2010 ONR Naval S&T Partnership Conference

Next Generation Technologies for Today’s Warfighter

Transition Overview and Opportunities

Dr. Joe Lawrence

Office of Naval Research
joe.lawrence3@navy.mil
703-696-8033
Mission:
• Facilitate technology transition to the fleet, force and acquisition communities

Goals:
• Transition of technologies to the fleet and acquisition
• Emphasize transition centric programs and methodologies including:
  – Efforts covering manufacturing methods used to build naval warfare systems
  – Programs that stimulate advantageous government-industry partnerships
  – An investment portfolio focusing on requirements pull by fleet and acquisition
  – Affordability
Director of Transition Portfolio

Discovery & Invention (Basic and Applied Science)
- Broad Focus
- Time Frame: ≈40%

Leap Ahead Innovations (Innovative Naval Prototypes)
- Narrow Focus
- Time Frame: 10%

Acquisition Enablers (FNCs, etc)
- Broad Focus
- Time Frame: 30%

Quick Reaction & Other S&T
- Narrow Focus
- Time Frame: 10%
# Investment Targets

<table>
<thead>
<tr>
<th>TRL 1</th>
<th>TRL 2</th>
<th>TRL 3</th>
<th>TRL 4</th>
<th>TRL 5</th>
<th>TRL 6</th>
<th>TRL 7</th>
<th>TRL 8</th>
<th>TRL 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Product/Process Capability</td>
<td>Product/Process Development</td>
<td>Product/Process Insertion</td>
<td>Product/Process Improvement &amp; Sustainment</td>
<td></td>
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</table>

A. Discovery and Invention
- Concept & Technology Development (TRL 1)
- Product/Process Development (TRL 2, TRL 3, TRL 4)
- System Development & Demo (TRL 5)
- Production & Deployment (TRL 6, TRL 7, TRL 8)
- Sustain & Maint. (TRL 9)

B. DTRA and DARPA Programs
- SBIR / STTR

C. Future Naval Capabilities
- QRSP/Quick Reaction Fund/Rapid Funding Program
- Joint Concept Technology Demonstrations
- INP/Swampworks

- Rapid Technology Transition
- Technology Insertion Program For Savings
- Foreign Comp Testing
- Rapid Development and Deployment
- Tech Solutions
S&T passes mature technology to acquisition into development and production programs

Agreement must exist on the maturity and readiness at the stage this happens (Technology Transition Agreement)

Key components agreed upon in a TTA:
- Description of Product
- Completion/Transition Year
- Level of Risk (Technology Readiness Level)
- Demonstration of TRL
- Exit Criteria

Transition Overview

<table>
<thead>
<tr>
<th>Transition Commitment Level (TCL)</th>
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<tbody>
<tr>
<td><strong>Years remaining in approved S&amp;T development program</strong></td>
</tr>
<tr>
<td><strong>Weight of Transition Commitment</strong></td>
</tr>
<tr>
<td><strong>TTA Level A - Guaranteed</strong></td>
</tr>
<tr>
<td>Fully executed and TTA, including integration strategy, Transition funding programmed.</td>
</tr>
<tr>
<td>A1</td>
</tr>
<tr>
<td><strong>TTA Level B - Nonguaranteed</strong></td>
</tr>
<tr>
<td>Partially funded R&amp;D, Acquisition Program initiated, Transition TRL, established and Transition budget, PE Level determined/assessed.</td>
</tr>
<tr>
<td>B1</td>
</tr>
<tr>
<td><strong>TTA Level C - Initial</strong></td>
</tr>
<tr>
<td>Initial Exit Criteria, Target Acquisition Program initiated and Program Manager agrees to transition and PE Level determined/assessed, Key technologies identified.</td>
</tr>
<tr>
<td>C1</td>
</tr>
<tr>
<td><strong>No TTA</strong></td>
</tr>
<tr>
<td>IPR and TDD assessment</td>
</tr>
<tr>
<td>D1</td>
</tr>
</tbody>
</table>

FNC Product: K/Ka-Band Phased Array

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Cost</th>
<th>Schedule</th>
<th>Technical</th>
<th>Transition</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC Number/Title: FBN/FDx-00 Advanced Communication Enabling Technology.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manager: A. Clay (314) 268-2507 ext. 3212 C. Worley (314) 268-2507 ext. 3208</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gap Number/Title: Gap 18 - navigation, Secure Communications and Network Infrastructure</td>
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<td></td>
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<tr>
<td>F&amp;O TRL Start/Stop: FBO (TRL 2) - FBO (TRL 5)</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Acquisition Program: DSF/NSF and Technical Modernization/PEO C3I and Space, PMA 273, NCO - Young's Law</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resource Sponsor: NAV and NAVAIR (Design Agent/Rhetor)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transition Status: Signed TTA/WAY/173 Transition FY06</td>
<td></td>
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<tr>
<td>Deliverables: R&amp;D - Ka-band transmitters, Ka-band Passive Array designated by ONR.</td>
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**Funding**

<table>
<thead>
<tr>
<th>FY06</th>
<th>FY07</th>
<th>FY08</th>
<th>FY09</th>
<th>FY10</th>
<th>FY11</th>
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<tr>
<td>$1,100</td>
<td>$16,761</td>
<td>$16,574</td>
<td>$16,484</td>
<td>$16,394</td>
<td>$16,304</td>
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**S&T Cost/Schedule/Technical/Transition**

<table>
<thead>
<tr>
<th>Green</th>
<th>Signal if On Track for Delivery</th>
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<tr>
<td>Yellow</td>
<td>Standard Delivery Based on S&amp;T but Missed</td>
</tr>
<tr>
<td>Red</td>
<td>S&amp;T Delivery Unlikely or at High Risk</td>
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**S&T Cost/Schedule/Technical/Transition**

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<tr>
<th>Green</th>
<th>Adequate Funds Programmed</th>
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<tbody>
<tr>
<td>Yellow</td>
<td>资金不足，Program Not Committed</td>
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<tr>
<td>Red</td>
<td>No Funding Plan</td>
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**Objective:**
- Provide opportunities for small businesses to develop innovative technologies that address high-priority Navy needs.

**Typical Performers:**
- Small technology companies
- U.S. Research Institutions partners (STTR)

**Basic Process:**
- **TOPICS** posted quarterly on DoD SBIR/STTR website ([www.dodsbir.net](http://www.dodsbir.net))
- **PHASE I** awards determine feasibility of technology
- **PHASE II** awards mature technology and develop prototypes
- **PHASE II.5** awards continue technology development with strong transition potential
- **PHASE III** awards transition the technology into a DoD application with non-SBIR funding

**How to get Involved / Contacts:**
- [www.navysbir.com](http://www.navysbir.com)
• Standardized structure across SYSCOMs with defined roles for CTO and PEOs

• Each SYSCOM management structure has an SBIR/STTR Board, with CTO or equivalent chair and PEO/SYSCOM PM membership at each SYSCOM

• SYSCOM SBIR/STTR Board
  The goal of the Board is to raise SBIR/STTR visibility to the Provider Enterprise level
  – Helps ensure alignment of topics and dollars (down to PEO level) with Provider Enterprise (PE) demand and ASN (RDA) guidance
  – Incorporates Navy SBIR/STTR procedures based on best practices
  – Monitors SBIR/STTR transition and success metrics

• Topics
  – 90% topic allocation to PEOs, based on assessment
  – 10% topic allocation to PE (determined by CTO with advice of Board)

• Program Funds (managed by SYSCOM)
  – 70% of SBIR funds provided to PEOs
  – 10% of SBIR funds for PE priorities at SYSCOM
  – 20% of funds for CPP “Phase II.5” T&E matching projects
Objective/Goal:
• To provide Naval innovations a transition path from the lab and capitalize on the Government R&D investment by advancing the development and commercialization of technology in support of the warfighter

Basic Process:
• Businesses, universities, organizations, and individuals can collaborate with Navy labs through Cooperative Research and Development Agreements (CRADAs) and Patent License Agreements (PLAs).
• CRADAs can supply the knowledge, personnel, facilities, and equipment or other resources toward the conduct of specified RDT&E efforts that are consistent with the mission of the Naval laboratory. PLAs permit licensees to make, use and sell the intellectual property from the Naval labs.

How to get Involved / Contacts:
• navytechtransfer@onr.navy.mil
• http://www.onr.navy.mil/tech-transfer
**Objective/Goal:**
- The FNC program is composed of Enabling Capabilities (ECs) that develop and deliver quantifiable products in response to validated requirements (Naval S&T Gaps) for insertion into acquisition programs of record after meeting agreed upon exit criteria within five years.

**Typical Performers:**
- DoD Labs/Warfare Centers
- Industry

**Basic Process:**
- FNC investments are refreshed by an established process that begins when OPNAV delivers its annual Naval Capability Gaps
- The ECs that do get funded represent the highest priorities of the Navy and Marine Corps

**How to get Involved / Contacts:**
- Engage EC/Product Managers in your areas of interest; review and respond to upcoming BAA/RFPs
Technology Oversight Group

- **Co-Chairs:** N8 / MCCDC
- **Permanent Members:** PMD ASN (RDA), DCOM USFF, N091/CNR, N2/N6
- **Equity Members:** N1, N093, Deputy CNOs and Deputy Commandants

**TOG Working Group**
- 0-6/GS-15 Level Representatives of Each TOG Member
- Interacts with IPTs and makes recommendations to TOG

### FNC IPTs

- **Sea Shield**
  - 24 ECs, $586M
  - • OPNAV N86
  - • MCCDC
  - • USFF N803
  - • PEO LMW
  - • ONR 32

- **Sea Strike**
  - 12 ECs, $305M
  - • OPNAV N87
  - • HQMC Aviation
  - • USFF N8
  - • PEO U&W
  - • ONR 35

- **Naval Expeditionary Maneuver Warfare**
  - 12 ECs, $192M
  - • OPNAV N85B
  - • HQMC PP&O
  - • USFF N8
  - • MCSC
  - • ONR 30

- **Sea Basing**
  - 6 ECs, $134M
  - • OPNAV N85B
  - • Dep. CG MCCDC
  - • USFF N804
  - • PEO Ships
  - • ONR 33

- **FORCEnet**
  - 18 ECs, $487M
  - • OPNAV N6F
  - • Dir HQMC C4
  - • NETWARCOM
  - • SPAWAR 05
  - • ONR 31

- **Enterprise & Platform Enablers**
  - 16 ECs, $340M
  - • OPNAV N8F
  - • HQMC I&L
  - • USFF N433
  - • NAVSEA 05
  - • ONR 03T

### Force Health Protection
- 7 ECs, $109M
- • OPNAV N931
- • TMO, USMC
- • FFC N02H
- • NMSC
- • ONR 34

### Capable Manpower
- 9 ECs, $145M
- • N15
- • USMC Training/Ed.
- • USFF N1D
- • NAVAIR TSD
- • ONR 34
Objective/Goal:
- ONR’s Transition Initiatives Division directly supports technology insertion and out-of-cycle emergent needs with investment.

Typical Performers:
- SYSCOMS
- Warfare Centers

Basic Process:
- Standard proposal format
- Enterprise CTOs coordinate project submittals
- Common proposal process
- All electronic
- Continuous calls for innovation

How to get involved:
- RTT_Contact@onr.navy.mil
- 3TTX_Contact@onr.navy.mil
- RDD_contact@onr.navy.mil.
## Technology Transition Programs - NAVY

<table>
<thead>
<tr>
<th>DoN Program</th>
<th>Purpose</th>
<th>Proposal Accepted From</th>
<th>Project Duration</th>
<th>Project Funding</th>
<th>Approx. # projects funded per year</th>
<th>Proposals Due to ONR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rapid Technology Transition (RTT)</strong></td>
<td>Rapidly transition technology into Department of Navy (DoN) programs of record (PoRs) to meet emergent/urgent Naval Needs.</td>
<td>CTOs</td>
<td>Up to 2 years</td>
<td>Up to $2M</td>
<td>15</td>
<td>January</td>
</tr>
<tr>
<td><strong>Technology Insertion Program for Savings (TIPS)</strong></td>
<td>Rapidly transition technology from any source into DoN PoRs to significantly reduce operations and support costs.</td>
<td>CTOs</td>
<td>Up to 2 years</td>
<td>Up to $2M</td>
<td>6</td>
<td>January</td>
</tr>
<tr>
<td><strong>Rapid Development &amp; Deployment (RDD)</strong></td>
<td>Rapidly develops and fields prototype solutions to meet validated urgent operational Naval needs.</td>
<td>CNO N8 or CG, MCCDC</td>
<td>Up to 1 year</td>
<td>As rqrd</td>
<td>2</td>
<td>Rolling submission</td>
</tr>
</tbody>
</table>
Objective/Goal:
• Aid in achieving reduced acquisition and total ownership costs by developing, maturing, and transitioning key manufacturing technologies/processes for the production and repair of Navy platforms and systems

Performers:
• ManTech Centers of Excellence (COEs)
• Technology Providers
• Industry

Basic Process:
• Primary focus on affordability efforts for: CVN 78 Class, VIRGINIA Class Submarine, Littoral Combat Ship (LCS), and DDG 51
• Secondary focus on Joint Strike Fighter
• Addressing Total Ownership Cost reduction – both acquisition and life-cycle

How to get Involved / Contacts:
• Navy ManTech Program Office
• Centers of Excellence
Navy ManTech is executed through nine Centers of Excellence (COEs):
- Execute projects; manage project teams
- Serve as corporate expertise in technological areas
- Collaborate with acquisition program offices / industry to identify and resolve mfg issues
- Develop and demo mfg technology solutions for identified Navy requirements
- Provide consulting services to Naval industrial activities and industry
- Facilitate transfer of developed technologies
ManTech Strategy and Approach

• Currently addressing affordability (both acquisition and life-cycle)
  – Platform IPTs for portfolio management
    – Representation from ONR ManTech, Program Office, and industry ensure close coordination of efforts.
  – Affordability Assessments updated semi-annually
    – Feb 10 update recently vetted through Program Offices

<table>
<thead>
<tr>
<th>Program Office</th>
<th>Total ManTech Investment ($M)</th>
<th>Program Office Cost Share ($M)</th>
<th>Probable EROM Cost Savings per Hull ($M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIRGINIA Class Submarine</td>
<td>62.2</td>
<td>38.6</td>
<td>32.2</td>
</tr>
<tr>
<td>DDG 1000 Destroyer</td>
<td>59.3</td>
<td>0.6</td>
<td>25.4</td>
</tr>
<tr>
<td>CVN 78 Class Carrier</td>
<td>65.8</td>
<td>16.4</td>
<td>18.8</td>
</tr>
<tr>
<td>Littoral Combat Ship</td>
<td>18.7</td>
<td>0.3</td>
<td>2.0</td>
</tr>
</tbody>
</table>
Electric Boat Improvement Initiative Awards – internal Electric Boat awards

- Each month, Quonset Point management (Directors and their Managers) select / award an improvement initiative – a cost savings initiative
- At year end, one of the twelve monthly awards is selected as the Initiative of the Year

Two projects shared honors for 2007 Improvement Initiative of the Year

- Laser Image Projection
  - Active ManTech project
- Annulus Shielding
  - Two ManTech projects laid the groundwork for this work
    - Product Centric Facility Design (CNST) – developed Poly Work Cell at EB
    - Polycan Fabrication Improvements (iMAST) - developed poly cell technology for Portsmouth and Pearl Harbor Naval Shipyards
  - Now receiving direct funding from VCS Program Office (iMAST)

"ManTech sponsorship is making a huge impact here at our QP facility. We can't thank you enough for the tremendous opportunities this program is affording us."

- Electric Boat Quonset Point facility manager