



Department of the Navy Rapid Innovation Fund Overview

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Distribution STATEMENT A. Approved for public release.

R A P I D I N N O V A T I O N F U N D



The Office of Naval Research

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- 23 Locations
- \$2.1B / year
- >1,000 Partners



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Technological Advantage



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R A P I D I N N O V A T I O N F U N D



Origin & Objectives

- Established by the FY11 Defense Authorization Act (Section 1073)
 - “A competitive, merit-based program”
 - “Accelerate fielding of innovative technologies into military systems”
 - Authorized from FY11 to FY15

Goal: Transition Small Business Technologies into Defense Acquisition Programs



Criteria & Rules

- Annual BAA
 - <http://www.defenseinnovationmarketplace.mil/RIF.html>
- Source selection:
 - Preference for small businesses
 - Two phases: 1. white paper, 2. full proposal
- TRL 6/7 at project inception
- Up to two year project duration
- Gov't has one year to integrate
- Up to \$3 million/project



DoN RIF Stats

Current as of FY14/Q4

	White Papers Submitted	Contract Awards	Small Biz Awards	Previous SBIR Relationship	Completed Seminal Transition Event (to date)	Transitioned, i.e., Deployed (to date)
FY11	858	53	100%	68%	20	3
FY12	711	23	96%	61%	0	0
FY13	640	24	92%	75%	0	0
FY14	511	N/A	N/A	N/A	N/A	N/A



Wireless Vibration Recorder

Challenge:

Specialized software and sensors are required to acquire vibration and acceleration data for aircraft internal components to determine why and when components fail. Current aircraft instrumentation and processes are time consuming and costly.

Naval Benefit:

SlamstickX provides a compact and lightweight capability to acquire vibration data quickly and easily on any aircraft, reducing flight test costs and reducing new system development time. It also reduces operating costs and improving time on wing by shortening maintenance cycles.

Accomplishments:

- Conducted critical design review
- Five (5) test units calibrated for aircraft testing

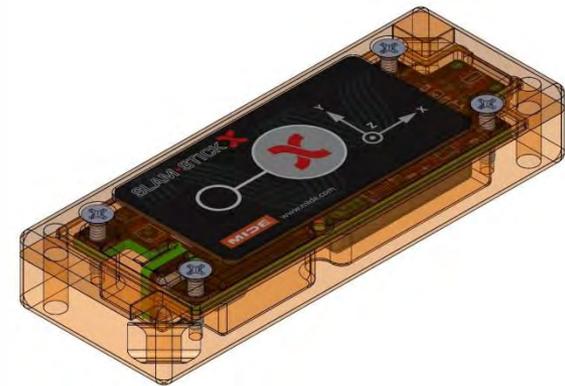
Results:

- \$300K is budgeted to purchase 100 units per year between FY15 and FY18
- Projected to save NAVAIR \$3-5M over the next four years in flight test savings.

Dimensions - 3.00 in. X 1.18 in. X 0.59 in.

Mass - 42 grams

Installed with 2 sided tape- tested to 360g



Naval Air Systems Command

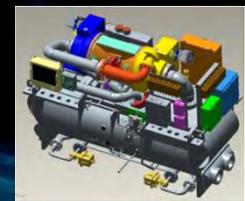
Acquisition Sponsor: PMA-265

Industry Partner: MIDE (Boston, Ma)

Investment: \$0.45M



Navy HES-C Chiller Power Electronics Cooling



Challenge:

Current liquid and air cooling methods for high power electronics are inefficient, bulky, complex, costly, noisy, potential dangerous, unreliable, subject to corrosion and require constant maintenance.

Naval Benefit:

- Vaporizing dielectric fluid (VDF) cooling uses reasonably safe, non-flammable R134a refrigerant to cool high power electronics. The result is a highly reliable, compact, completely self-contained, self-regulated cooling system that requires no air filters and eliminates all maintenance.
- This project provided proof of concept and risk avoidance in support of developing the variable speed drive (VSD) for the Navy (York) High Efficiency Small Capacity (HES-C) Chiller.

Accomplishments:

- Constructed and tested a 28kW Parker/Mezzo VDF cooling system.
- Constructed and tested a 350kW Calnetix variable speed drive (VSD) using the Parker/Mezzo VDF cooling system.
- The 350kW Calnetix VSD successfully operated the High Efficiency Small Capacity (HES-C) Chiller high speed permanent magnet motor.

Results:

- The HES-C VSD Procurement Specification dated 15 Jun 2014 details a VDF cooling system.
- The HES-C Chiller will be installed DDG51FLT-III, and LPD26 & LPD27. The HES-C Chiller is baseline for the Amphibious Ship Replacement LX(R).
- HES-C Chiller can back-fit to DDG83AF and LPD17-25.
- NAVSEA plans to purchase >200 HES-C VSDs in the next 20-yrs.

HES-C Chiller Benefits (compared to current DDG51FLT-IIA and LPD17CL sys.)	
<i>Weight per Cooling Ton</i>	33% Less
<i>Space Volume per Cooling Ton</i>	42% Less
<i>Chilled Water Flow per Cooling Ton</i>	36% Less
<i>Seawater Flow per Cooling Ton</i>	43% Less
<i>Maintenance Man-Hrs & Material Cost</i>	67% Less
<i>Energy kW</i>	30% Less
<i>Ship Chilled Water System Acquisition Cost per Cooling-Ton</i>	30% Less

Naval Sea Systems Command
Acquisition Sponsor: PMS400
Industry Partners: Parker Hannifin (Cleveland, OH), Mezzo Technologies (Baton Rouge, LA) and Calnetix Technologies (Cerritos, CA)
Investment: \$482K

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.



Extended Frequency Range Wide Band RF Distribution System

Challenge:

Innovations in commercial and military communications systems have impacted Signals Intelligence (SIGINT) continuity of operations and require expanded collection capabilities.

Naval Benefit:

A shipboard mast-mounted communications component that will filter, attenuate and blank interfering signals so that very low level power signals of interest can be received.

Accomplishments:

The Radio Frequency Control Unit (RFCU) was performance tested to specification and evaluated by SPAWAR Systems Center, Pacific (SSC PAC) subject matter experts. This product will mitigate co-site interference that can saturate the RF front end and generate spurious responses, which degrade system performance and may lead to generation of false alarms/hits.

Results:

This RFCU will be installed in the AS-4710, the Ships Signal Exploitation Equipment (SSEE) Mods High Gain IO antenna, in August 2014 as part of the first new-built low rate initial production system Lot 2 Serial #1.



SSEE Mods High Gain IO Antenna



Space and Naval Warfare Systems Command
Acquisition Sponsor: PMW 120/PEO C4I
Industry Partner: Out of the Fog Research, LLC
Investment: \$1,500,000.00

SPAWAR Distribution Statement A: Approved for public release, distribution is unlimited (22 APRIL 2014)



PSB Intrusion Detection System (PIDS)

Challenge:

The Port Security Barriers (PSBs) installed at Navy facilities denies surface craft from gaining access to protected assets. Navy assets can be vulnerable to threats that potentially can exploit undetected gaps in the PSB barrier created by covert tampering, weather-induced damage, or open gates.

Naval Benefit:

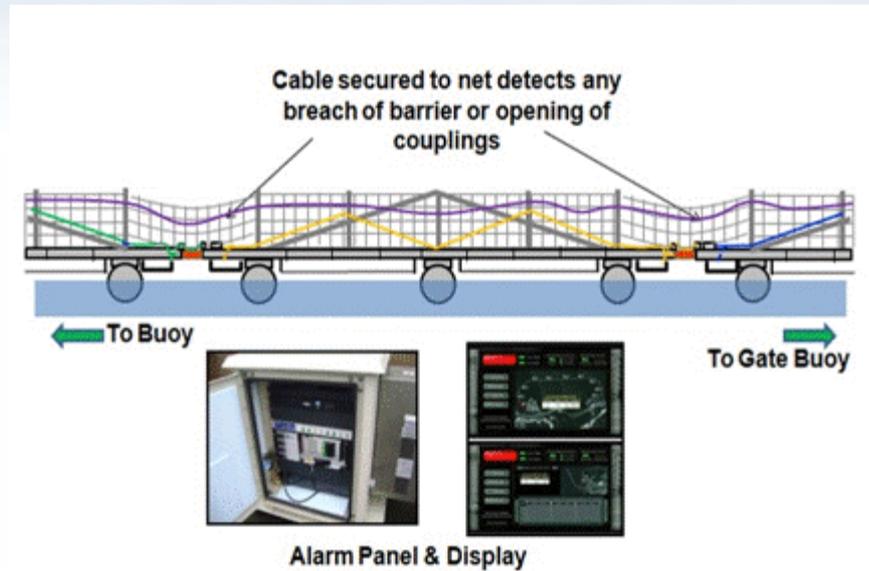
This project developed and demonstrated a fiber optic break sensor to monitor PSB continuity. The development included PSB gate functions to accommodate the opening and closing of PSBs when vessels must pass through.

Accomplishments:

- Built a prototype opto-electronic alarm assembly and configured the software to identify and report gate conditions
- Assembled and installed hardware at an operational PSB gate site and demonstrated system functionality.

Results:

- More than \$2M is budgeted to procure PSB Continuity Sensors in FY18 for Kings Bay, GA & Bangor, WA
- Design is available to protect other high value assets.



Strategic Systems Programs

Industry Partner: Sound & Sea Technology

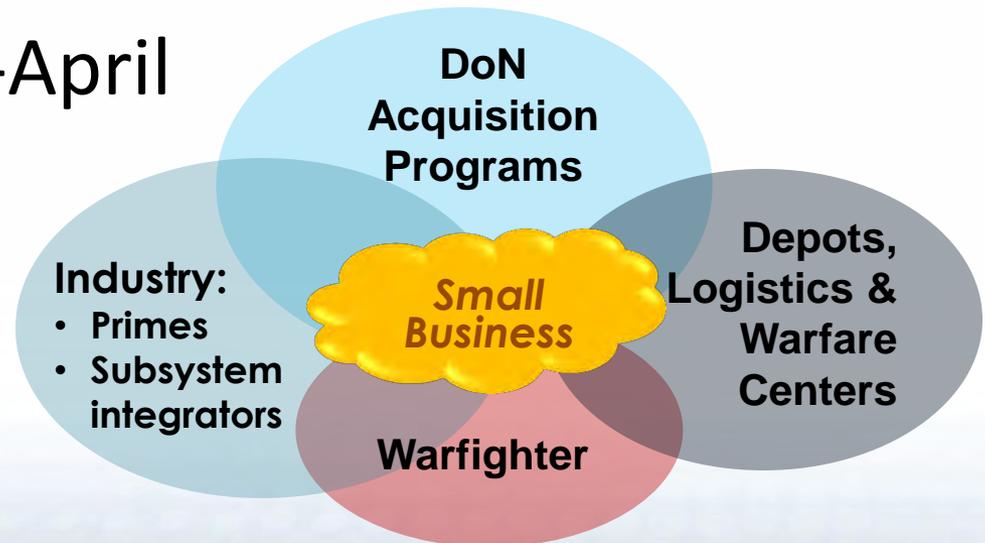
Investment: \$625K

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How to Get Involved

- Engage with Naval Systems Command CTOs, acquisition PMs, and prime contractors
- Look for the next BAA
 - OSD to issue in mid-April





Conclusion

- Significant and timely transition funding to get solutions into the hands of warfighters
- For more info and to see the BAA go to:
 - <http://www.defenseinnovationmarketplace.mil/RIF.html>
- Source selection:
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BACK UP



What is a BAA?

- Defined in the Federal Acquisition Regulation (FAR) Part 35
- “For the acquisition of Basic and Applied Research and that part of development not related to the development of a specific system or hardware procurement.” (i.e., RDT&E Budget Activities 1 through 3)
- Evaluation performed in accordance with evaluation criteria specified in BAA through peer or scientific review process.
- Written evaluation reports required on individual proposals
- Proposals need not be evaluated against each other since they are not submitted against a common work statement.



DoN RIF SYSCOM POCs (TPOCs)

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DoN RIF SYSCOM POCs (TPOCs)

(CONTINUED)

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