NDIA Conference: Naval Innovation in Challenging Times

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The Challenges to Naval Innovation

Do More With Less

- Workforce Certification
- Ensure Technological Superiority Over Our Adversaries
- Be Ahead of the Technology Curve
- New Technology Discovery and Development Through Wargaming

Force Multiplier Challenges

- Increase Capabilities While Decreasing Costs
- Balance Acquisition Costs Against Total Ownership Costs

Sailor and Marine Driven Innovations

- Internal Naval and External Innovation Collaboration
- Changes to Naval S&T Governance

Internal Naval and External Innovation Collaboration

- Crowd Sourcing and Open Innovation
- Rapid Prototyping Group
- Sequestration Cuts to S&T Investment Portfolios
- Disruptive, Rapid, and Cross-Functional

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Innovative Naval S&T

**DOI Mission:** promote, foster, and develop innovative sciences, technologies, processes, and policies that support the Department of Navy

**Director of Innovation**

- **Discovery & Invention (Basic and Applied Science)**: ≈45%
- **Leap Ahead Innovations (Innovative Naval Prototypes)**: ≈12%
- **Quick Reaction & Other S&T (FNCs, etc)**: ≈30%
- **Quick Reaction**:
  - Fleet Driven Material Solutions
  - 1-2 yrs
- **Leap Ahead Innovations**:
  - Disruptive Technologies
  - 5-7 yrs

**Time Frame**
- **Near**
- **Long**

**Focus**
- **Broad**
- **Narrow**
Rapid Prototyping Group (RPG)

“Consolidate all Quick Reaction Programs for the Fleet”
Chief of Naval Operations, Admiral Greenert
July 2012

- Fast paced technology delivery programs:
  - TechSolutions (TS)
  - SwampWorks (SW)
  - CNO Speed To Fleet (S2F)
  - Technology Transition (TTX)

- Each program has different stakeholders, vetting and approval processes, and funding sources
Quick Reaction Programs
Moving S&T to Programs of Record

SwampWorks: Sea Robin is a large (10’) submarine launched fuel cell powered UAV for ISR. It underwent full scale testing last summer, only four years after program start. COMSUBFOR and SOCOM are the likely transition partners.

TIPS: PEO-SUBS is saving $30M and returning three years of lost operational availability through an improved installation method for SSN 688 class submarine batteries. OHIO and VIRGINIA Class submarines have similar battery installations that may leverage lessons from this redesign.

TechSolutions: The Power Management Kit (PMK) was delivered in 18 months. It replaces 50 lbs of 120V powered unique battery chargers with a nine lb compact multi-power source universal battery charging kit with a built-in 60w solar power source. It is now available on GSA.

Speed to Fleet (S2F): MCM Data Exfiltration technology will provide mine-hunting data transmission from a MK18 UUV back to the warfighters for near-real-time analysis. The initiative will reduce the MCM data cycle time from hours to minutes.
**Innovative Naval Prototypes (INP)**

- DON RDT&E Corporate Board approves % of ONR TOA dedicated to Leap Ahead: currently ≈12%
- **Game changing or disruptive**
  - Dramatically changes the way naval forces fight
  - Radical departure from established requirements and concepts of operation
- **Higher risk to produce higher warfighting payoff**
- **Current INPs:**
  - Integrated Topside (InTop)
  - Autonomous Aerial Cargo Utility System (AACUS)
  - Electromagnetic Railgun (EMRG)
  - Large Displacement Unmanned Underwater Vehicle (LDUUV)
  - Free Electron Laser (FEL)
- **FY16 new start INP proposal process**
massively. multiplayer. online. wargame. leveraging. the internet.

the challenge and the opportunity: an era of wicked problems...characterized by complexity and uncertainty; by incomplete, perhaps even contradictory requirements; and by complex, perhaps even hidden, interdependencies.

in this context a single vision, top down approach no longer works; the primary activity in this context is more of a continuous conversation rather than the production of a blueprint.

mmowgli is an in-depth approach to this conversational metaphor; it is a re-purpose-able game platform that elicits fresh insight by engaging the wisdom of crowds around serious issues.

with mmowgli we can reframe our grandest challenges as a grand opportunity – to tap into our collective intelligence, to engage with our most difficult situations while engaging with each other more deeply and meaningfully.

why this matters: “One thing a person cannot do, no matter how rigorous his analysis, or heroic his imagination, is to draw up a list of things that would never occur to him.” –Thomas Schelling

This year we are doing four separate mmowgli re-purposes-ments
Distinguished Lecture Series

- Promoting collaboration and highlighting frontier science and thought
- Enhancing communication across disciplines and organizational boundaries
- Gaining insight into the present and future areas of S&T that are in technological demand

ONR Global Innovation Webinar Series

- Experts from S&T backgrounds discuss innovation with an international perspective
- Providing insights on trends and issues relating to emerging S&T around the world
- Seeking to improve our international presence through S&T relationships
- Webinar platform allows interactive discussion

Innovation Newsletter

- Explores technologies and capabilities from first hand Warfighters or S&T professionals
- Themes are relevant and timely
- A unique way to visualize the Navy S&T message
- Always looking for new input and perspectives from NRE family

Promoting Collaboration and Interaction within the S&T Community
Questions you might want to ask:

- Who does industry talk to about Innovation? How do you engage?

- How does industry participate in the INP or other Director of Innovation programs?

- How do we measure success?

- What are the impacts of sequestration?