Naval Aviation Enterprise
Chief Technology Officer (CTO)
Organization

Ms. Rebecca Ahne, NAE Deputy CTO
Naval Aviation Enterprise

The Naval Aviation Enterprise (NAE) is a warfighting partnership in which interdependent Naval Aviation issues affecting multiple stakeholders are resolved on an enterprise-wide basis. Between the Navy and Marine Corps, our Enterprise includes over 183,000 people, 3,700 aircraft, 11 aircraft carriers and executes a budget in excess of $40 billion. Focusing these resources to provide our country with the necessary warfighting readiness expected to meet national policy and priorities is a shared responsibility of each member of the Enterprise.

NAE CTO also serves as the CTO for:
- Naval Air Systems Command (NAVAIR) and PEOs
- Naval Air Warfare Centers (NAWC)
Naval Aviation Platforms/Programs

ASN (RD&A)
ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, DEVELOPMENT & ACQUISITION)

CNO
CHIEF OF NAVAL OPERATIONS

PEO(J SF)
JOINT STRIKE FIGHTER PROGRAMS

PEO(T)
TACTICAL AIRCRAFT PROGRAMS

PEO(A)
AIR ASW, ASSAULT, & SPECIAL MISSION PROGRAMS

PEO(U&W)
STRIKE WEAPONS & UNMANNED AVIATION

COMMANDER,
NAVAL AIR SYSTEMS COMMAND

Air 1.0

FLEET SUPPORT PROGRAM MANAGER
COORDINATION ON REQUIREMENTS AND RESOURCES
NAE Science & Technology Objectives

- Provides guidance for the NAE to facilitate the alignment of available science and technology development investments with the technology requirements of Naval aviation.

- Represents the goals of the NAE S&T program
  - Used as the baseline for identifying, prioritizing, aligning and synchronizing S&T investment efforts throughout the Enterprise.

- Represents a broad strategy that provides focused direction for the future while retaining sufficient flexibility to allow the S&T community to meet emerging challenges.

- Identifies 11 Capability Gaps supported by 34 NAE S&T Objectives (STOs)
  - USMC Aviation STOs included

- Document signed by
  - Commander, Naval Air Forces
  - Deputy Commandant for Aviation
  - Commander, Naval Air Systems Command
  - Director, Air Warfare

- Updated biennially; next edition available April 2012

S&T Objective Road Mapping

4 Levels of Road mapping

- Acquisition* – Defines capability needs specific to each platform and maps/aligns with POM cycles
- Platform S&T – Identifies where S&T can contribute to the needs identified on the Acquisition roadmap, identifies and maps current workload/projects to those needs
- S&T Objectives – Defines the critical capability gaps for each S&T Objective, decomposes capabilities needs into technology investment areas, identifies & maps current workload/projects, and identifies where future work may be required to achieve required capability
- Laboratory Core Capabilities – Defines those technologies considered core to the NAWC laboratory research and engineering workforce and facilities, maps current workload/projects and identifies where future work is required

* Acquisition Road maps are being developed by Program Offices
STO Number: DEF STO 3

Title: Improved Vertical Delivery - Systems enhancements

Statement of Need: Vertical delivery systems enhancements that improve ability to operate in the intended environment are required to increase tactical effectiveness, safety and survivability. Includes aerial delivery and internal/external cargo handling systems.

Why Required: Military success is often dependent on a commander’s ability to effectively maneuver and mass forces, to support and reinforce deployed or embarked units, and to quickly react to changes in the tactical situation. Additionally, Naval forces rely heavily on efficient, effective vertical lift for resupply and sustainment.

<table>
<thead>
<tr>
<th>METRICS</th>
<th>Baseline</th>
<th>0-5 Years</th>
<th>5-10 Years</th>
<th>15+ Years</th>
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<tr>
<td>INCREASE SITUATIONAL AWARENESS</td>
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<td>SA Enablers (Sensors)</td>
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<td>Data Fusion</td>
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<td>Displays</td>
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<td>Redistribution of Downwash</td>
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<td>EMBARK/DEBARK</td>
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<td>Reduce time to Embark (Full Payload)</td>
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<td>Reduce time to Debark (Full Payload)</td>
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<td>SPEED (External Loads)</td>
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<td>Increase speed for Ext Loads</td>
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<td>Deployed</td>
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<td>DEVELOP SAFETY SYSTEMS</td>
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<td>Improve Crashworthiness Seats/Structure</td>
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<td>IMPROVE SURVIVABILITY</td>
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<td>Susceptibility</td>
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<td>Vulnerability</td>
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<td>Active Protection Systems</td>
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# DEF STO 3 - Taxonomy

## Improve Active Protection Systems

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<th>Task Name</th>
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<tr>
<td><strong>DEF STO 3 - SYSTEMS ENHANCEMENTS</strong></td>
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- **IMPROVE SITUATIONAL AWARENESS** (Brownout/Whiteout/Fog/Rain)
  - Redistribution of Rotorwash/Flow Field Modification
- Develop "See Thru" Technologies
- Develop Tactile Cueing Systems
- Develop Terrain/Obstacle/Traffic Warning Systems
- Develop Improved Flight Controls

- **IMPROVE EMBARK/DEBARK TIMES**
  - Reduce Embark Time
  - Reduce Debark Time

- **IMPROVE EXTERNAL LOAD CARRYING CAPABILITY**
  - Increase Speed for external loads
  - Develop Autonomous or Unmanned Vertical Replenishment Capability

- **IMPROVE SAFETY**
  - Develop Crashworthy Systems
  - Develop Floatation & Stability Systems

- **IMPROVE SURVIVABILITY**
  - Susceptibility
  - Reduce Vulnerability

- **Improve Active Protection Systems**
DEF STO 3: See “Thru” Solution for Degraded Visual Environment

H-53 Upgrades

Acquisition

Technology Maturation (TRL 4-6)

Science & Technology (TRL 1-4)

DARPA Project

AF/NAVAIR Joint Development

ARMY Project

Future Naval Capability #1

AFRL Project

Future Naval Capability #2

SBIR for Sensors #2

SBIR for Sensors #1

SBIR for Data Fusion/Manage

SBIR for Displays/Symbology

Funded

Partially Funded

Recommended
GOAL: Combined S&T/Acquisition

Rotary Wing Acquisition Roadmap (Example)
NAE Chief Technology Officer (CTO) is responsible for providing oversight and strategic management of the NAE S&T investment portfolio

NAE CTO monitors health of S&T portfolio and progress toward delivery of capability through the use of S&T Objective Roadmaps

Goal is to integrate/link S&T Objective Roadmaps into Acquisition Roadmaps

- Allows insight into our programs and provides a strategic framework for all stakeholders

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Centennial of Naval Aviation
1911-2011

Thank you for your support and celebration of the United States Sea Services!