Department of Defense S&T: Research Engagement Best Practices

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PRESIDENT, WINTER STRATEGIC SOLUTIONS, LLC
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Introductions

- Office of Federal and Washington Relations – new team and growing resource in DC
  - Laura McAleer ‘98 and Jill Pentimonti ‘99
  - Mat Winter – Class ‘84, Warfighter, Acquisition, Chief of Naval Research

- Our Goal: Support with federally funded research across agencies
  - Help to identify new funding opportunities
  - Outreach with agencies
  - Help to shape proposals
  - Connect the scholarly work on campus to DC
Agenda

- DoD National Defense Strategy
- DoD S&T Organization Alignment
- DoD Research Priority Areas
- DoD S&T Budget Overview
- Primary Funding Opportunity Announcements (FOA)
- Engagement Basics
- Best Practices / Q&A
National Defense Strategy

- Guides DoD to support the National Security Strategy in order to:
  - Defend the homeland to maintain freedoms and quality of life
  - Remain the preeminent military power in the world
  - Ensure the balances of power in key regions remain in our favor
  - Advance international cooperation that best supports our security and prosperity
- Prioritizes DoD investments
- Implemented through three lines of effort:
  - Build a more lethal, resilient, agile, and ready Joint Force
  - Strengthening Alliances and Attracting New Partnerships
  - Reforming Business Practices for Greater Performance and Affordability

All investments must show clear linkage to support the NDS
The overall organization of DoD is established in law in 10 USC §111 and in DoD Policy in DoDD 5100.01.
DoD Research Organizations

- Office of Secretary of Defense (OSD)
  - OUSD(R&E), DARPA, DIU, DAFA - Defense Agencies & Field Activities

- US Military Services
  - DoN: ONR, NRL, ONR-Global, SYSCOMs, Warfare Centers, Navy Labs
  - USAF: AFOSR, AFRL, Warfare Centers, AFWERX, AF Labs
  - Army: ARL, ARO, Army Futures Command, Warfare Centers, Army Labs
  - Others: COCOMs, Fleet/Force Commanders, Joint Staffs
The DoD S&T Enterprise

Government

S&T

Academia

Industry
DoD S&T Priorities Overview

- There is no single source for S&T priorities
- USD(R&E) - DoD’s Chief Technology Officer (CTO)
- CTO facilitates 17 Communities of Interest (COI) with the Services/Agencies
- Each Service/Agency establishes their own Strategic Priorities loosely aligned to the COIs

https://defenseinnovationmarketplace.dtic.mil/communities-of-interest/
Current S&T Strategic Priorities

- USD(R&E): AI, Biotechnology, Autonomy, Cyber, DE, Fully Networked Command/Control/Communications Technology (FNC3), Quantum Sciences, Microelectronics, Hypersonics, Space, 5G

- DARPA: Rethink Complex Military Systems, Master the Information Explosion, Harness Biology as Technology, Expand the Technological Frontier

- DoN: Augmented Warfighter, Integrated and Distributed Forces, Operational Endurance, Sensing and Sense-Making, Scalable Lethality

- Air Force: Engineering and Complex Systems, Information and Networks, Physical Sciences, Chemistry and Biological Sciences

DoD FY20 Budget Overview
(Fiscal Year 01 Oct – 30 Sep)

FY20 Enacted: $712B

- **$105B** Research & Development: Designs, develops, verifies/certifies
- **$16B** Science & Technology: Basic, Applied, Advance Research
- **$144B** Procurement: Delivers full system capabilities/services
- **$289B** Operations & Maintenance: Supports system use and readiness on a global footprint
- **$154B** Military Personnel: Pays salaries, Services labor, HR processes, Family Programs
- **$20B** Military Construction: Builds and modernizes facilities & Infrastructure
## DoD Research and Development Funding Allocations

### RDT&E Budget (6.1-6.7) -- $105B / Year

<table>
<thead>
<tr>
<th>Section</th>
<th>Budget</th>
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<tbody>
<tr>
<td>6.1 Basic Research</td>
<td>$3B</td>
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<tr>
<td>6.2 Applied Research</td>
<td>$6B</td>
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<tr>
<td>6.3 Advanced Technology Development</td>
<td>$7B</td>
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<tr>
<td>6.4 Adv. Comp. Development &amp; Prototypes</td>
<td>$27B</td>
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<tr>
<td>6.5 System Development &amp; Demonstration</td>
<td>$17B</td>
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<tr>
<td>6.6 RDT&amp;E Management Support</td>
<td>$7B</td>
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<tr>
<td>6.7 Operational System Development</td>
<td>$38B</td>
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- **S&T Budget**: $3B + $6B + $7B + $27B + $17B + $7B + $38B = $105B

### Breakthrough Research → Disruptive Technologies → Merge Business/Technical → Innovative Solutions Aligned to NDS

### Research/Prototyping

- Government
- Academia
- Industry

### Enablers

- Government
- Academia
- Industry

### 15% R&D (~2% S&T) Annual Investment
FY20 S&T Funding Allocation

Total DoD FY20 S&T Funding $16.1B
DoD Funding Opportunity Announcements Overview

- FOAs are used to solicit the S&T Enterprise Triad's expertise and capabilities
- FOAs are NDS aligned AND supports specific S&T Sponsor's Priorities
- FOAs release timing
  - Annually each Fiscal Year – October through September
  - Based upon resources available – Under/over execution phasing
  - On demand for real time solutions – COVID19
- FOAs posted to: https://www.grants.gov AND Services/Agencies Websites
- FOAs focused on three main areas
  - Actual scientific discovery, invention and capability
  - Generating intellectual capital repository for an enduring capability
  - Mentoring, growing and developing future scientific, technical workforce
- FOA selection criteria normally a prioritization of the above
FOA Types
(Science then Workforce Development Focused)

- **DURIP - Defense University Research Instrumentation Program**
  - A competitive solicitation to acquire major equipment to augment current or develop new research capabilities in support of DoD-relevant research.
  - USD(R&E) facilitated, Services’ funded.
  - Solicited Annually

- **MURI - Multidisciplinary University Research Initiative**
  - A competitive solicitation selecting teams of researchers to investigate high-priority topics that intersect more than one technical discipline.
  - USD(R&E) facilitated, Services’ funded.
  - Solicited Annually

- **BAA - Broad Agency Announcements**
  - A competitive solicitation procedure used to obtain proposals for basic, applied and advanced research.
  - Inter-Agency/Services’ facilitated and funded.
  - Solicited as needed

- **RFI/RFP - Request for Information/Proposals**
  - A solicitation used to formally obtain information on a specific topic for future work or fully compliant proposals to award current work
  - Inter-Agency/Services’ facilitated and funded
  - Solicited as needed
FOA Types
(Workforce Development then Science Focused)

- **YIP - Young Investigator Program**
  - A competitive solicitation to identify and support academic scientists and engineers who are in a tenure-track position
  - Services’ facilitated and funded.
  - Solicited Annually

- **PECASE - Presidential Early Career Award for Scientists and Engineers**
  - A competitive recognition that honors and supports the extraordinary achievements of young professionals at the outset of their independent research careers in science and technology
  - Multiple USG Agencies facilitated. Recommendations to the White House Office of S&T Policy for selection.
  - Solicited Annually

- **DARPA/US Services’ WORKFORCE Development / STEM Awards**
  - Competitive recognitions across a broad range of scientific disciplines to include the social sciences that honors and supports the extraordinary achievements of university and government scientists
  - OSD/Services’ facilitated and funded.
  - Solicitations vary by Service
FOA Types
(OSD Sponsored/Services' Funded Fellowships/Initiatives/Programs)

- Vannevar Bush Faculty Fellowship
- Minerva Research Initiative
- HBCU/MI Program
- DEPSCoR - Defense Established Program to Stimulate Competitive Research
- STIX - Science, Technology, Innovation Exchange
- DESI - Defense Enterprise Science Initiative
- I-Corps @ DoD
- LUCI - Laboratory University Collaboration Initiative
- BARI - Bilateral Academic Research Initiative

https://basicresearch.defense.gov/
Select Open FOAs

<table>
<thead>
<tr>
<th>FOA</th>
<th>Sponsor</th>
<th>Funds</th>
<th>Release</th>
<th>WP Due</th>
<th>PropDue</th>
<th>Award</th>
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<td>FY21 DURIP</td>
<td>USD-R&amp;E</td>
<td>ONR AFOSR ARO</td>
<td>18 Feb 20</td>
<td>24 Apr 20 ✓</td>
<td>15 May 20 ✓</td>
<td>1QFY21 (Oct-Dec)</td>
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<td>ONR Global</td>
<td>ONR Global</td>
<td>21 Apr 20</td>
<td>25 May 20 ✓</td>
<td>13 July 20</td>
<td>7 Sep 20</td>
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<td>FY21 YIP</td>
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<td>ONR</td>
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<td>Jul 20</td>
<td>Aug 20</td>
<td>Oct 20</td>
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Numerous other BAAAs, RFI/RFPs and special solicitations are open and posted on the OSD/Services’ websites as well as Grants.Gov
ND PI Engagement Basics

- Relationships
  - Key to success: Become familiar with DoD organizations; Build partnerships
  - Communicate with the Triad – USG/Industry/Academia – even when no solicitation in work

- Requirements
  - Maintain awareness of DoD S&T priorities and demand signals; stay aware of current FOAs

- Resources
  - Understand the budget plan and funds execution; stay aware of current status

- Planning
  - Establish a realistic proposal delivery timeline to meet/beat the submission deadline

- Communication
  - Continuously with USG Program Manager, NDR Development Team, ND PI Peers, others

- Submission/Follow Through
  - Be familiar with Grants.gov and electronic submission process
  - Engage the USG Program Manager, ND WDC Office
DoD Agencies/Services Access and Awareness

- **USG Grants.Gov:** [https://www.grants.gov/](https://www.grants.gov/)
  - All 26 USG Grant Awarding Agencies, to include DoD, are required to use Grants.Gov
  - DoD Grants Manager: Ms. Barbara Orlando, barbaraj.orlando.civ@mail.mil, 571-372-6413

- **OSD:**
  - USD(R&E): [http://basicresearch.defense.gov](http://basicresearch.defense.gov)
  - DARPA: [https://www.darpa.mil/](https://www.darpa.mil/)
  - Defense Innovation Unit (DIU): [https://www.diu.mil/](https://www.diu.mil/)
  - Comptroller: [https://comptroller.defense.gov](https://comptroller.defense.gov)

- **DoN**
  - Naval Research Laboratory: [https://www.nrl.navy.mil/](https://www.nrl.navy.mil/)
  - Small Business Innovative Research: [www.SBIRNavy.com](http://www.SBIRNavy.com)

- **Air Force**
  - Air Force Research Laboratory: [https://www.wpafb.af.mil/afrl/](https://www.wpafb.af.mil/afrl/)

- **Army**
  - Army Research Office: [https://www.arl.army.mil/who-we-are/aro/](https://www.arl.army.mil/who-we-are/aro/)
DARPA's research portfolio is managed by six technical offices charged with developing breakthrough technologies and additional capabilities that manage special projects and the transition of DARPA-funded technologies into Department of Defense capabilities. The Agency benefits from contributions by a number of support offices as well.

- BTO: Biological Technologies Office
- DSO: Defense Sciences Office
- I2O: Information Innovation Office
- MTO: Microsystems Technology Office
- STO: Strategic Technology Office
- TTO: Tactical Technology Office
Office of Naval Research

- Technology Priorities
- PM names/contact
- FOAs
- Submit Process
Air Force Office of Scientific Research

- Technology Priorities
- PM names/contact
- FOAs
- Submit Process
Army Research Office

- Technology Priorities
- PM names/contact
- FOAs
- Submit Process
Best Practices

- Read the solicitation from front to back, multiple times
- Know the Principle Selection and Evaluation Criteria – meet/exceed it!
- Communicate immediately with USG/DoD Sponsor PM
- Communicate with and utilize ND Research Support Services
- Generate an internal Proposal Submission timeline to meet deadline
- Draft your WP/Proposal focused on:
  - The selecting official/USG PM as the reader, not you or your Peers
  - Ensuring **overt** narrative on Alignment to NDS, Services’ S&T priorities
  - Highlight enduring “leave behind” knowledge repository and/or infrastructure capabilities
  - Incorporate human factors and workforce development aspects every time
- Offer/Highlight cost sharing where realistic
Best Practices

- Simple Proposal Review Checklist – CCD
  - COMPLIANT
    - Is it compliant (with each and every solicitation criterion)?
  - COMPELLING
    - Is it compelling (from the sponsor’s perspective)?
  - DISCRIMINATORS
    - What discriminates your proposal from the competitive proposal stack?
    - NDS/Services’ priorities alignment
    - Current best-value research and future enduring research opportunities
    - Enduring workforce development, intellectual capital generation, multi-disciplinary applications, cross Inter-Agency collaboration
  - Start early with a sense of urgency; do not be late; submit on time
  - Post submission/award follow up with your USG PM colleague
Other Thoughts.....

- Establish your own personalized PI research strategy
  - 1-5-10yr goals/objectives, research areas, milestones, knowledge points, partnerships, fellowships
- Generate White Papers for every area of your research
- Put together an overarching “Dr. Jane/John Doe, PhD” info brief
- Communicate often with your USG colleagues, even absent current FOA
- Defense related FOAs provide cross disciplinary opportunities to connect the social sciences with the technical sciences
- USG/Defense organizations, processes and procedures can appear daunting, but they can be navigated successfully
  ......be pro-active, be persistent, be patient!
ND Research Resources Available

- Your Pre-Award Administrator (David Ross, Senior Director dross5@nd.edu)
- Your Department Chair (start here if cost sharing is involved, then move to next steps)
- Your Proposal Development Consultants facilitated by Dr. Heather Boyd (hboyd@nd.edu)
  - Sarah Nerenberg (peoserv@nd.edu)
  - Yvonne Chang (peoserv1@nd.edu)
- Contact for any follow-up questions
  - Jill Pentimonti jpentim2@nd.edu or Laura McAleer lmcaleer@nd.edu
  - https://www.federalrelations.nd.edu
Research Like A Champion Today
Questions?