



# Unmanned Systems

21 MAY 2013

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# Report Documentation Page

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# Unmanned Systems: A Top Priority In The U.S. Defense Strategy

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*“Emphasize advanced capabilities, such as Special Operations Forces and new technologies like intelligence, surveillance and reconnaissance (ISR), unmanned systems, and cyberspace capabilities.”*

*Source: DoD 2012 Defense Strategic Guidance Report  
Sustaining U.S. Global Leadership: Priorities For 21<sup>st</sup> Century Defense*



# Unmanned Systems: A Critical Part of DoD's Acquisition Strategy

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*"... warfighters value the **inherent features of unmanned systems**, especially their **persistence, versatility, and reduced risk to human life.**"*

*"Unmanned systems provide **diverse capabilities** to the joint commander to conduct operations **across the range of military operations...**"*

Source: *Unmanned Systems Integrated Roadmap 2011-2036*



## Unmanned systems... A Key Focus Area for the Joint Staff

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*"Unmanned technologies are on the rise, and they're gaining importance not only in terms of effectiveness, but also in terms of their versatility and value. In an era of fiscal constraint or a new fiscal environment, a platform that offers those traits will almost always be the right one in which to invest."*

General Martin E. Dempsey's Chairman Joint Chiefs Of Staff (CJCS)  
Remarks at the 2012 Joint Warfighting Conference and Exposition  
in Virginia Beach, VA. Wednesday, May 16, 2012



## Unmanned Systems: A Chief Tenet Of The CNO's Warfighting Strategy

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*“Unmanned systems in the air and water will employ greater autonomy and be fully integrated with their manned counterparts. The Navy will continue to dominate the undersea domain using a network of sensors and platforms - with expanded reach and persistence from unmanned autonomous systems.”*

Source: *CNO Tenets as outlined in the Chief Of Naval Operations [Admiral Greenert's] Sailing Directions*



# Navy Requirements – Unmanned Systems for increased reach, Warfighting effectiveness

- Pervasive coverage
- Persistent forward presence
- Persuasive power projection

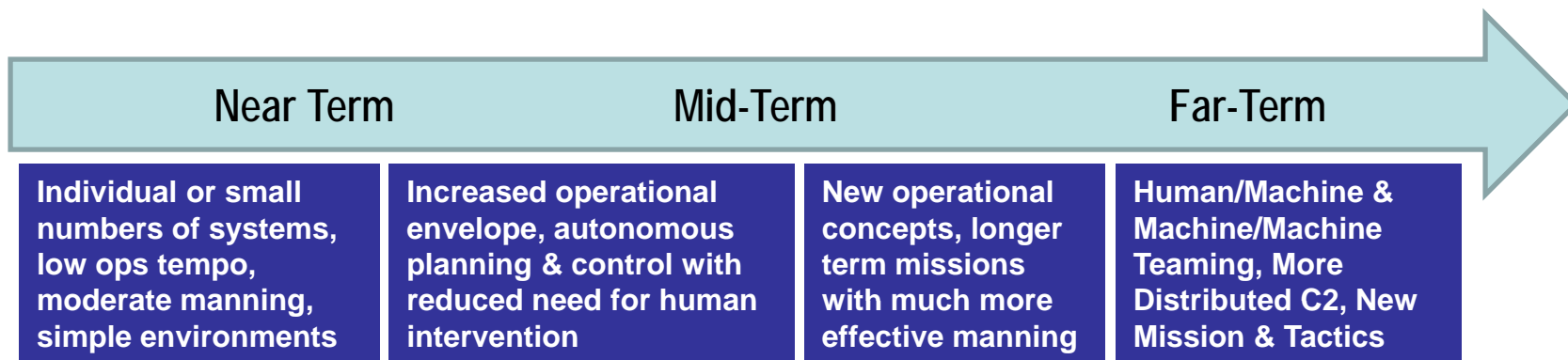


*Made by Rafael Defense Systems, the Protector Unmanned Naval Patrol Vehicle was deployed as far back as 2005. Image courtesy of Rafael Advanced Defense Systems.*



# In support of Navy requirements: ONR's Long Term Autonomy Goals

- ▼ Human Interaction
- ▼ Perception and Intelligent Control
- ▼ Scalable Collaboration
- ▼ Intelligent Architectures







# Information Dominance Roadmap: Candidates for Automation/Autonomy in Battlespace Awareness

Fuse Essential Combat Information	Understand the Operating Environment	Enable Informed, Decisive Action
<b>Streamline Tasking, Planning and Direction</b>	Develop a Shared, Relevant Real-time COP / CMP	Increase Warfighting Options
Advance Sensor Development Across All Domains	Understand and Predict the Physical and Virtual Environments	
<b>Fully Automate Processing, Fusion and Product Delivery</b>	Understand Capabilities and Intentions of Allies, Adversaries and Neutrals	

Source: Information Dominance Roadmap – Battlespace Awareness, Advanced Capabilities (2020 – 2028)



# Autonomy, Sensing, Data Assessment, Perception

*"We've demonstrated the ability to employ more modern unmanned systems, including autonomous underwater vehicles... to hunt for and detect mines..."*

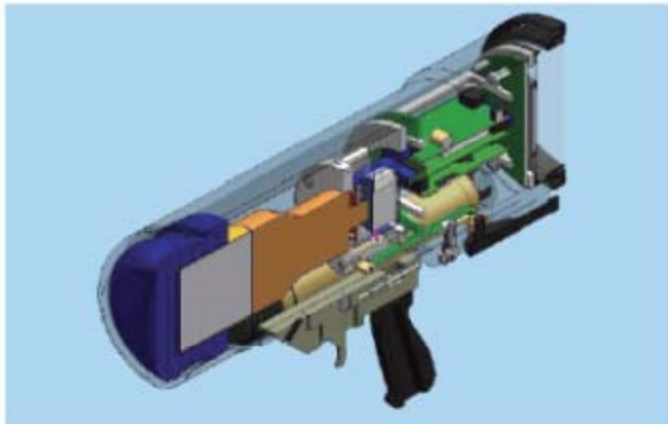
Vice Admiral John W. Miller, Commander, U S Naval Forces Central Command, United States Fifth Fleet, following 30-nation international mine counter-measures exercise, SEP 2012



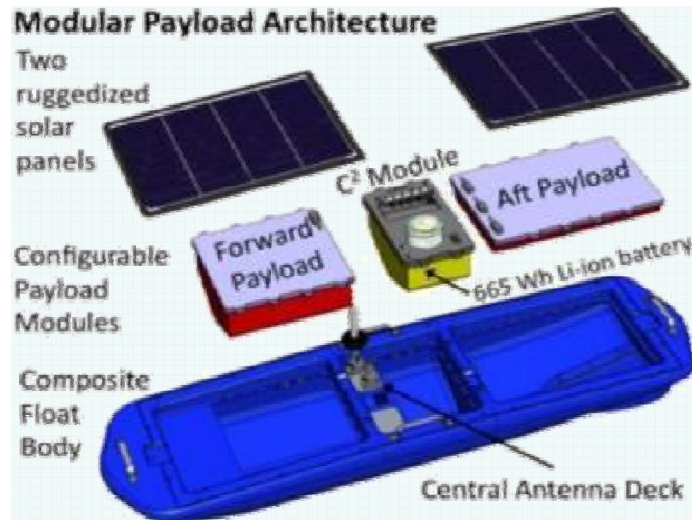
*Mk18 Swordfish being deployed and recovered during recent maritime exercise in the Arabian Gulf*



# Autonomy, Sensing, Data Assessment, Perception

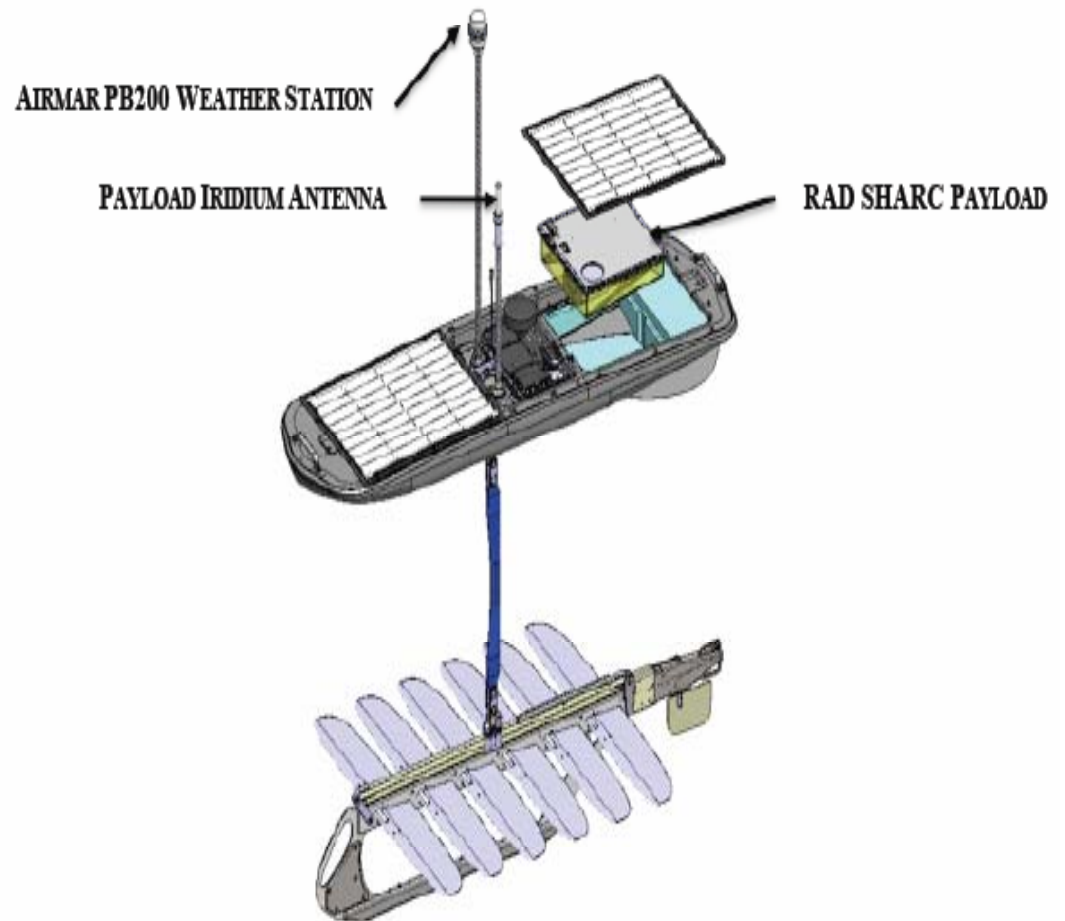


AN/PDR-78 Underwater Gamma Detector



AFCEA Luncheon  
21 MAY 2013

## RAD SHARC





# Autonomy, Sensing, Data Assessment, Perception

- Fully autonomous, long-endurance, land-launched
- Advanced sensing for littoral environments



## Large Displacement Unmanned Undersea Vehicle (LDUUV)



# Interoperability, Command and Control – Missions Systems Lead To Navy's UAS Program





# Command and Control - Added Capability for USAF Global Hawk

- **Reach-back kits** - can now fly Global Hawk anywhere in the world, from Beale AFB
- **Dual Channel Control Ops** - doubled the number of Global Hawks that can be controlled in-theater





# Autonomy, Command and Control, Interoperability Intelligent Behaviors, Communications

- More autonomous
- More survivable
- More reliable
- Extended comms
- Extended mission durations
- Improved dexterity
- Obstacle
  - Climbing Stairs
  - Exploring tunnels





# Autonomy, Command and Control, Intelligent Behaviors, Sensing

- ▼ Sensor and perception systems
- ▼ Custom radar tracking algorithms for small-boat maneuverability
- ▼ Digital nautical charts imported into world model
- ▼ Collision avoidance systems







# San Diego Region as a Center of Excellence for Unmanned Systems

- SOCAL/San Diego ideal location
- San Diego established leader in unmanned systems technology
- San Diego and SSCPAC established partnerships
- SSCPAC only warfare center in major Fleet concentration area



*FAA intends to designate six areas nationwide as UAS Test Sites. San Diego Region Coalition joining with a coalition from China Lake area to submit a bid for a SOCAL designation. Source: SDMAC Report*



# Takeaways

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## ▼ San Diego and SSCPAC have proven expertise

- Extensive Domain experience (air, land, surface, underwater)
- Appropriate infrastructure in place
- Location, location, location
- Strong Fleet/Warfighter relationships

## ▼ Future, shared success

- Continued collaboration
- Emphasis on simplicity, rigor
- Development of platform agnostic systems
- Use of modular designs, open architecture



# TEAM SPAWAR OSBP WEBSITE

<http://www.public.navy.mil/spawar/Pages/SmallBusiness.aspx>

**SPAWAR** TEAM SPAWAR > Small Business GO >

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## SMALL BUSINESS

SPAWAR has posted an updated three-year acquisition forecast to its public web portal entitled "SPAWAR 3 Year Acquisition Forecast (11-2012)" below. This forecast includes opportunities for SPAWAR Headquarters, SPAWAR System Centers Atlantic and Pacific. The forecast is informational only and does not constitute an offer or commitment by the Navy to fund, in whole or part, the opportunities herein. Vendors shall not contact any contracting or technical personnel regarding this information and all inquires shall be submitted via email to [SPAWARSBO@navy.mil](mailto:SPAWARSBO@navy.mil)

The Small Business program is a dynamic advocacy that provides training, advice and guidance to ensure quality solutions for Navy and Marine Corps acquisitions and maximizes contracting opportunities to small businesses.

**SPAWAR Headquarters (San Diego)**  
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Email: [spawarsbo@navy.mil](mailto:spawarsbo@navy.mil)  
Fax: (619) 221-5521

*Faye Esaias*

Click any of the items below for more details:

- SSC PAC Industry Day Presentations (12.4.12)
- SPAWAR\_3\_Year\_Acquisition\_Forecast[11-2012]
- SPAWAR Social Media Directory



# SPAWAR E-Commerce Central (E-CC) Website

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**SPAWAR CONTRACTS DIRECTORATE OFFICE**

## Welcome

**A Message from our Commander**

"As the Navy's C4I experts, we listen to our customers and find the right solutions for their C4I challenges. In response, we emphasize providing information solutions versus just information systems." [Read more](#)

**Browser Support**

The SPAWAR E-Commerce Central is best viewed with Internet Explorer. In addition, submission of proposals and any other documents through E-CC works best with use of Internet Explorer. The use of other browsers besides Internet Explorer may result in delayed receipt or unsuccessful submission of documents. If using a non-Internet Explorer browser, you may want to begin transmission of electronic documents 2-3 days in advance to ensure timely submission. (This message is not an endorsement for Internet Explorer by the U.S. Navy and SPAWAR)

**Self-Service Password Reset now available**

We have implemented a new feature on the e-Commerce Central website to allow users who have lost their password to reset it via an automated function without having to contact the SPAWAR Paperless Helpdesk. This feature is available under the i-Services section of the left navigation section of the site, and also from the following link: [e-CC Self-Service](#)

**Contact E-Commerce Central (E-CC) Support**

Need assistance? Please contact the SPAWAR Paperless Helpdesk for assistance at 858-537-0644 or email at [paperless.spawar@navy.mil](mailto:paperless.spawar@navy.mil).  
Our help desk hours of operation are:  
Mon - Thurs : 7:00am - 4:00pm PST  
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**News**

- [SPAWAR Service Contracting Tripwires](#)
- [SBA SUBnet Website](#)
- [SPAWARSYSCOM Office of Small Business Programs Three Year Forecast](#)
- [SSC Pacific : BAA Announcement N66001-12-X-2002 - Chemical and Biological Defense...](#)
- [Information on Submitting your Electronic Proposal, Market Survey Response and Electronic Unsolicited Proposals..](#)
- [Other News...](#)

**Recently Issued**

<a href="#">N65236-12-Q-0094</a>	TECHNICAL WORKBENCH STATIONS
<a href="#">N65236-12-Q-QF20</a>	Advanced Electromagnetics Inc (Broadband Pyramidal Absorber (30MHZ-18GHZ)
<a href="#">N66001-12-T-6680</a>	HOUSING FABRICATION
<a href="#">N66001-12-T-6681</a>	HOUSING FABRICATION

**Closing Soon**

<a href="#">N65236-12-Q-DP31</a>	MATHWORKS SOFTWARE
<a href="#">N65236-12-Q-1816</a>	REPAIRS FOR DJC2 SPARES SUPPORT
<a href="#">N65236-12-Q-2348</a>	LCD Display Screen
<a href="#">N65236-12-Q-6061</a>	VECTOR SOFTWARE

**https://e-commerce.sscno.nmci.navy.mil**



# How To Locate A Specific SPAWAR Contract Opportunity

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[Under Evaluation](#)  
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[Posting Date](#)  
[FS Code](#)  
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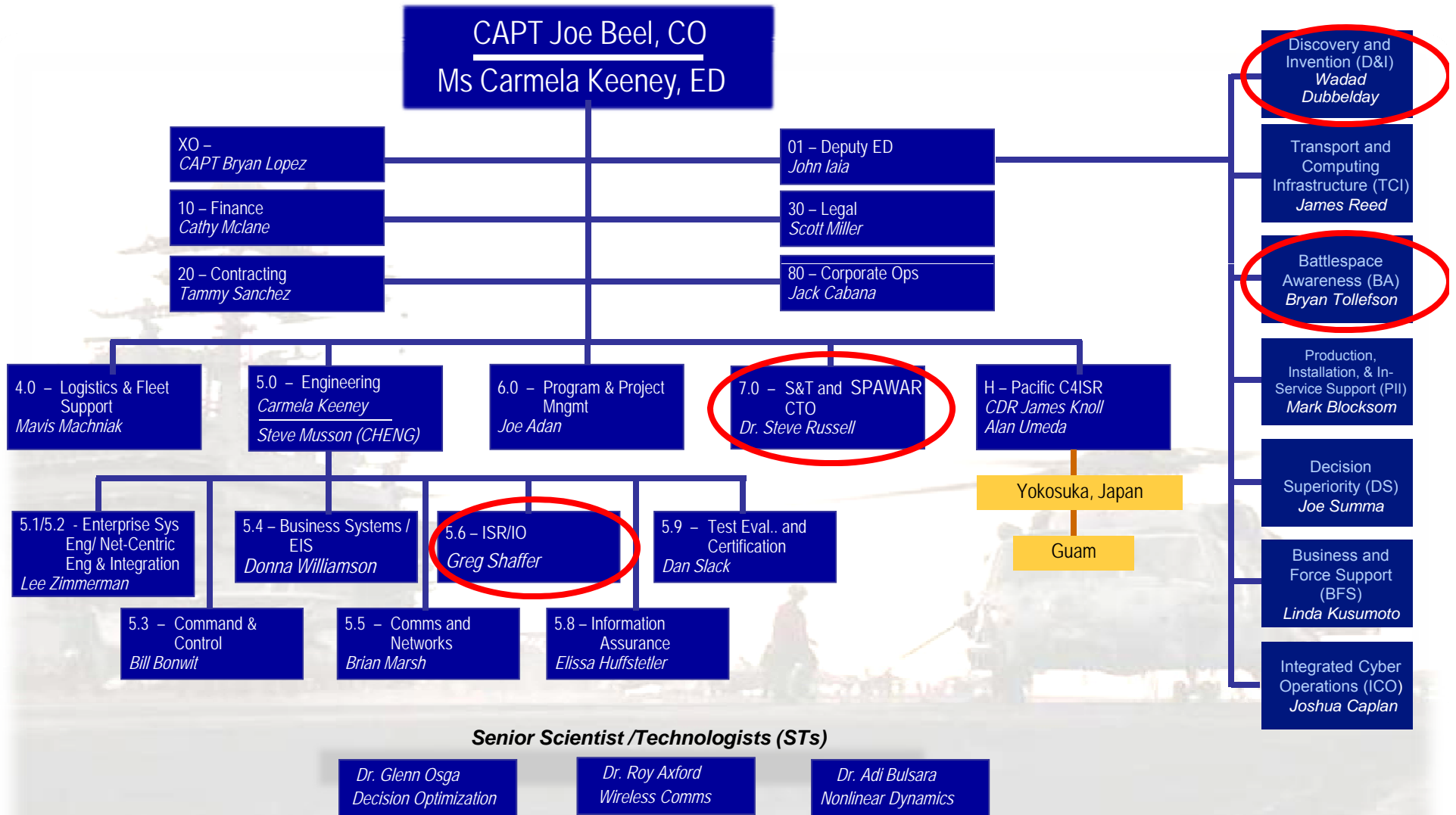
<a href="#">N65236-12-Q-0881</a>	Solarwinds Patchmanager Renewal
<a href="#">N65236-12-Q-0882</a>	SCION Consumables
<a href="#">N65236-12-Q-0883</a>	Terminal Serial switch with a/c adapter & flash card v6.3
<a href="#">N65236-12-Q-1819</a>	AEGIS ASHORE SHINCOM MATERIAL PROCUREMENT
<a href="#">N65236-12-Q-1821</a>	TACMOBILE TADIL (750-12-009)

**Closing Soon**

<a href="#">N65236-12-Q-4585</a>	POWER SUPPLY
<a href="#">N66001-12-R-0028</a>	Pre-Solicitation Synopsis for Stude
<a href="#">N65236-12-Q-2042</a>	EDGECOM SERVICES
<a href="#">N65236-12-Q-2350</a>	Exata Software Renewal
<a href="#">N65236-12-Q-6661</a>	L-3 CHASSIS



# Org Chart





# Unmanned Systems POCs

Battlespace Awareness (BA)  
*Bryan Tollefson*  
553-7634 (o)

Discovery and Invention (D&I)  
*Wadaa Dubbelday*  
553-3910 (o)

Code 5.6 - Intelligence, Surveillance,  
Reconnaissance, Information Operations  
*Greg Shaffer*

Code 7.0 - Science and  
Technology, Chief Technology Officer  
*Dr. Steve Russell*

Code 56400 Maritime Systems Division

*Lynn Collins, Division Head*  
*Rich Arietta, Code 56406*  
*Todd Webber, Code 56440*  
*Hank Turner, Code 56240*

Code 71700 Advanced Systems and Applied  
Sciences Division

*Martin Machniak, Division Head*  
*Bart Everett, Code 71705*  
*Tracy Pastore, Code 71710*  
*Hoa Nguyen, Code 71710*