



# NDIA Conference: Naval Innovation in Challenging Times

Mr. Craig A. Hughes  
Acting Director of Innovation  
[craig.a.hughes@navy.mil](mailto:craig.a.hughes@navy.mil)



O F F I C E O F N A V A L R E S E A R C H

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# The Challenges to Naval Innovation

**Do More  
With Less**

**Workforce Certification**

**Force  
Multiplier  
Challenges**

**Rapid Prototyping  
Group**

**Sequestration  
Cuts to S&T  
Investment  
Portfolios**

**Ensure  
Technological  
Superiority  
Over Our  
Adversaries**

**Increase  
Capabilities While  
Decreasing Costs**

**Sailor and  
Marine Driven  
Innovations**

**Crowd Sourcing and  
Open Innovation**

**Balance Acquisition  
Costs Against Total  
Ownership Costs**

**Be Ahead of  
the  
Technology  
Curve**

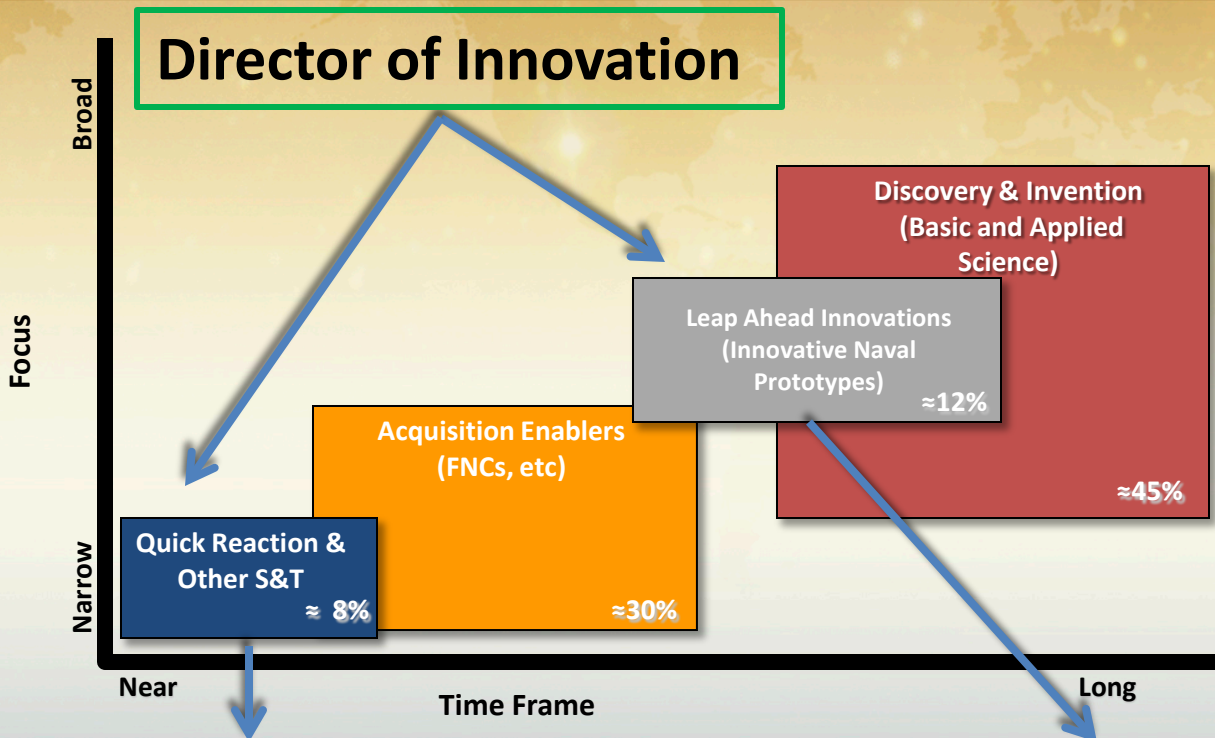
**Changes to Naval S&T  
Governance**

**Disruptive, Rapid, and  
Cross-Functional**

**New Technology  
Discovery and  
Development Through  
Wargaming**

**Internal Naval and  
External  
Innovation  
Collaboration**

# Innovative Naval S&T



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



### Quick Reaction

Fleet Driven Material Solutions

1-2 yrs



### Leap Ahead Innovations

Disruptive Technologies

5-7 yrs

# 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.



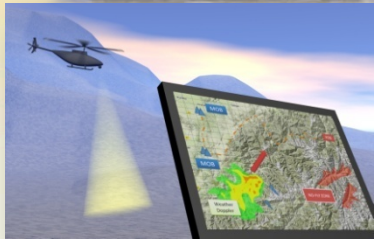
**TechSolutions:** The **Power Management Kit (PMK)** was delivered in 18 months. **It replaces 50 lbs** of 120V powered unique battery chargers **with a nine lb** compact multi-power source universal battery charging kit with a built-in 60w solar power source. It is now available on GSA.



**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  $\approx 12\%$**
- **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**



# mmowgli

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.

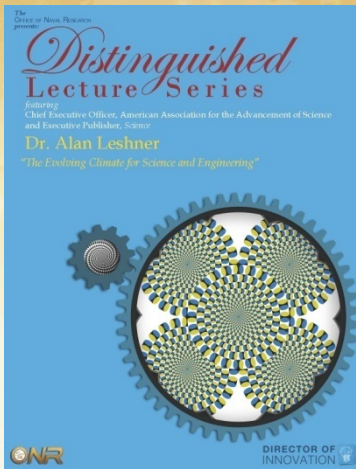
**why this matters:** “One thing a person cannot do, no matter how rigorous his analysis, or heroic his imagination, is to draw up a list of things that would never occur to him.” –**Thomas Schelling**

***This year we are doing four separate mmowgli re-purposes-ments***

# Innovation Beyond Imagination

## 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

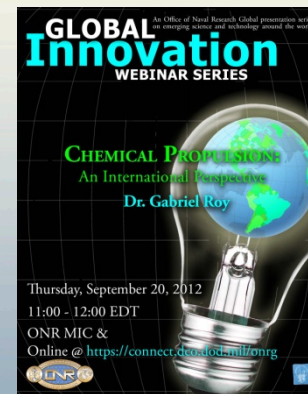


## Distinguished Lecture Series

- 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



**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?**



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