Naval Information Warfare Center Pacific

Transport and Computing Infrastructure Business Portfolio Overview

Jim Reed
22 May 2019
Who Am I
Research, development, engineering, and support of integrated C4ISR, cyber, and space systems across all warfighting domains, and to rapidly prototype, conduct test and evaluation, and provide acquisition, installation, and in-service engineering support.
NIWC PACIFIC Support in the Pacific Region

Strategic Location

Only DoD Lab Located in a Major Fleet Concentration Area
NIWC PACIFIC: A Legacy of Discovery for Over 75 Years

- Arctic Submarine Operations
- Personalized Assistant that Learns (PAL)
- Laser Research
- Polaris
- Radar / EW
- NTDS
- SHF SATCOM
- Underwater Acoustics
- Ship-launched Torpedoes
- ARPANET

MAY 2019

Distro Statement A: Distribution is unlimited.
FY18 Profile
Our People Are Our Greatest Strength

FY18 Profile

CIVILIANS* 4,792
Scientists & Engineers 2,353
Tech Specialists 921
S&E Technicians 330
Admin/Professionals 968
General Support 194
SES/ ST/ SSTM/ SL 26

MILITARY 198
Enlisted 134
Officers 64

TOTAL 4,990

*Civilians include NWCF and General Fund

FY18 = $2.8B
Total Obligation Authority

New Professional (NP) Program:
✓ ~2765 applicants for 71 positions
✓ Average GPA 3.49

Highly credentialed, educated workforce
✓ 204 PhDs
✓ 1,385 Masters

3,648 SCI Clearances
✓ 1,955 Civil Servants & Military
✓ 1,693 Contractors

~ 32% of workforce: Active Duty, Reservists, Veterans
~ 535 Civilians & Military Directly Supporting C4ISR with the Fleet Around the World

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Capabilities – Across the Full Life Cycle

**Today**
The Navy in Operation

- Installation and Support
  - Production, Installation & In-Service Support
  - Marine Mammals
  - Networks
  - EXMAN/Additive Manufacturing
  - CAMEO

**Tomorrow**
The Navy in Construction

- Engineering, Development, Test and Evaluation
  - C4ISR for Unmanned Vehicles
  - Collaborative Software Armory
  - Compile to Combat in 24 Hours
  - Integrated Cyber Operations
  - Space Command & Control
  - Live Virtual Constructive

**Future**
The Navy in Planning

- Science and Technology
  - Graphene
  - HALO-Net
  - OFFensive Swarm Enabled Tactics (OFFSET)
  - Solid State Laser Atmospherics
  - Artificial Intelligence/Machine Learning
  - Quantum

**Science and Technology**

- Artificial Intelligence/Machine Learning
- Quantum
Intellectual Capital and Partnerships – Industry and Academia

CRADA - Cooperative Research and Development Agreement

- Establish and foster R&D partnerships with industry and academia, allowing parties to share R&D resources, personnel, equipment and costs, enabling development of new capability, technology, IP

Technology Transfer

- Promotes innovation and creativity with NIWC Pacific technology
- Important pathway to move Navy innovation from lab to market and ultimately the warfighter

Partnering in Education and Community Outreach

- Eight Southern California companies are using NIWC Pacific technologies.

PATENTS FY18

| Disclosures | 105 |
| Patents Filed | 100 |
| Patents Issued | 52 |

PUBLICATIONS FY18

| Journal Articles | 151 |
| Conf. Papers | 335 |
| TRs/TDs | 98 |

Community Impact:

- 12,444 Students
- 150 Schools
- 766 Teachers
- 72 Events

Volunteer Data:

- 552 Volunteers
- 15,585 Total STEM hours
- 8,766 Volunteer hours

San Diego State University

Carnegie Mellon

UC San Diego

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Geographer - Self-photographed, CC BY 1.0

By Carnegie Mellon - Self-photographed, CC BY 1.0

By UC San Diego - Self-photographed, CC BY 1.0
Approximately 20% of NIWC Pacific Direct Funded FTEs are Executed on Projects within the TCI Portfolio

Over half of that is on SPAWAR projects (PEO C4I, PEO EIS, PEO SS, and SPAWAR)

- PMW 160 - CANES, ADNS
- PMW 170 - PNT, NMT, DMR, BFTN
- PMW 205 - NGEN, ONE Net
- PMW 770 - LBUCS
- PMW 790 - JMINI, STACC
- PMW 146 - MUOS

Most of the remainder is on:
- Other Naval Projects - NAVAIR-ADNS to Unmanned systems, NAVSEA-NAVSSI
- USAF Projects - PNT, EPS Gateway
- US Army Projects - JTNC, NM RIL
NIWC Pacific: Portfolios vs Competencies

CANES-Consolidated Afloat Networks and Enterprise Services
ADNS-Automated Digital Network System
PNT-Position, Navigation and Timing
NMT-Navy Multiband Terminal
DMR-Digital Modular Radio
BFTN-Battle Force Tactical Network
NGEN-Next Generation Enterprise Network
ONE Net-OCONUS Navy Enterprise Network
LBUCS-Low Band Universal Communications System
JMINI-CS-Joint MILSATCOM Network Integrated Control System
STACC-Shore Tactical Assured Command and Control
MUOS-Mobile User Objective System
NAVSSI-Navigation Sensor System Interface
EPS Gateway-Enhanced Polar System
JTNC-Joint Tactical Network Center
NM RIL-Network Management Reference Implementation Laboratory
White papers for potential FY20 Applied Research (Budget category 6.2) projects are sought under the following focus areas:

1. **Innovative dual use (software provisioned)** LIDAR and FSO communications using shared hardware and common aperture with reduced size, weight and power
2. **Tactical enhancements to proposed 5G standards** and implementations for improved resiliency and survivability in highly contested environments;
3. **Novel approaches for low probability of detect/intercept communications** against advanced electronic threats;
4. **Dynamic scheduling, routing and control mechanisms** to efficiently and reliably deliver traffic with varying level of service requirements (e.g., latency, loss rate, priority); and
5. **Machine learning and other techniques/concepts for autonomous network management** by translating Commander's Intent into network policies.

The Office of Naval Research (ONR) is receptive to innovative ideas, which are not within the above focus areas, but nonetheless are important to the Navy/Marine Corps communications and networking, as otherwise described in this Topic Description.
IW ANTX CSO

A -- Commercial Solutions Opening (CSO): Fight the Naval Force Forward - Information Warfare Prototyping and Experimentation Campaign
Solicitation Number: N66001-18-S-C001
Agency: Department of the Navy
Office: Space and Naval Warfare Systems Command
Location: Naval Information Warfare Center Pacific

IWRP

A -- Information Warfare Research Project (IWRP) Prototype Projects
Solicitation Number: N65236-19-R-T005
Agency: Department of the Navy
Office: Space and Naval Warfare Systems Command
Location: Naval Information Warfare Center Atlantic
Portfolio Management

• The coordinated management of portfolio components (IPTs) to achieve specific organizational and customer objectives

• Provide responsive, best value products and services to existing and new customers

• Ensure the organization is “doing the right work”, rather than focus only on “doing the work right”

• Structure common processes to deliver effective and efficient outcomes

• Provide demand signal to the Competencies to ensure the workforce is shaped, enabled, and empowered to deliver and sustain our mission
TCI Portfolio

May-Rick Ardolino

June-Doug Evans

July-Mike Jungling
Moving Forward

- Increased Focus on Information Warfare
- Strong demand for Cyber and C4ISR
- Increasing demand for enterprise engineering, rapid prototyping and experimentation
- Increase automation in fielding systems
- System “Toughness”
- Artificial Intelligence; Autonomy/ Machine Learning; ISR; Networks