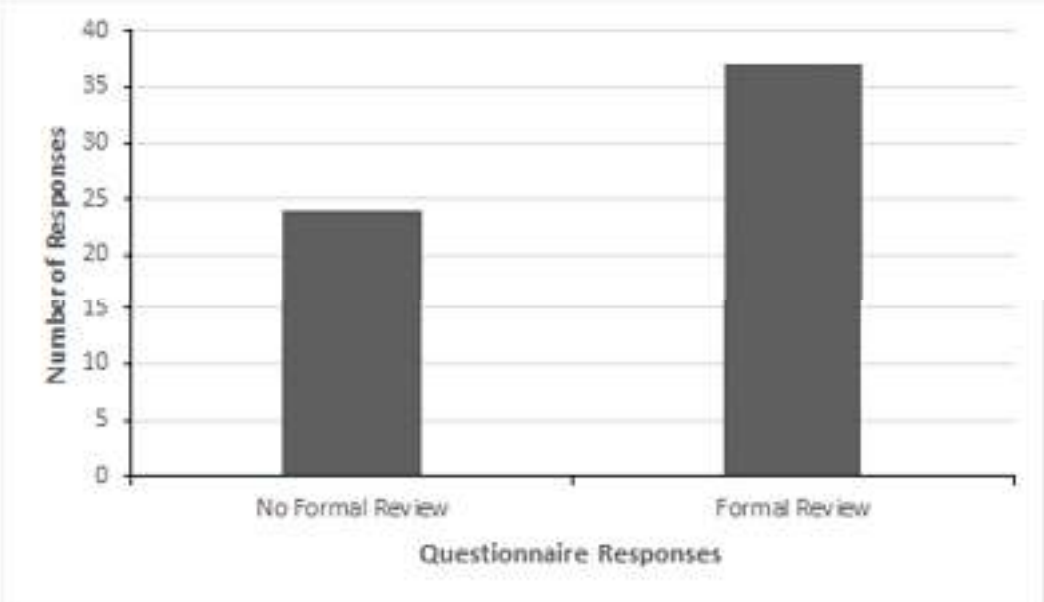
- Formal solicitations
- Sole-source justification
- Informal / due-diligence activities

Evaluation of PIA Performance

- No review
- Formal reviews
- Qualitative and quantitative

Areas of confusion and uncertainties highlighted in gray

DoD Entity Responses to Whether They Performed a Formal Review of Each of Their PIAs, n=61

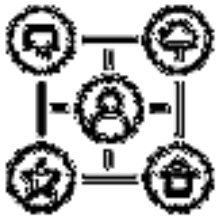


STPI Identified 29 Exemplar Practices

Grouped by Report Theme

1. PIA Landscape – 2 Exemplar Practices on centralizing collection and sharing of PIA information

2. Organizational and Business Models – 2 Exemplar Practices on understanding legal requirements and articulating value proposition



3. PIA Activities – 6 Exemplar Practices on understanding roles, DoD mission, and targeted innovation ecosystems; and pursuing joint activities to exploit efficiencies

4. Oversight and Evaluation – 15 Exemplar Practices on encouraging strong communication, interactions with SMEs, guidance, and joint accountability

5. Context with Broader DoD Technology Transfer – 2 Exemplar Practices on developing strategic plans for using PIAs and their use with other mechanisms

6. Policy and Guidance – 2 Exemplar Practices on developing policies, guidance, and templates that clarify ambiguities and providing targeted training opportunities for stakeholders

Select Exemplar Practice – PIA Activities

Coordinate and develop joint activities under PIAs to leverage resources and exploit efficiencies

Advanced Naval Technology Exercise with Coastal Trident

Provided by NSWC Port Hueneme

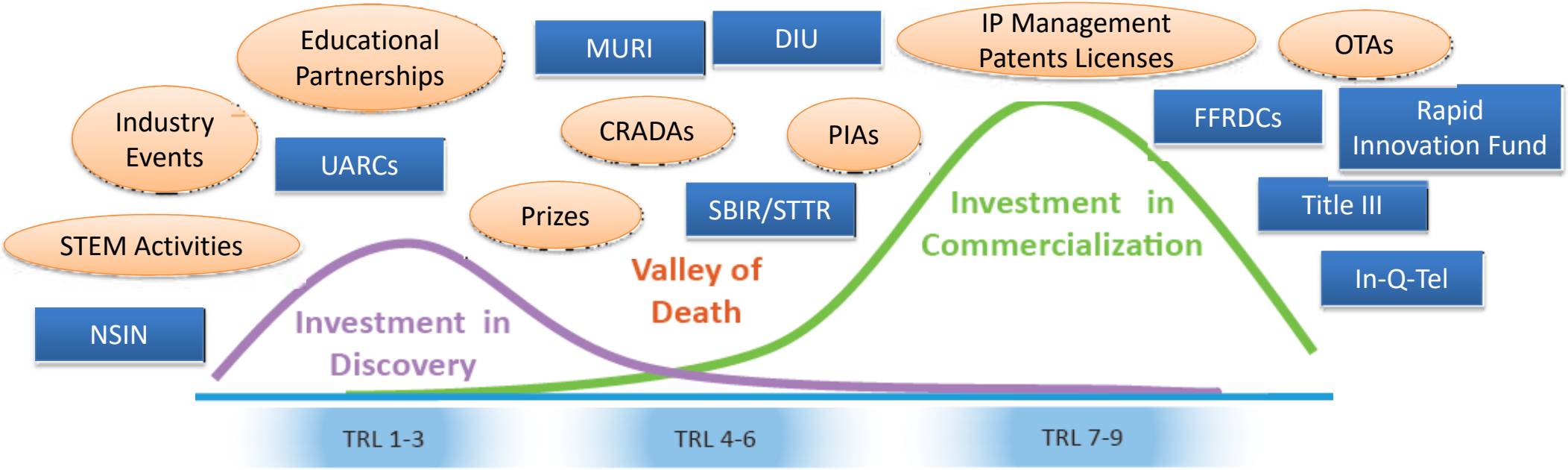
Select Exemplar Practice – Oversight

Obtain affiliation disclosures and outline processes for identifying and resolving potential COIs

- Multiple funders can provide resources to partnership intermediaries, including other Federal agencies and private sector
- Management of COI can be explicitly outlined in the PIA including
  - Ownership of IP e.g., of generated prototypes
  - Equity stake or venture investments in start-ups

Select Exemplar Practice – Context with Broader DoD Technology Transfer

Develop strategic plans on the use of PIAs in the context of other technology transfer activities and goals



Notional Technology Transfer Mechanisms (orange circles) and Related DoD Programs Organizations and Programs (blue boxes)
Modified from National Academies of Sciences, Engineering, and Medicine 2016. *Triennial Review of the National Nanotechnology Initiative*. Washington, DC: The National Academies Press.

STPI's Recommendations to Advance the Goal of Improving the Use of PIAs across DoD

1. Revise DoD policy

2. Develop PIA guidance and training

3. Encourage funding of PIA activities

4. Cultivate a trust-based relationship

5. Strengthen the PIA ecosystem

6. Coordinate relevant DoD initiatives

7. Harmonize the PIA authorities

1. Revise DoD Policy

Existing DoD-wide policy is outdated, Service-level policies are inconsistent, and new, revised policies are needed

Revise DoDI 5535.8 "DoD Technology Transfer (T2) Program" Sections

- Section 1.3 General Issuance Information – Information Collections
- Section 2.4 Responsibilities – DoD Component Heads
- Section 3.7 Guidance and Factors to Consider When Using Partnership Intermediaries

See September 2020 STPI memo, which provided recommendations to revise DoDI 5535.8 "DoD Technology Transfer (T2) Program" and specific language to insert in the DoDI.

Topics for New Policies to Address

- Information Collection
- PIA Strategic Objectives
- Scope of PIA Activities
- Eligibility of DoD Entities and Partnership Intermediaries
- Competitive Selection of Partnership Intermediaries
- Funding, Training, and Oversight of PIAs
- Leveraging PIAs Across DoD

2. Develop PIA Guidance and Training

Existing guidance and training is insufficient and PIA-specific training targeted to stakeholders is needed

DAU → Informational materials about PIAs lack clarity and specificity to support execution

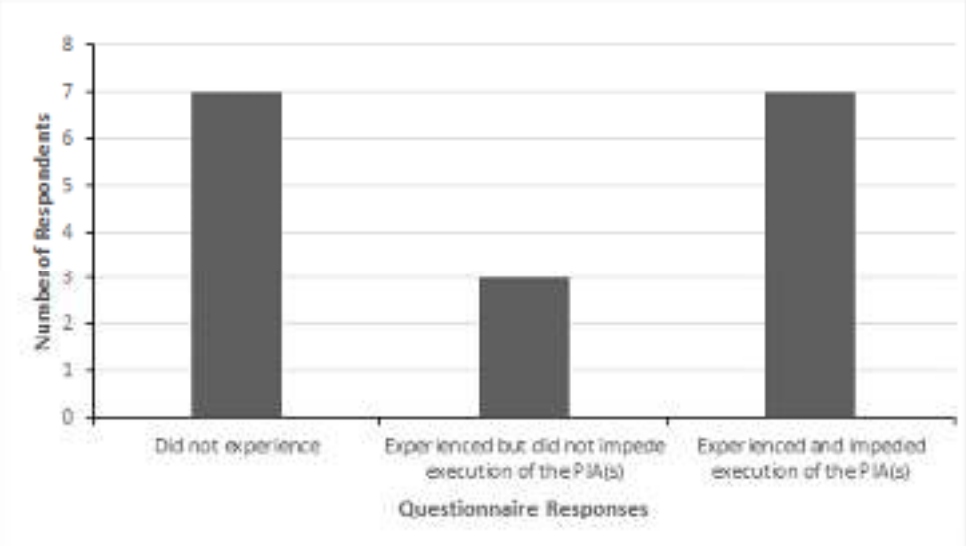
FLC → Meetings and training events do not target all DoD stakeholders, e.g., legal counsel and contracting officers

DoD and Service Workshops → Viewed positively but insufficient to address needs for PIA-specific training and guidance

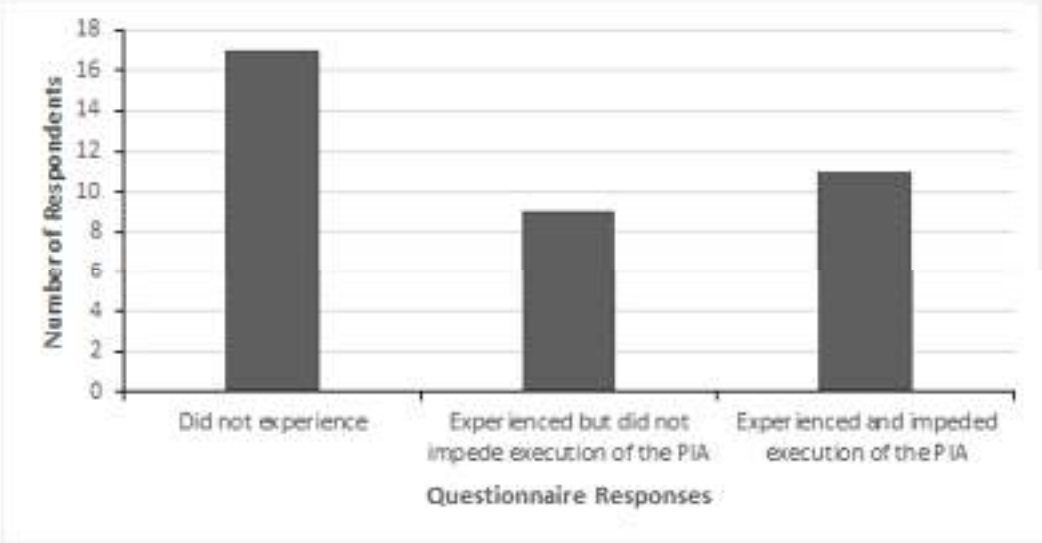
3. Encourage Funding of PIA Activities

Inadequate funding is an obstacle that impeded execution of several PIAs and could be addressed through policy and oversight practices

DoD Entity Responses to Experiencing Inadequate Funding, n=17



Partnership Intermediary Responses to Experiencing A Lack of Funding to Effectively Perform Their PIA Activities, n=37

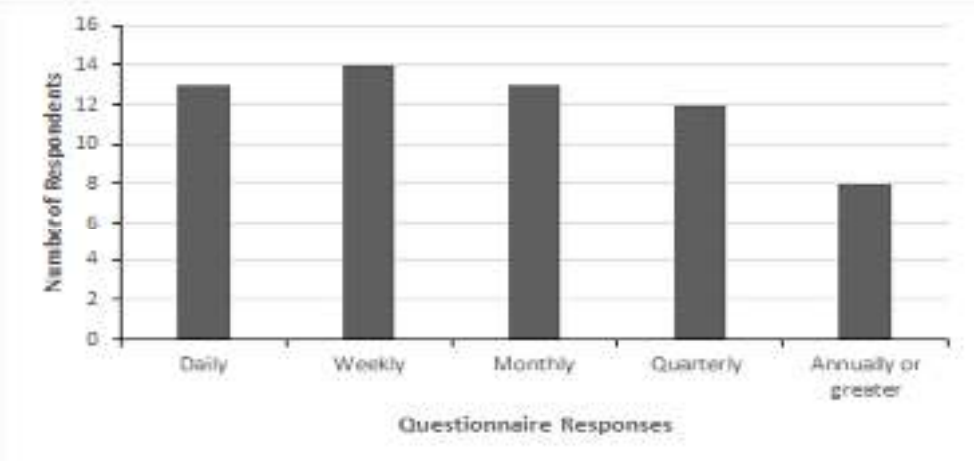


4. Cultivate a Trust-Based Relationship

PIAs are trusted relationships that generate value to DoD and could be supported through training and sharing exemplar oversight practices

- Proactive versus reactive role
- Frequent and transparent communication
- Access to information, technologies, and researchers
- Appropriate management of conflicts of interest

DoD Entity Responses to Frequency of Communications with their Partnership Intermediaries, n=17



Note: DoD entities could select one or more communication frequencies.

5. Strengthen the PIA Ecosystem

Most PIA activities are not coordinated and there are opportunities to build a PIA ecosystem by sharing information and improving coordination

- Communicate information about PIAs through the LQEP-TT or by establishing an ad-hoc working group
- Collect, maintain, and share information about PIAs across the DoD community
- Coordinate PIA training with Services and other stakeholders supported by STPI's exemplar practices

6. Coordinate Relevant DoD Initiatives

Some synergies with PIAs and relevant DoD initiatives exist and there are opportunities for scaling up and coordinating efforts

Relevant Initiatives and Programs Under USDR&E

DEFENSE INNOVATION UNIT

NSIN

DoD RAPID INNOVATION FUND

Other Relevant Initiatives across the Federal Government

MEP • MANUFACTURING EXTENSION PARTNERSHIP®

SBA U.S. Small Business Administration

Relevant DoD and Service Initiatives

NAVALX

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SBIR·STTR America's Seed Fund™ POWERED BY SBA

7. Work with Congress to Harmonize the PIA Authorities

Inconsistencies across the PIA authorities exist and legislative amendments could clarify language while maintaining DoD goals

	Stevenson-Wydler Act	15 USC 3715 (NDAA for FY1991)	15 USC 3715 Amended (Technology Transfer Commercialization Act)	10 USC 2368(f) (NDAA for FY2019)
	1980	1990	2000	2018
Intent Based on Legislation	Enhance technological innovation for commercial and public purposes (15 USC 3701)	Improve acquisition policy and the defense industrial and technology base (Section 827, Title VIII, Part C)	Not applicable; expanded scope to higher education institutions (P.L. 106-404, Section 9)	Support DoD's RDT&E program requirements (Title II, Subtitle B)

Select Inconsistencies 15 USC **vs.** 10 USC

Federal entities: Federal laboratory and non-laboratory FFRDC, **vs.** DoD Centers for Science, Technology, and Engineering
Partnership intermediary eligibility: small business and higher education institutions **vs.** industry and academic institutions
Contract mechanisms: Contract and MOU **vs.** contract, MOU, and other transaction
Funding: Funds available for the support of technology transfer **vs.** not specified

Thank You – Questions?

Backup Slide – STPI Study Methods

- Review of literature and program documentation
- Semi-structured interviews with 100+ individuals across DoD and partnership intermediary organizations
- Questionnaires for DoD entities and partnership intermediaries
- Qualitative coding and analysis
- Exemplar practices criteria

STPI Identified 29 Exemplar Practices

Grouped by Report Theme

	PIA Landscape
1.1	Service-level program managers maintain centralized information about PIAs established across their organization
1.2	DoD entities provide timely information about new or inactive PIAs to DoD leadership or service-level program managers
	Organizational and Funding Models
2.1	DoD entities and partnership intermediaries work to clearly identify the State and local affiliation requirement, in coordination with legal counsel, as needed
2.2	Partnership intermediaries focus on customer needs and clearly articulate their value proposition as part of their business model
	PIA Activities
3.1	Partnership intermediaries are active partners that seek to understand the legal and policy frameworks that govern DoD activities
3.2	Partnership intermediaries expend high-levels of effort, as needed, to understand DoD discoveries and how to frame them to garner interest from the private sector
3.3	Partnership intermediaries develop strong linkages with DoD public communication staff to facilitate information sharing about and the benefits of engaging with DoD
3.4	Partnership intermediaries engage with and foster relationships with other entities in the region, such as universities and regional economic development groups, continuously working to build their networks and contributions to their innovation ecosystems
3.5	DoD entities and partnership intermediaries coordinate and develop joint activities under their PIAs to the extent possible to leverage resources and exploit efficiencies
3.6	Partnership intermediaries conduct extensive preparation to understand their PIA roles

	DoD Oversight and Evaluation
4.1	DoD entities enable strong, two-way and frequent communications in all aspects of oversight
4.2	DoD entities identify an appropriate DoD lead that promotes a trust-based relationship, enables transparency, clearly articulates and effectively manages the oversight role, provides adequate resources, and facilitates contributions of others to accomplish the projects
4.3	DoD leads facilitate interactions with the pertinent DoD SMEs to support projects under the PIA
4.4	DoD entities support interactions between the partnership intermediary and DoD SMEs to the maximum extent possible and ensure these interactions are not unnecessarily burdensome
4.5	DoD entities ensure that a potential partnership intermediary has the correct knowledge base to understand the scope of a PIA and project approval processes
4.6	DoD entities work to educate contracting officers and legal counsel about the use of PIAs
4.7	DoD entities make the project definition process as collaborative as possible, and, in the case of spin-in, involve the ultimate customer in the conversation
4.8	DoD entities establish rules for guiding partnership intermediary behaviors, including identifying competing relationships and how to keep all stakeholders informed about those interests
4.9	DoD entities provide frequent feedback, and partnership intermediaries encourage this feedback, whether positive or negative
4.10	DoD entities keep DoD leadership informed of progress on projects under PIAs
4.11	DoD entities obtain disclosures of affiliations for consideration when selecting a partnership intermediary and outline processes for how the partnership intermediary will identify and resolve potential COIs in the PIA
4.12	DoD entities define success collaboratively with the partnership intermediary and other DoD customers
4.13	DoD entities develop a well-thought out plan for the expected activities under PIAs and how they lead to expected achievements
4.14	DoD entities use qualitative annual reviews with input from all key DoD stakeholders, including DoD leadership, contracting officers, legal counsel, and other DoD customers
4.15	DoD entities develop metrics, as needed, tailored to the specific activities being performed to support quantitative evaluation

	PIAs in Context with the Broader DoD Technology Transfer Landscape
5.1	DoD entities develop strategic plans to identify and articulate the value proposition in their use of PIAs in the context of other technology transfer activities and goals
5.2	DoD entities understand and can articulate how the PIA as a mechanism compares with the use of other contracts to accomplish similar goals
	Policy and Guidance
6.1	Service-level leadership develop policies and guidance that clarify ambiguities and provide informational materials, such as an agreement template
6.2	DoD leadership identify training opportunities for technology transfer staff, contracting officers, and legal counsel