Department of the Navy
Strategy and Innovation Newsletter
Highlighting innovative ideas in the DON
Issue 2 – November 2016

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In This Issue

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Welcome from the Deputy Under Secretary of the Navy (Management)

It is my pleasure to kick-off this second Department of the Navy (DON) Strategy and Innovation newsletter. As we prepare for a new administration, and in light of a rapidly changing security environment, innovation must remain at the forefront of our leadership focus. In January 2015, Secretary of the Navy (SECNAV), Mr. Ray Mabus, established Task Force Innovation (TFI) to reinvigorate the culture of innovation and connect its isolated pockets across the DON. TFI was charged with developing a DON Innovation Vision that SECNAV announced in April 2015.

The DON Innovation Vision has helped rekindle the innovative spirit that has defined the U.S. Navy throughout history and highlighted the culture of innovation that is intrinsic in our people. Our small team in the Strategy and Innovation Division serves as a vital component in supporting and promoting innovative solutions as well as encouraging a more agile and adaptive workforce throughout the Services and Secretariat.

I am proud of what we have achieved thus far, but much work remains to fully implement the goals and visions outlined in the Innovation Vision. The hard work, dedication, and bold thinking of our DON workforce will ensure we continue to become more nimble and adaptable to the new pace at which technology and ideas are developed and deployed. Only with this change will we meet the serious challenges to our maritime preeminence.

Thomas W. Hicks

FY17 SECNAV Innovation Advisors

On 23 September 2016, DON Innovation announced the selection of nine U.S. Navy, Marine Corps, and DON Civilian Innovators who will serve as advisors on the SECNAV FY17 Naval Innovation Advisory Council (NIAC).

Formally established by ALNAV 12/16, the NIAC is a dynamic forum for the advisors to conduct research, advance problem-solving projects, and advise SECNAV on innovation opportunities within the DON. The FY17 advisors will conduct research on six of SECNAV's Innovation priorities and are responsible for projects that were recommended by a DON-wide workshop on Learning Organizations.

To see a listing of all 10 NIAC members for FY17, see inside this issue on the following page.

Discover more! Full versions of the articles in this newsletter are available on our website: **http://www.secnav.navy.mil/innovation**

NIAC Naval Innovation Advisory Council

"It is clear that we are the world's greatest Naval Force thanks to the talented people in our ranks today and the innovative spirit of those who have gone before them."

Ray Mabus, U.S. Secretary of the Navy

DRAGON: Next Generation Artificial Intelligence Capability

By LCDR Rollie Wicks

For more info: http://go.usa.gov/xkfpt

Unmanned Warrior 2016 came to a successful close at the end of October. Hosted by the UK Royal Navy, the first-ever Unmanned Warrior was the world's largest unmanned systems demonstration. The Royal Navy invited industry, academia, and select defense partners – including the U.S. Navy – to experiment and demonstrate the potential offered by maritime autonomous systems within a tactically representative environment.

Components of the Distributed Real-time Autonomously Guided Operations eNgine (DRAGON) were some of the next-generation technologies demonstrated in Unmanned Warrior. Over the past seven years, we formed a team of government and industry experts and designed DRAGON: an agent-based and multi-purpose Artificial Intelligence (AI) engine. Though DRAGON is far from being the first AI capability in the U.S. Intelligence Community and DoD, it is leveraging new perspectives for challenging AI research problems.

AI technologies will change the way commanders gather intelligence, make decisions, and command and control forces. With DRAGON, humans can make informed decisions in a matter of seconds. DRAGON's autonomous technologies can enable friendly commanders to increase the speed of military operations beyond the reaction times of enemy forces.

Congratulations to the FY17 SECNAV Innovation Advisors!

- LT Christopher Cromie
- LtCol S. Rush Filson
- Capt Benjamin Gallo
- LCDR Adam Heil
- LT Ray Lazott
- LCDR Jonathan McCarter
- LT Grayson Young

Associate Advisors:

- Mr. Dan Green
- Dr. Dale Moore
- CDR Zac Staples

For more info: NIAC Project List

Interested in joining next year's NIAC?

Stay tuned for the **FY18 NIAC ALNAV**, which will provide eligibility criteria, manning levels, and other selection requirements. This guidance will also be posted to our website and social media.

Social Business: The Future of the Navy

By LT Ray Lazott

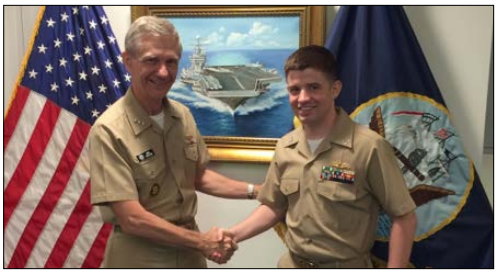
While you may not be familiar with the term "social business," chances are it plays a key role in your everyday life.

Generally defined, social business cultivates the creation of networks and products which connect people and promote collaboration, shared learning, and innovation. Many of these networks have even grown beyond a single corporation to connect leaders and experts across diverse industries.

Recognizing the transformative impact of social business, the FY17 Naval Innovation Advisory Council (NIAC) will conduct in-depth research on social business and other innovation priorities as part of the council's overall theme, "Design Thinking for a Learning Organization."

In our role as FY17 SECNAV Innovation Advisors, we are leading a project which seeks to make the case for the use of social business throughout the Department of the Navy (DON). Currently, there are few, if any, effective means of collaboration and networking inside the DON.

Social business has a proven track record in both the private and public sectors in resolving many of the collaboration and shared learning challenges we currently face in the DON. Widespread implementation of a social business network would allow for greater efficiency and innovation at every level in the DON, save valuable man-hours, and facilitate greater exchange of information and ideas. Less time wasted on re-work and other inefficiencies could help create more time for warfighter training, readiness, and innovation.



LT Ray Lazott (right), FY17 SECNAV Innovation Advisor, meets with VADM Cullom (OPNAV N4)
Photo credit: LT Russ Kratoville

For more info: http://go.usa.gov/xkfp6

MEMOS

SECNAV signed 21 Innovation Memos to support the implementation of the DON Innovation Vision and lay the foundation today for the force of tomorrow. Focused on integration, each Memo directed one or more ASNs and/or Services to provide action plans on identified future enablers, technologies, or concepts.

To date, 16 of the 21 action plans have been submitted and approved by the Under Secretary for implementation. These action plans have spurred significant progress in a number of innovation areas including Adaptive Force Packaging and Additive Manufacturing. In other areas, such as Afloat and Ashore Policies for Experimentation, the Services' plans have provided bold recommendations to reduce barriers to innovation.

To view approved actions plans and responses to the SECNAV Innovation Memos, check out the SECNAV portal at http://go.usa.gov/xkf5e.

Original SECNAV Memos are available on our website

www.secnav.navy.mil/innovation/Pages/memos.aspx

Questions?

Have a story idea?

Know about an event?

We want to hear from you!

Contact us at

DON_Innovation@navy.mil

NIN HUB

NAVAL INNOVATION NETWORK HUB

We are excited to announce the launch of the Naval Innovation Network (NIN) Directory and Calendar of Events. The NIN is a key element of SECNAV's Innovation Vision and provides a centralized forum to rapidly connect people, ideas, and information for a more agile Naval Force.

We invite you to visit the NIN Hub on a regular basis and look forward to sharing future updates with you as the portal continues to expand.

To access the site, follow this link: **https://portal.secnav.navy.mil/cop/NIN/**.

The Directory of Innovation Nodes: a collection of information about organizational sponsors and events intended to foster collaboration on DON innovation initiatives.

The Calendar of Events: previous and upcoming events for community members to track, discover, and share with other members.

Did You Know?

Each day, the Department of the Navy collects more data than the total amount stored in the Library of Congress.

***Source:** DON Innovation Vision (2015)*

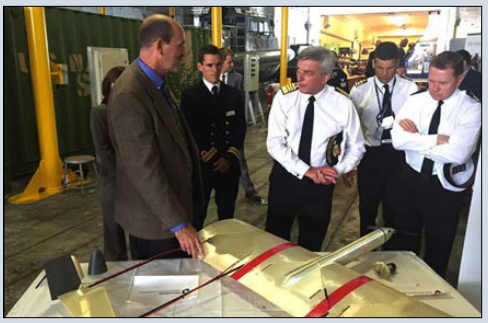
Innovative Spotlights from around the Fleet and the Force

International Sea Power Symposium 2016

Image captured from the OR-1's on-board camera at the Naval War College

By James Pluta, OPNAV N415

On 21 September 2016 the U.S. Navy conducted a live-flight demonstration of the 3D-printed unmanned aerial system (UAS) Operational Responsiveness 1 (OR-1) in Newport, RI. The UAS flight was conducted within view of heads of navies and coast guards from nations around the globe that participated in the 22nd International Seapower Symposium (ISS-22). The purpose of the flight demonstration was to highlight the recent efforts of a joint U.S. Navy-UK Royal Navy logistics interoperability initiative using additive manufacturing (AM), commonly referred to as "3D printing". In this initiative, the U.S. Navy and UK Royal Navy exchanged digital data files for components of their respective UASs in order to demonstrate sustainment interoperability through the 3D printing of each other's UAS components. The OR-1 UAS was designed, built, and flown by the Pennsylvania State University Applied Research Laboratory (PSUARL) in support of an OSD (AT&L)-sponsored project.



Dr. Mike Yukish from the PSUARL presents a static display model of OR-1 to the Royal Navy's First Sea Lord, Admiral Sir Philip Jones

AWARDS 2016 SECNAV Innovation Awards

Calling all DON Innovators! Nominations for the 2016 SECNAV Innovation Awards are due by **31 December 2016**. The SECNAV Innovation Awards Program seeks to recognize top Naval Innovators in the DON workforce today and inspire the problem solvers of the future. This year also includes a Trophy Design contest.

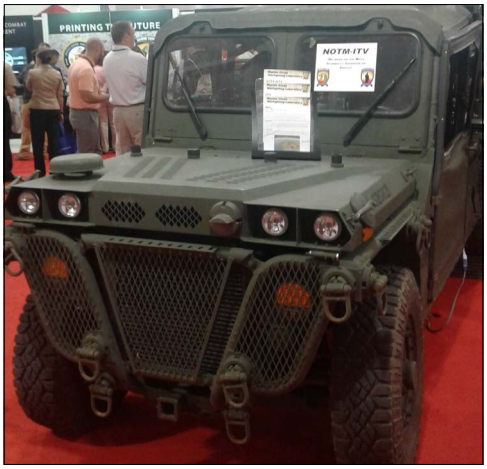
The eligibility period is 1 January - 31 December 2016. Additional Program details and nomination forms are provided here:

http://www.secnav.navy.mil/innovation/Pages/awards.aspx

Modern Day Marine 2016

In late September, the Marine Corps Base Quantico co-sponsored the Modern Day Marine 2016 Exposition. Attendees of the annual event were able to view some of the newest ideas currently being developed by Marine Corps Systems Command (MARCORSYSCOM); Marine Corps Warfighting Lab (MCWL); Marine Corps Installations and Logistics (I&L); Marine Corps Energy; Naval Surface Warfare Center (NSWC), Carderock; Naval Air Systems Command (NAVAIR); Office of Naval Research (ONR); and Naval Surface Warfare Center, Indian Head Explosive Ordnance Disposal Technology Division (NSWC IHEODTD).

Naval Air Systems Command (NAVAIR) brought 3D printers and demonstrated some of their 3D manufacturing capabilities. This past summer, they used the same techniques to create a titanium 3D printed link and fitting assembly for the engine nacelle of an MV-22 Osprey. Read more about the test flight here. For over 20 years, Naval Aviation has utilized additive manufacturing as a prototyping tool and this test flight demonstrated the ability to expand this capability into the creation of in-flight parts and supporting tools.



Marine Corps Warfighting Lab (MCWL) exhibited several projects that are being developed, including a Network On The Move – Internal Transportable Vehicle (NOTM-ITV)

For more info:
http://go.usa.gov/xkfpJ

HISTORY of Innovation in the DON – Making a Difference

By Randy Papadopoulos, Ph.D.

In the predawn darkness, the missiles shot out from land towards the coalition warships. Quickly deployed chaff decoys spoofed one, which crashed into the sea, while a defensive missile shot down the other. Retaliation for the attack came swiftly, as a ship-launched unmanned vehicle scouted that morning's potential launch sites. It found the first site quickly, then found assailants at a second location and directed the fire which responded. Several broadsides followed from the main battery of the battleship U.S.S. *Missouri*, whose 16-in. shells each weighed a ton, destroying the launcher and its supporting equipment, the source of that Iraqi attack on 23 February 1991.

The reconnaissance vehicle used in this 1991 Gulf War operation was an RQ-2 Pioneer Unmanned Aerial Vehicle (UAV). The weapons fired by Iraqi soldiers were *Silkworm* missiles; one of the crashed weapons was recovered and is now on display in a British museum. The attackers likely sought either to damage a coalition warship, or drive the battleship far enough away so it could not continue supporting troops ashore, what we now term an "anti-access" threat. Sending ships to attack shore targets, asymmetrically defended by precision guided defenses, is not new.

The surprising fact is that the Pioneer UAV launched from the same ship doing the shooting: the U.S.S. *Missouri*, the target of the Iraqi strike. Here was a U.S. Navy ship with an organic unmanned reconnaissance capability. That particular Pioneer was just one of a dozen UAVs deployed for Operation Desert Storm, and it supported the highest value Navy ship in the northern Arabian Gulf. Even a small number of unmanned systems made a real difference in combat. The UAV also permitted the quick response by the battleship to the shore-based threat, allowing it to resume its combat mission almost immediately.