



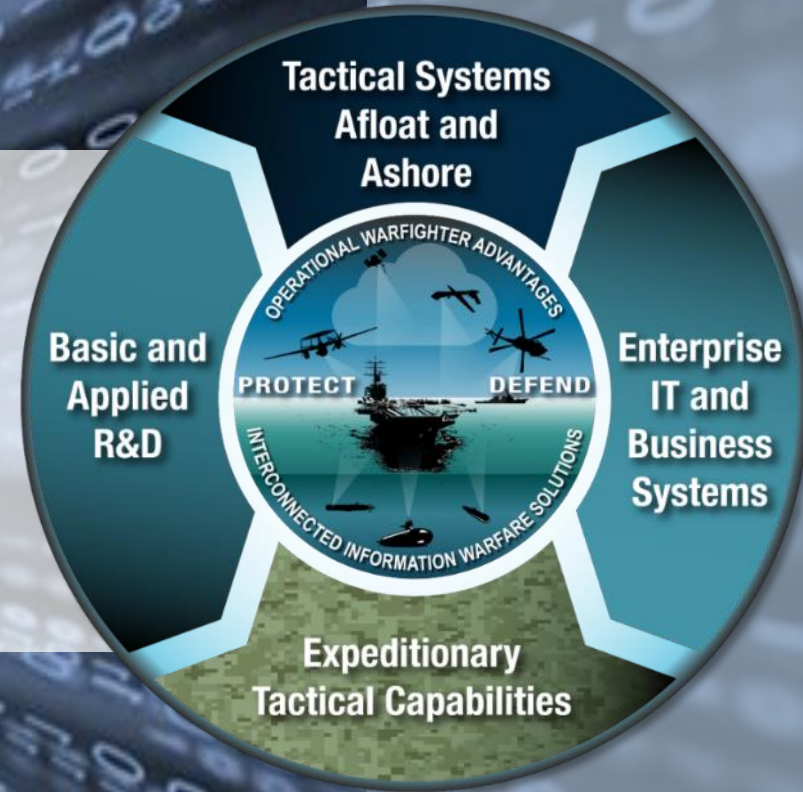
Naval Information Warfare Center Atlantic

# **Advancing Naval Advantage**

AFCEA Quantico Potomac Chapter  
Annual USMC IT Day

Mr. Peter C. Reddy, SES  
Executive Director  
NIWC Atlantic

14 May 2024



# Mission Statement

## Mission:

Conduct research, development, prototyping, engineering, test and evaluation, installation, and sustainment of integrated information warfare capabilities and services across all warfighting domains with an emphasis on Expeditionary Tactical Capabilities & Enterprise IT and Business Systems in order to drive innovation and warfighter information advantage.





**We address the Warfighter's top technology challenges** through research, development, delivery and sustainment of the very best IW solutions.





# THE INFORMATION WAR

*Naval Information  
Warfare Center*



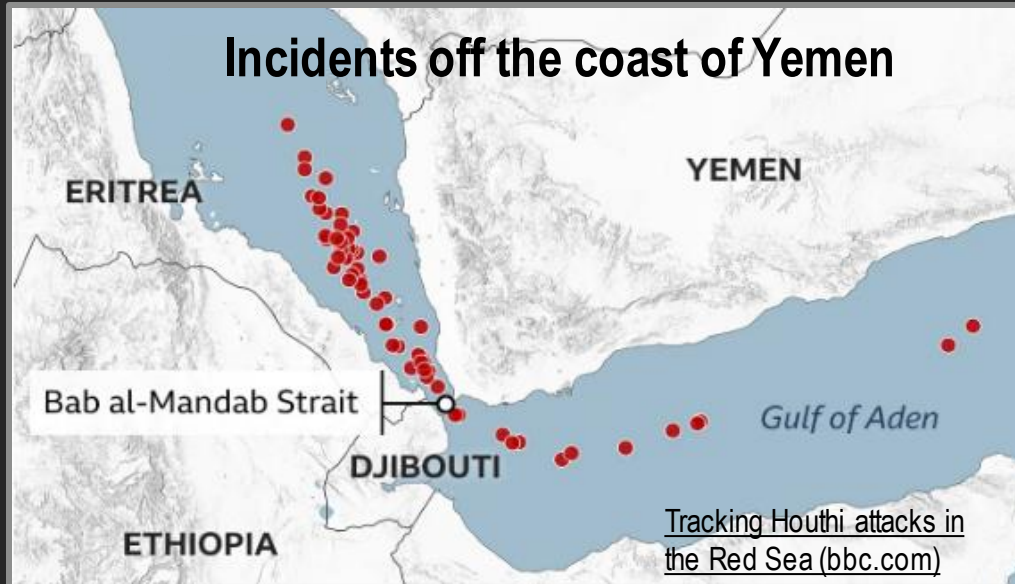
**ATLANTIC**



# Warfighter Mindset

## The Time for Action is NOW

### Incidents off the coast of Yemen



Reports claim Houthi rebels have successfully tested **HYPERSONIC MISSILES**



China on path of being ready to invade Taiwan by 2027



# Perspectives that Shaped Our Strategy

## DoD — Warfighter — Workforce



- Warfighter first mindset!
- Better capabilities for the warfighter
- Military leadership embedded in our teams
- Reminding us of our Why
- Integrating perspectives throughout the planning

- Advisory council engagement
- Workforce spoke and we listened! DEOCS, AMA, Connected Conversations...



Win the Information War



# Technology Strategy & Technology Focus Areas (TFAs) — to maintain tactical superiority and respond effectively to unforeseen challenges.

Technology Strategy and TFA analysis **drives work acceptance and lab/facility infrastructure allocations and tools.**



## TFAs to Achieve Technology Goals



**Artificial Intelligence** Provide warfighters with analytics-driven, data-informed, and technology-empowered capabilities to drive decision advantages and optimal mission outcomes.



**Assured Communications** Addresses the demand for resilient, and sometimes covert, wired and wireless communications in degraded and/or denied environments.



**Cloud Computing** IT modernization and digital transformation for resilient infrastructure, platform and software services.



**Cybersecurity** Provides protection from unauthorized use of and/or defends electronic data, hardware, software from disruption or of the services they provide.



**DevSecOps** Refers to replacing siloed Development, Security and Operations to create multidisciplinary teams that collaborate with shared and efficient practices and tools.



**Mobility** Provide Wireless Technology and enterprise access for the warfighter to engage with a mobile environment and applications, anytime, anyplace.



**Model-Based Systems Engineering (MBSE)** Technologies used to support the development, mgmt. and application of virtual constructs of varying fidelity across the spectrum of systems engineering.

# Focus on Cybersecure Decision Advantage — to ensure a competitive edge over our adversaries.

- Command and Control systems
- Communication systems
- Networking systems
- Cyber operations
- Intelligence, surveillance, reconnaissance
- Business systems
- Information security





# FY23 At-a-Glance — government expertise to drive innovation and warfighter information advantage.

## We are where America's naval forces are.



We are in the theater of operations... forward-based, forward-deployed and globally positioned with America's warfighters.

### U.S.

- ★ Charleston, SC (CO)
- ★ Naval District Washington
- ★ Hampton Roads, VA (XO)
- ★ New Orleans, LA (OIC)
  - Tampa, FL (SOCOM focus)
  - Fayetteville, NC
  - Pax River, MD
  - Kings Bay, GA
  - Mayport, FL
  - Groton, CT

**Overseas** Supports our warfighters with IT & IW capabilities, and regional shore installations in Naples and Manama

- Naples, Italy (OIC)
- Manama, Bahrain (OIC)
- Stuttgart, Germany
- Rota, Spain
- Okinawa, Japan

### 4,993 Total Workforce

4,865 Civilian  
128 Military  
~9,000 Contractors

### Total Facilities

117 bldgs., 2.4M SF

**\$9.3B**

U.S. Economic Impact

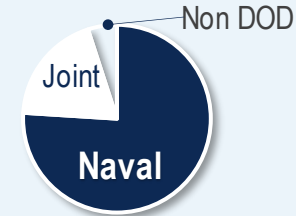
**\$4.53B**

Total Obligation Authority

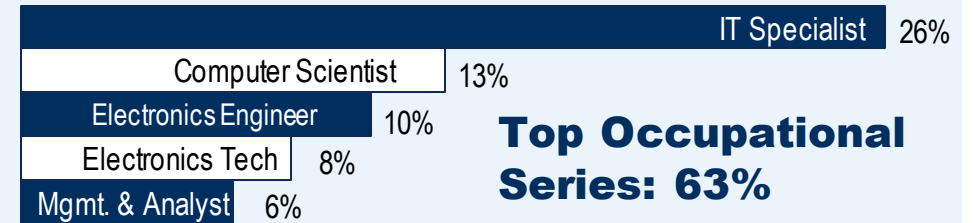
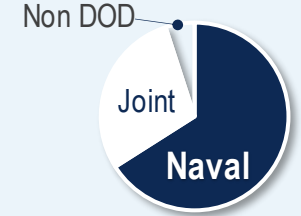
**50% (265)**

Small Businesses,  
89% Competition

### Workforce FTEs



### New Orders



**Top Occupational Series: 63%**



**Major Sponsors: 69%**

NAVWAR & PEOs  
MARCORSSYSCOM  
Defense Health Agency  
NAVSEA & PEOs  
DARPA



1% PhDs  
27% Masters  
45% Bachelors  
197 New Professionals  
93 Interns



41% Prior Military  
15% Disabled Veterans

**Navy Working Capital Fund Organization** To meet our Nation's ongoing and emergent needs

# All Domain Naval Integration, Cyber and Electronic Warfare Labs — driving integration and interoperability into Naval Capabilities.

## C4I Surface, Subsurface and Land Integration Labs

connecting warfighters with tactical data networks; linking weapons, sensors, battle systems across operational platforms and geographic locations.



ESIIIC | Expeditionary Systems Integration and Innovation Center Bay



Poseidon Park Electromagnetic (EM) Interference Testing Ground



Transportable ATC and Meteorology



Common Submarine Radio Room

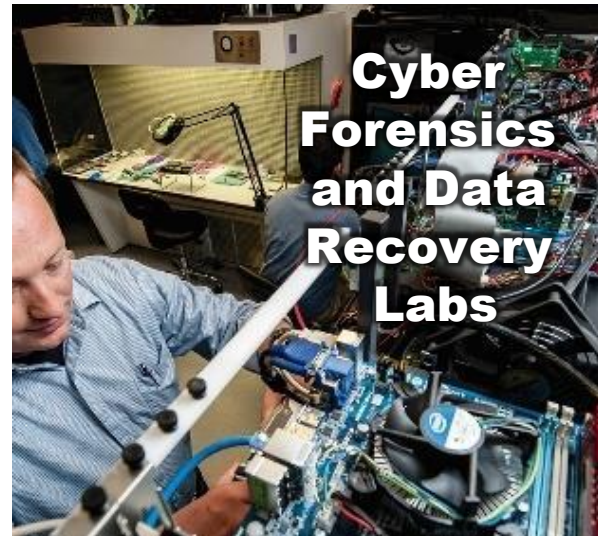


# Naval cybersecurity technical leader — to protect and defend our integrated networks.

**We deliver capability with the functionality and the security the warfighter and our customers need to execute their Mission.**

Strengthen and secure naval systems and networks.

- Cyber attack and cyber defense
- Network security
- Cryptography
- Computer forensics
- Systems security engineering
- Software applications
- Threat and vulnerability assessment
- Wireless networks and satellite communications



Drive implementation of cyber standards Navy-wide, creating a secure, defensible information domain.

- Cyber Security Service Provider
- Forensics Lab, the Navy's trusted Agent
- Support to DIA and DISA for the JWICS network
- SCI and SAP Network infrastructure engineering
- NSA-Certified Red Team

2023 Blocked Cyber Threats		
<b>Every Hour</b>	<b>21M</b>	Blocked suspicious threats
	<b>120K</b>	Blocked suspicious unauthorized users
<b>Every Month</b>	<b>18K</b>	Analyzed and triaged cyber alerts
<b>Every Year</b>	<b>280</b>	Incident responses
	<b>1800</b>	Blocks against malicious domains
	<b>350</b>	Sophisticated and custom Indicators of potentially malicious cyber activity tested and blocked

# Wargaming and Realistic Testing Experimentation — to develop the best capabilities for maritime and expeditionary operations.

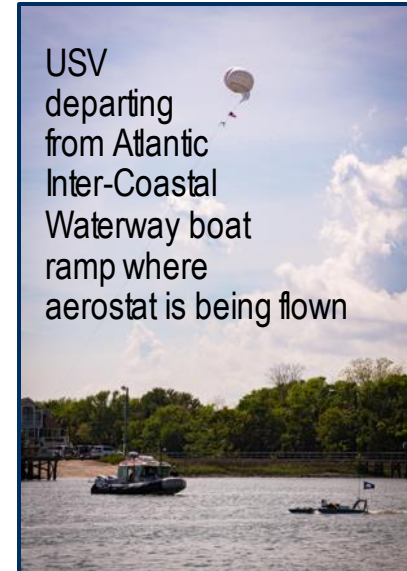
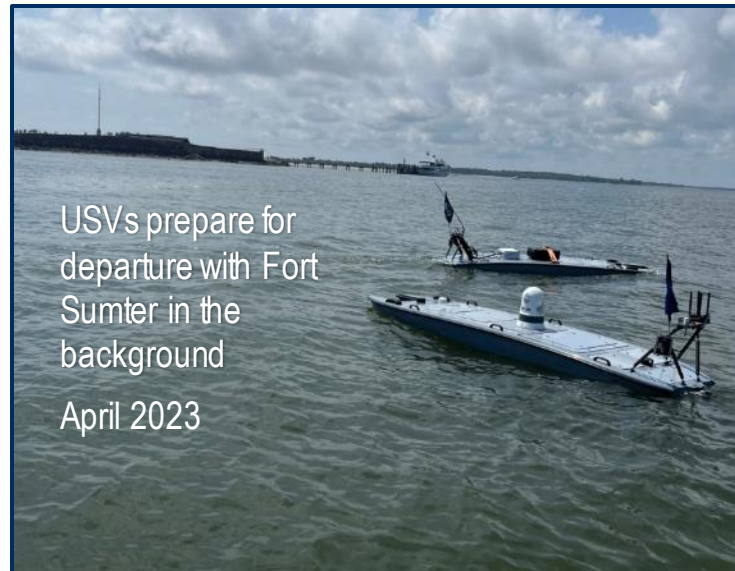
## National Cyber Range Complex (NCRC)

**Charleston**, a DoD resource Supports Cyberspace testing, training, mission rehearsals, cyberspace operations, tactics, science and technology demonstrations and forensics/malware analysis.



## Communications Test Events

for a future fleet that better connects critical command and control functions to various weapons, integrated sensors and small unmanned Systems.



## Bold Quest Island Marauder 2023

A USMC and Joint Staff J6 month-long event supporting Combined JADC2. Aimed to connect all assets and sensors across sea, land, air, space and cyber into one global “sensor to shooter” network that delivers a decision advantage to commanders on the ground.



Events are aligned with DoD's Joint All-Domain Command and Control | JADC2



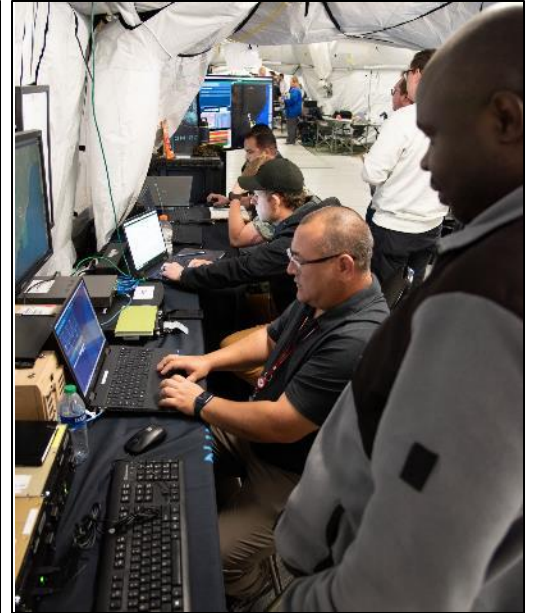
# SoSNIE | System of Systems Naval Integration Experiment

## Joint Base Charleston, 18-23 Mar 2024

SoSNIE is an agile event that allows for maximum flexibility to support any experimentation, specifically designed for the engineers to focus on the advancement of their systems/technology.

~ 300 attendees on DV Day

**~200 participants and 45 different systems participating**





# Engineering support across all elements of the MAGTF, including support to garrison Marine networks, bases/stations.

## Charleston, SC Expeditionary Systems Integration & Innovation Center (ESIIC) Bay

- 30,000 sq. ft. GSIL supporting all four ExW Divisions
- Vehicle Bay
- 24 rack server room
- Large Hybrid Training Room



## Quantico, VA Opened Sep. 2023

3 miles from  
Tech Parkway

- ~12,500 sq. ft. facility (5,600 sq. ft. Secret Lab)
- RDTE, NMCI, MCEN (class & unclass)
- Topside antenna support

## Fayetteville, NC

- Sponsor: SOCOM/TSOCs worldwide
- Classified lab
- Entire life cycle support of the Satellite Deployable Node, Family of Tactical SATCOM Systems
  - Rqmts.: Dev't.; T&E; Logistics; Production; Deployment
  - Full spectrum help desk
  - User training

## Tampa, FL

- 12,400 sq. ft. (3,000 sq. ft. secret lab)
- Primary sponsor: SOCOM
- SCAMPI Node
- 59 seats, 100+ personnel supported
- Working with PEO SR to add 15 more personnel
- Evaluating further reduction in administrative spaces





# Deliver Capabilities — Leverage Digital Collaboration & Management Tools

- ▼ Rapidly integrate C5ISR; CUAS systems that allow SIF to deter adversaries by establishing the forward edge of a partnered maritime defense-in-depth that denies the adversary freedom of action.
- ▼ Marine Air Defense Integrated System (MADIS) / L-MADIS
  - Employment: Low Altitude Air Defense (LAAD)
  - Essential Capability for SIF within the Littoral Battlespace
    - Within the adversary's Weapon Engagement Zone (WEZ)
- ▼ Incorporating MBSE; Mixed Reality/Augmented Reality; Modeling & Simulation to meet requirements with reduced develop time.
  - Vehicle C4ISR Design & Integration
    - Using vehicle models for review vs drawings
    - Finite Element Analysis
    - Developing BOM from model
    - Developed quick-look reports from testing
    - Development of requirements documents



# Expeditionary Warfare Department

## Enabling Commanders' Faster Decision-making

Department  
Head  
Ashlee  
Landreth,  
SSTM



### Divisions

Expeditionary Intelligence  
Solutions

Expeditionary Enterprise  
Systems & Services

Expeditionary Platform  
Integration

Expeditionary Command,  
Control and Communications  
Solutions

- Actualizing Marine Corps and SOCOM doctrine to experiment and increase capability in operationally relevant systems
- Lightening the load for Marine Units
- Helping Marines achieve Space Force Certification for next-generation GPS
- Creating compact, removable, on the move technology for the Marine Corps and SOCOM
- Bringing DevSecOps to Marine Corps (MCBOSS)

FY23: 657 FTEs — 73 Projects — 20 IPTs

Rapidly delivering C4ISR, Cyber and IT systems and engineering services to meet the Information Warfare needs of the Marine Corps and Special Operations Command.

- Deliver Information Warfare capabilities to the USMC and SOCOM
- Provide full spectrum C4ISR systems and services to Marines and Special Forces
- Support Wargaming & Experimentation
- Deliver Capabilities that Enable Successful Stand In Forces
- Enable Joint All Domain Integration
- Ensure S&T/R&D Progression

### Major Sponsors

PEO Land Systems —  
SOCOM — HQMC —  
MARCORSYSCOM





# Enterprise Systems Department

## Giving our Fleet an advantage over adversaries

Department  
Head  
Kevin Allen,  
SSTM



### Divisions

Data Center and Cloud Hosting  
Services

Manpower, Personnel, Training  
and Education Systems

Enterprise Business Systems

Logistics Business Systems

### Focus Areas

- Improve the performance & affordability of digital & enterprise services
- Drive cultural change to embrace DevSecOps across NIWC Atlantic and our customers
- Cloud & Data Center Services
- Enable a hybrid cloud solution for the Navy
- Enable access to information on any device, anywhere

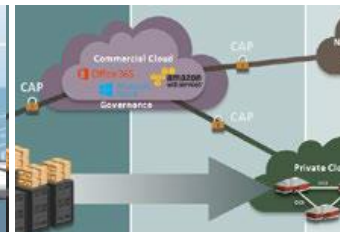
FY23: 603 FTEs — 67 Projects — 13 IPTs

Rapidly identify and implement affordable Enterprise IT solutions by promoting innovation, developing our personnel and forming strategic partnerships across NIWC Atlantic and with our customers.

- Provide engineering, logistics, and PM support solutions
- Provide automation through development and deployment of modern software-intensive solutions
- Hosting for software application and services including private and commercial Cloud services
- Install and sustain enterprise systems for the Fleet and DoD

### Customer Areas

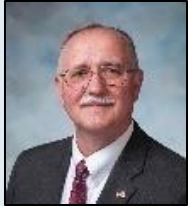
PEO MLB Portfolios — PEO DES  
Portfolios — DISA — Other Navy  
Business and Enterprise Systems



# Shore C2ISR and Integration Department

## Leader in IT Solutions that Matter to our Warfighters and Nation

Department  
Head  
Bruce Carter,  
SSTM



### Divisions

Defense Health Information  
Technology

Special Reconnaissance,  
Surveillance and  
Exploitation

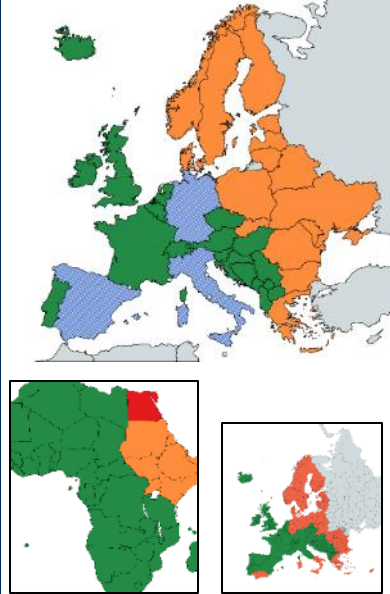
Force Protection Solutions

Command and Operations  
Centers

Industrial Controls Systems  
and Applications

Air Traffic Control  
Engineering

Dedicated support  
Fifth Fleet / Sixth Fleet /  
EUCOM / CENTCOM,  
AFRICOM



FY23: 746 FTEs — 29 IPTs — 125 Projects

Engineering and fielding systems supporting operational forces overseas and readiness missions stateside.

- Engineer, deliver and sustain Naval ATC and meteorology systems worldwide.
- Design, engineer and sustain information warfare solutions for command and control, intelligence customers.
- Provide and sustain cyber-hardened electronic security and shore industrial controls systems.
- Engineer, integrate and deploy advanced networking, cyber resiliency and data analytics for military health systems modernization.

### Major Sponsors

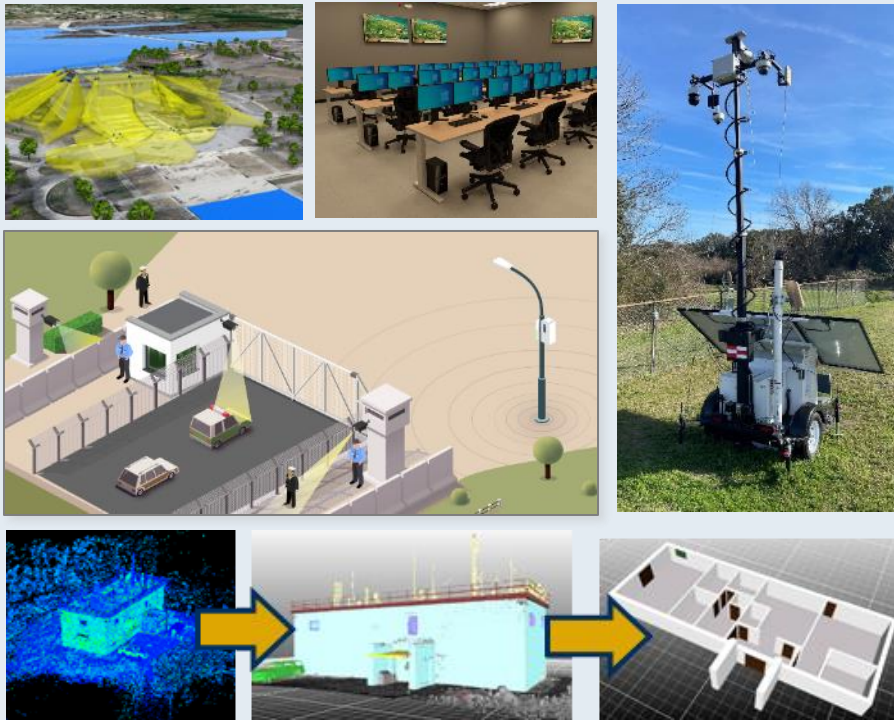
- Defense Health Agency
- Commander, Navy Installations Command
- Marine Corps Installations Cmd

- Naval Air Systems Cmd
- Naval Facilities Engr. Cmd
- Defense Logistics Agency Energy





# Force Protection Solutions Division



## Primary Customers

- Marine Corps Installations Command (MCICOM)
- Commander, Navy Installations Command (CNIC)
- U.S. Secret Service (USSS)
- National Geospatial-Intelligence Agency (NGA)

## Supporting the warfighter

- Integrated capabilities, situational awareness, detection and deterrence, C2, and coordinated emergency response deploying ESS/EMS solutions around the globe
- Providing cloud hosting infrastructure and capabilities enterprising multiple security systems to provide single source operability, a common operating picture, and global command and control
- Maintain Navy and USMC ESS labs to ensure standardization, systems configuration and cyber compliance
- USMC ESS / MNS Technical Service Agency for over 40 years providing standardized cyber-secure solutions
- Designated Technical Manager for Navy ESS\*; executing design, procurement, installation, training, and sustainment leveraging USMC Program as a baseline

\* Per NAVADMIN 193/22

# Command & Operations Centers Division

## Primary Customers

- 5th and 6th Fleets
- NAVCENT/NAVEUR/AF
- Fleet Forces Command
- NCTAMS LANT/PAC
- NAVWAR HQ 4.0
- PMW 790
- **MARCORSYSCOM**
- EUCOM
- AFRICOM
- Joint Staff
- USAREUR
- COCOM Data Strategy
- Defense Information Advantage Lab (DIAL)
- Shore C3I&S PMO

## Supporting the warfighter

### MILCON P-719 – General Robert B. Neller Center for War Gaming and Analysis

**Purpose:** Allow the USMC to better visualize the threat environment, gain competitive advantages and simulate future operating environments. This facility is uniquely designed to leverage modern simulation technologies to enhance the wargaming experience for the U.S. Marine Corps



- **Role:** Engaged from conception to document C4I Requirements for the Facility, Networking, Video Distribution System, Cross Domain Solutions (CDS), etc.
  - Virtual desktop Infrastructure (VDI)
  - Secret and Below Interoperability (SABI) and Top Secret and Above Interoperability (TSABI) access and transfer CDS converging 21 class networks to single user endpoints
  - 8K video floor and walls for the main theater





# Air Traffic Control Engineering Division

## Primary Customers

- NAVAIRSYSCOM/ PEO(T)/PMA-213
- 9th Air Force (AFCENT)
- NAVWARSYSCOM/ PEO C4I PMW120
- Marine Corps Training & Education Command
- National Science Foundation
- FAA
- Air Combat Command

## Supporting the warfighter

- Air Traffic Control facility integration to include Radar, Towers, Communications, and Airfield Lighting Control
- ATC/METOC/C2 Design, Engineering, and Integration
- Aviation Command and Control Services
- ATC Logistics and Configuration Management
- Mobile ATC Systems, including Control Towers and Sensors

*63 years serving as the In-Service Engineering Agent for Shore –Based ATC & Landing systems, supporting 72 Navy & Marine Corps facilities worldwide.*

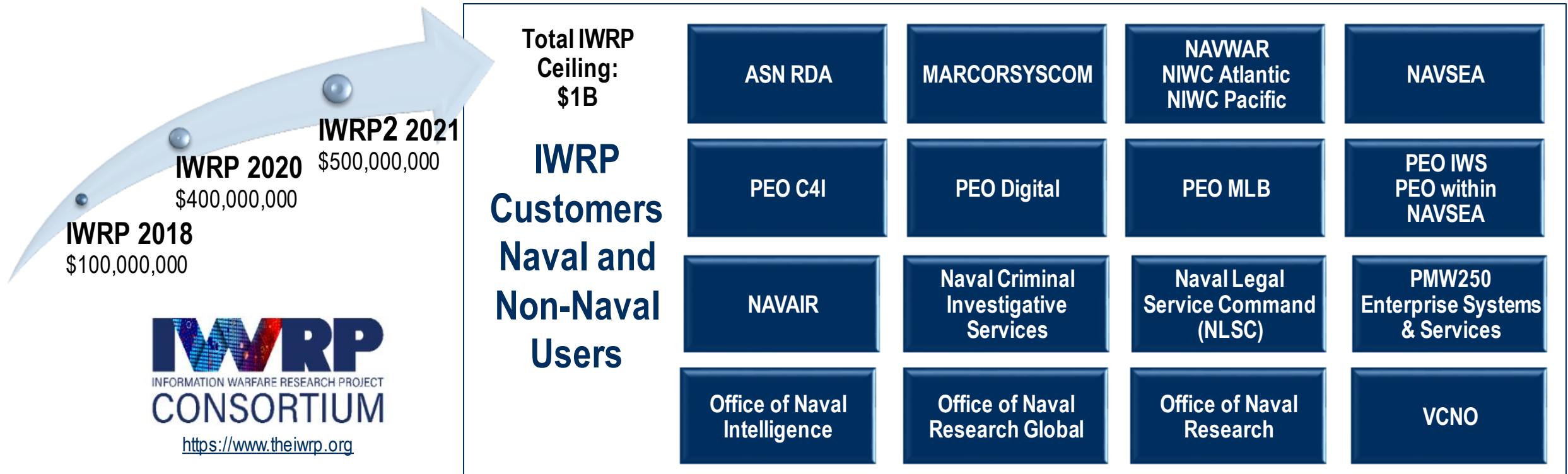


# NAVWAR's Information Warfare Research Project (IWRP)

Accelerated acquisition process to rapidly advance IW technologies to the Warfighter.

**A pathway for rapid acquisition and collaboration between industry, government and academia. Focused on IW Research and with Navy/Marine Corps work.**

**\$1.9B awarded since inception, 170 Prototype and 24 Production Awards made (March 2024)**





# Mid-Atlantic Tech Bridge (MATB) & Palmetto Tech Bridge (PTB)

In partnership with ONR / NavalX



Palmetto and Mid-Atlantic Tech Bridges, supported by NIWC Atlantic, optimize the Technical Focus Areas:

- Cybersecurity
- Assured Communications
- Applied Artificial Intelligence/Machine Learning
- Autonomous Decision Aids and Unmanned Systems
- Intelligence, Surveillance and Reconnaissance (ISR) systems
- Live, Virtual, Constructive and Synthetic (LVC/S) environment technologies

**Tech Bridges developing dual-use solutions to meet both national defense needs and enhance the region's economic strength with innovative commercial products.**

## Tech Bridge Advantages to Move *FAST*



Accessible space- leveraging available industry, academia, or NIWC co-use space



Connect to programs for requirements, funding paths and user feedback



Collaboration with naval technologists and facilities (engineering process and standards)



Improved collaboration & partnerships with academia, small business, startups, venture capita, non-profits and state/local govt organizations

# Technology Transfer (T2)/ Office of Research and Technology Applications (ORTA)

**T2 / ORTA**  
NIWC Atlantic's  
force to **accelerate**  
**spin-in, spin-out,**  
**and dual use**  
**technology.**

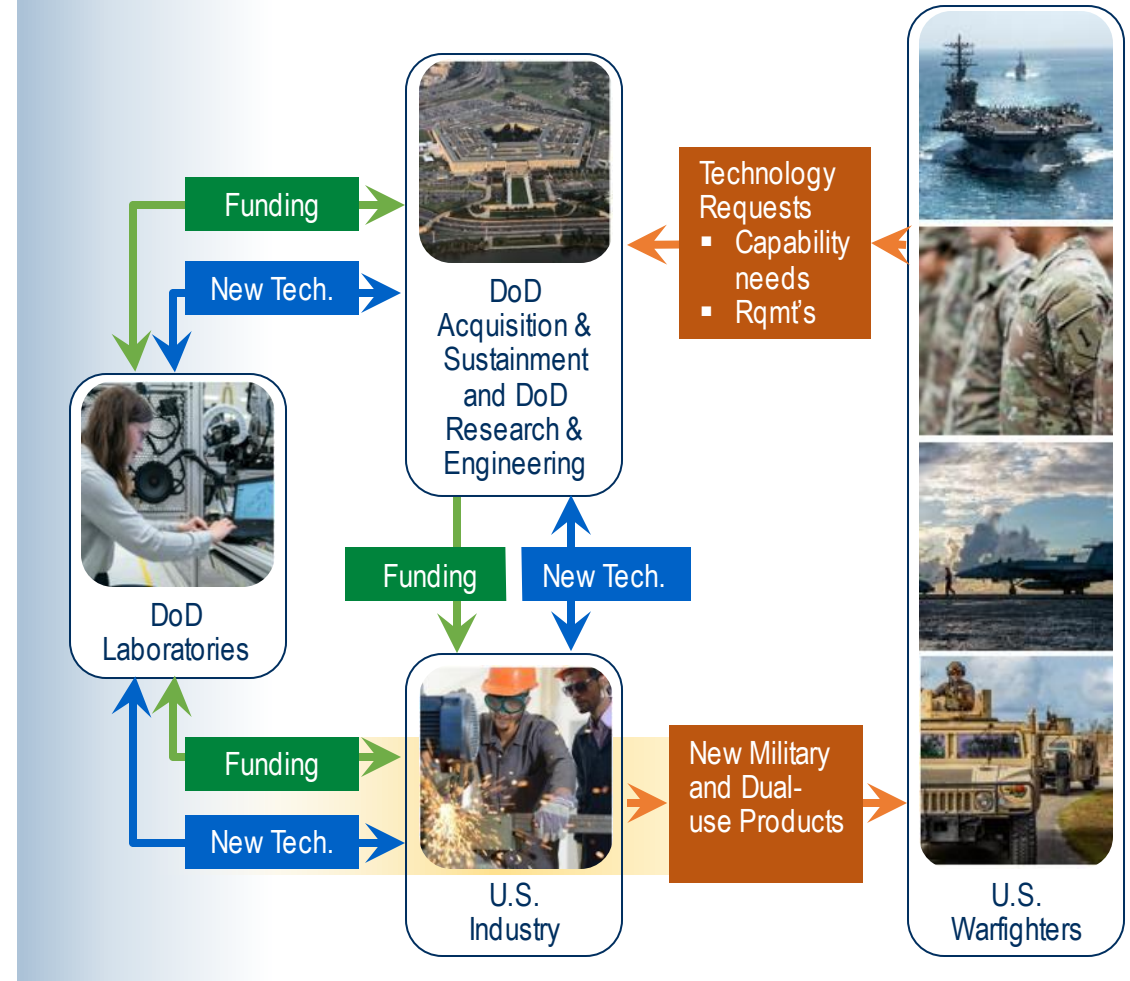
The ORTA is the  
foundational support for:

- Research and development
- Test and evaluation
- Experimentation
- Naval STEM (Science, Technology, Engr. and Mathematics)

## Technology Mechanisms

1. Cooperative Research and Development Agreements (CRADA)
2. Limited Purpose CRADAs
3. Educational Partnership Agreements
4. Commercial Service Agreements/ Work for Privates
5. Partner Intermediary Agreements
6. Patents
7. Patent License Agreements
8. Software License Agreements
9. Memorandum of Agreements/ Understanding (when associated with T2 or protection of Intellectual Property)

## Technology Transfer & Technology Transition

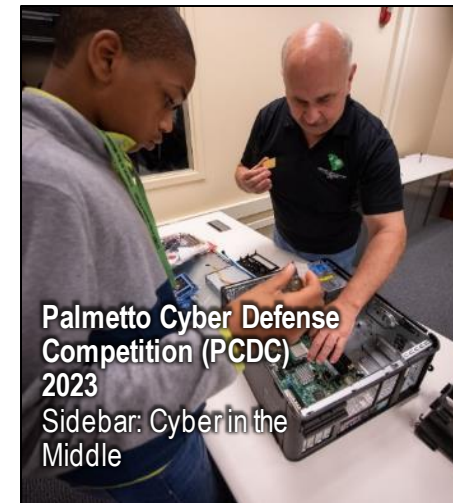




# Community and STEM Outreach — to attract, inspire, and develop STEM talent to meet future defense technological challenges.

## FY23 Community Impact & Volunteerism

- 55,000+ Students Served
- Appx 350+ Volunteers
- 111,500+ Total Hours
- 107 First Robotics Teams
- 21 Educational Partnership Agreements — to develop pipelines of high-tech talent in the region, examples:
  - University of South Carolina
  - Clemson University
  - Citadel
  - South Coast Cyber Center (SCCC)
  - Benedict College
  - Morris College
  - South Carolina State University
  - Denmark Technical College
  - Berkeley, Charleston and Dorchester S.C. County Schools



Homegrown talent stays — 52 hires from our internships.

Naval Information  
Warfare Center



ATLANTIC

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## Vision:

WIN THE INFORMATION WAR.

Follow us on Social Media  
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on your favorite podcast apps!

<https://www.niwcatlantic.navy.mil>

*NIWC Atlantic is part of  
the Naval Research &  
Development  
Establishment (NR&DE)*



[CHIPS Magazine \(navy.mil\)](#)

