



AIR-4.0T

NAE SCIENCE & TECHNOLOGY PROGRAM

PRESENTED TO:

Small Business Aviation Technology Conference

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AIR-4.0T History

Naval Aviation Enterprise (NAE) Board of Directors directed a study to address S&T Process Shortfalls identified by 2006 Naval Studies Board

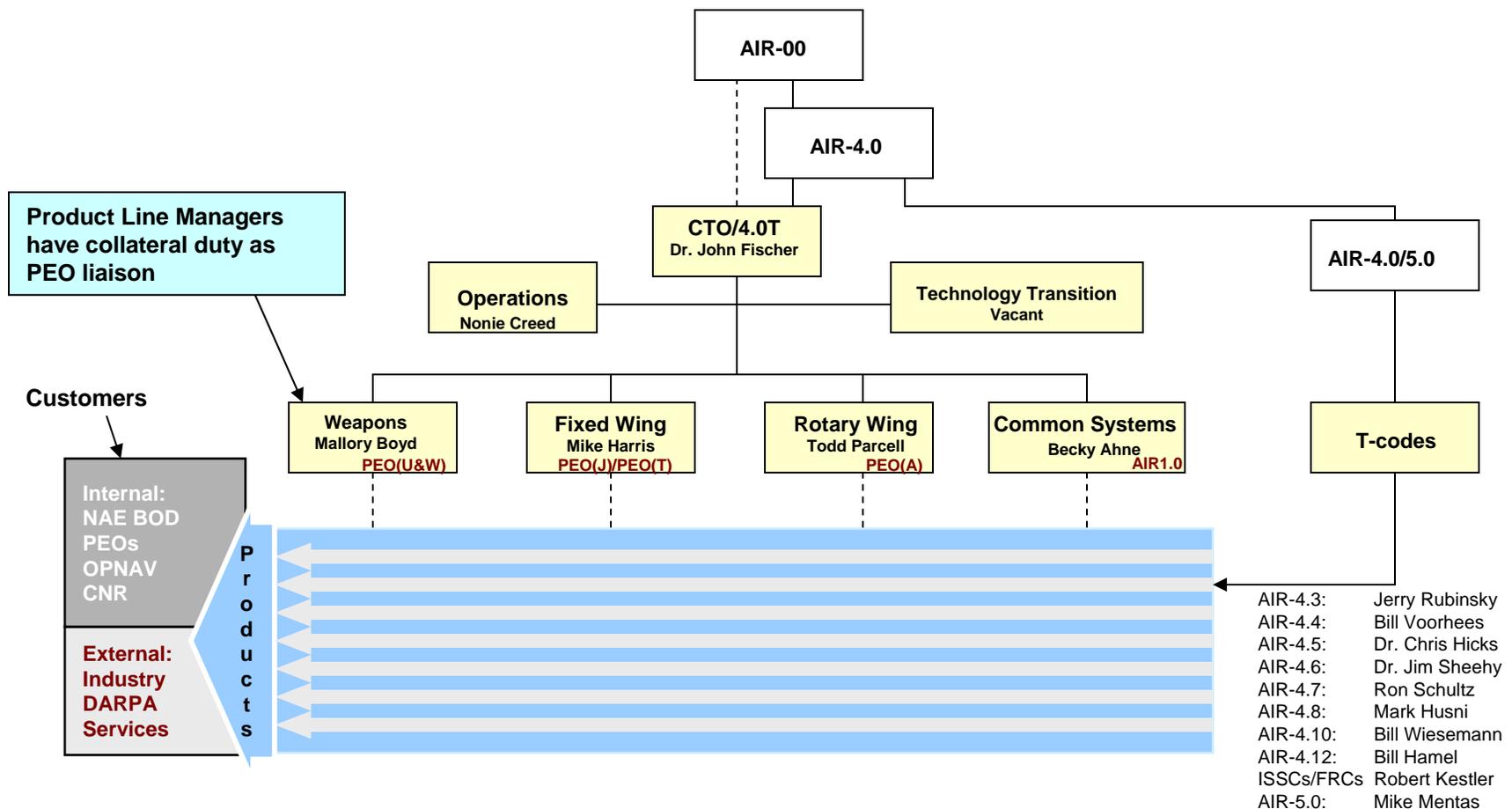


- **Enterprise-wide Lean Six Sigma project initiated with specific goals**
 - Produce prioritized NAE S&T objectives linked to warfighter capability gaps
 - Exploit technology push
 - Produce an NAE S&T roadmap that looks out 30-40 years
 - Increase visibility into S&T investments and business processes supporting the NAE S&T roadmap
 - Increase transition success
- **Participation from S&T, requirements, acquisition and warfighting communities**
- **Project addressed multiple sub-processes**
 - S&T Objectives Development
 - S&T Investment Planning
 - S&T Project Execution
- **NAE Board of Directors approved implementation of new process under leadership of NAVAIR Chief Technology Officer at 24 Aug 07 project out-brief**
 - AIR-4.0T officially established/chartered
- **S&T Program Defined – Implementation In Progress**



S&T IPT Organization

The S&T Program is managed by an Integrated Program Team of Product Line Managers and NAVAIR Technologists (T-codes)





Functions/Responsibilities of the NAE CTO

- **Provide S&T staff function in support of NAE (CNAF, N88, NAVAIR)**
 - Acts as senior science and technology advisor to NAE leadership
- **Provide strategic planning, investment planning, and oversight of the Naval Aviation S&T project portfolio**
 - Ensures that all S&T initiatives align with established NAE priorities
 - Understands character of S&T Portfolio (funding, gaps, major efforts, etc.)
 - Foster innovative concepts which show promise for new warfighting capabilities
- **Provide central point of contact for all NAE S&T issues, questions, deliverables, etc.**
 - Central POC for ONR, DARPA, OSD, ASN, et al.

NAE CTO does not execute or manage individual S&T projects



Functions/Responsibilities of the NAE CTO (cont'd)

- **Develop/distribute NAE S&T Objectives**
 - Identify major focus areas for S&T investment to address NAE capability gaps
 - Provide investment guidance to ONR, DARPA, industry
- **Provide quality control for NAE S&T proposals, concepts, etc.**
 - Ensure NAE S&T community is developing technology and concepts of warfighting value and concepts are socialized within the NAE
- **Assist PEOs with obtaining funding for NAE S&T initiatives**
 - Ensure that PEO needs are being addressed through S&T development
- **Be an advocate for the S&T workforce, and proactively work to provide opportunities for education and training**



Functions/Responsibilities of the NAE CTO (cont'd)

NAVAIR COMMANDER'S GUIDANCE

Future Capability

Deliver new aircraft, weapons, and systems on time and within budget that meet Fleet needs and provide a technological edge over our adversaries

Objective 2: Maximize the return on Science and Technology (S&T) investments (*Champion – AIR-4.0*)

Metrics:

- Percent of Naval Aviation S&T projects that become (or support) fleet products*
- Amount of dollars leveraged from S&T work conducted outside the NAE budget*
- Percent of capability needs funded by both NAE and non-NAE dollars*

} **In Revision**

Action 1: Implement the NAE approved process for developing NAE S&T Objectives which address validated capability needs (*Chief Technology Officer; April 08*) – **Completed**

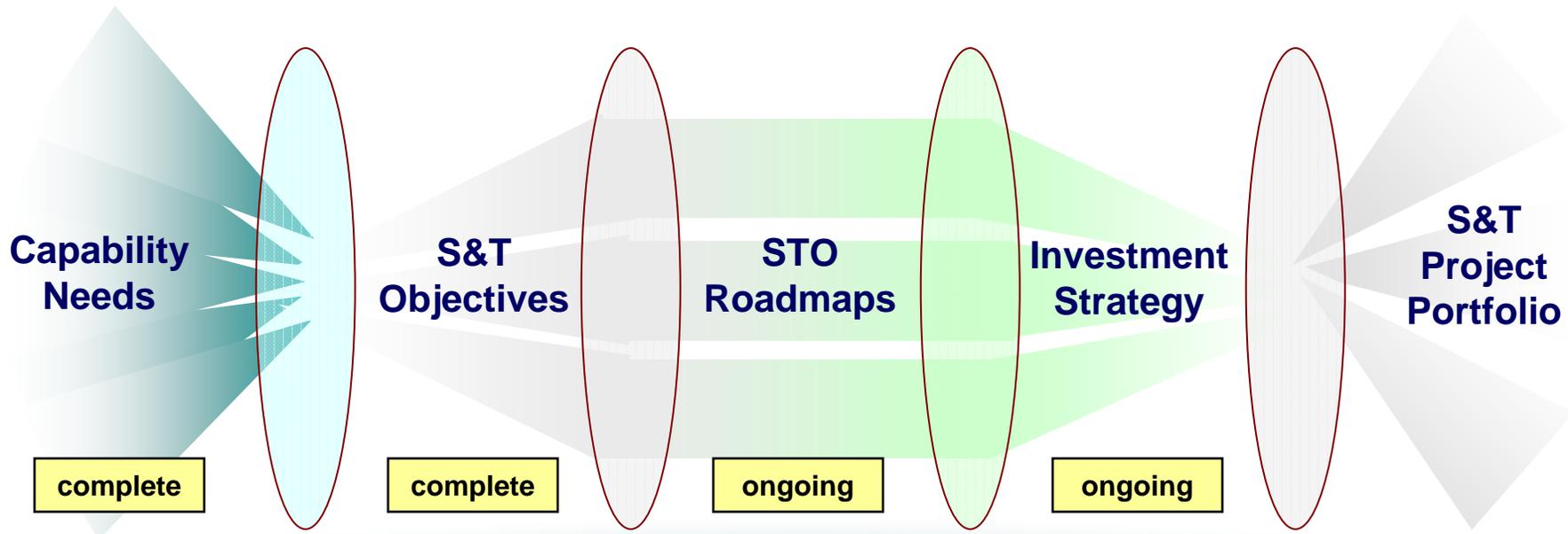
Action 2: Develop an investment strategy that supports S&T Objectives and a process to track progress toward achieving those objectives (*Chief Technology Officer; Dec 08*) – **Baseline established**

Action 3: Track the number of NAE-related S&T projects that transition to acquisition and the number of NAE-related S&T projects that are delivered to the Fleet, analyze the data and incorporate lessons learned in the development of the investment strategy (*Chief Technology Officer; Oct 08*) – **In work**



Functions/Responsibilities of the NAE CTO (cont'd)

Roadmaps link investments to S&T Objectives and produce a project portfolio aligned to capability needs



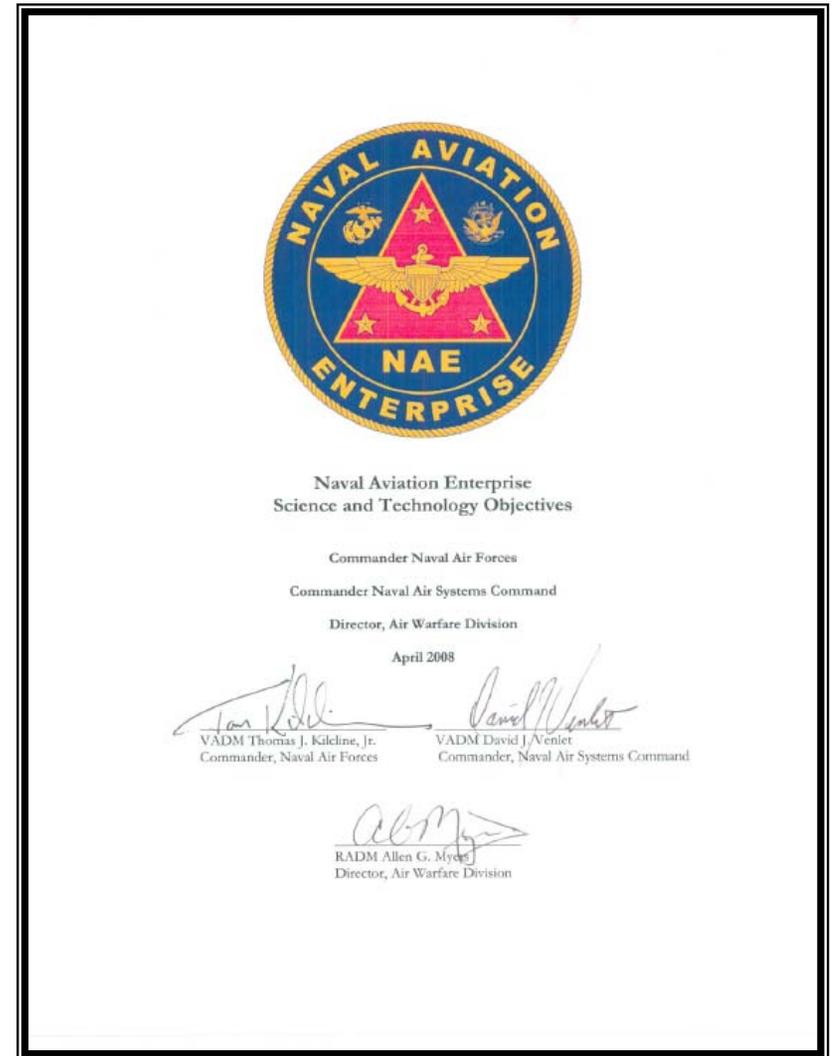
Capability Needs → S&T Objectives → STO Roadmaps → Investment Strategy → S&T Project Portfolio

ALIGN - INVEST - MEASURE



2008 NAE S&T Objectives Document

- As part of strategy, 32 NAE S&T Objectives have been developed
 - Represent the *goals* of the NAE S&T program, and will be used as the baseline for identifying, prioritizing, aligning and synchronizing S&T investment efforts throughout the enterprise.
 - Derived from 340+ capability needs provided by warfighters
 - Developed by a Working Group comprised of warfighters
 - Aligned with ONR Focus Areas, Joint Capability Areas and Sea Power 21 Pillars
 - Signed by Commander, NAVAIR; Commander, CNAF; and Director, Air Warfare Division (N88) in April 2008





Capability Needs (CNs)

- **14 Sources** were solicited for capability needs; **11** responded
- **Total number of CNs received (to date): 340+**
 - **220+** unclassified needs
 - **60+** classified needs
 - **60+** “tech push” or “tech focus” areas received from Office of Naval Research (ONR) and Director, Defense Research and Engineering (DDR&E)

Capability Needs Providers
1. N8F
2. TYCOM Priority List (TPLs)
3. PEOs (A, T, U&W, Carriers, AIR-1.0, JSF)
4. DDR&E (J8) Joint Capability Gaps
5. CNAF Requirements Officers
6. Fleet Science Advisors
7. NSAWC
8. NWDC
9. NMAWC
10. Intelligence Division (AIR-4.12.1)
11. ONR



Capability Gap Areas Aligned to Sea Power 21 Pillars

– Sea Shield

- Force Protection (FP)
- Surface Warfare (SUW)
- Under Sea Warfare (USW)
- Theater Air and Missile Defense (TAMD)

– Sea Strike

- Strike Operations (STR)

– Sea Basing

- Deploy and Employ Forces (DEF)
- Integrated Logistics Support (ILS)

– FORCEnet

- Command, Control, Communications, Computers, Intelligence, Reconnaissance, and Surveillance (C4ISR)

– Enterprise and Platform Enablers

- Enterprise and Platform Enablers (EPE)
- System Safety, Availability and Affordability (SSAA)

– Sea Warrior

- Naval Warrior Performance (NWP)



STO Distribution (by Capability Gap Area)

- Force Protection (FP) (3)
- Surface Warfare (SUW) (1)
- Under Sea Warfare (USW) (3)
- Theater Air and Missile Defense (TAMD) (2)
- Strike Operations (STR) (7)
- Deploy and Employ Forces (DEF) (3)
- Integrated Logistics Support (ILS) (1)
- Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) (6)
- Enterprise and Platform Enablers (EPE) (1)
- System Safety, Availability and Affordability (SSAA) (2)
- Naval Warrior Performance (NWP) (3)

32 Total STOs



2008 NAE S&T Objectives

FP STO-1: Platform Survivability
FP STO-2: Mine and IED Detection and Neutralization
FP STO-3: Electronic Protection
SUW STO-1: Maritime Surveillance and Interdiction
USW STO-1: Environmental sensing, assimilation and tactical decision aids
USW STO-2: Wide Area Search/Detection
USW STO-3: Precision Localization / Identification / Attack
TAMD STO-1: Anti-Air Warfare Performance
TAMD STO-2: Airborne Missile Defense
STK STO-1: Persistent capability to engage time critical targets
STK STO-2: Standoff capability against mobile targets
STK STO-3: Covert strike capability
STK STO-4: Unmanned strike capability
STK STO-5: Airborne Electronic Attack
STK STO-6: Suppression of Enemy Air Defense / Destruction of Enemy Air Defense (SEAD/DEAD)
STK STO-7: Enhanced Close Air Support (CAS) / Strike Coordination and Reconnaissance (SCAR)
DEF STO-1: Inter-theater deployment
DEF STO-2: Improved Vertical Delivery – Air Vehicle
DEF STO-3: Improved Vertical Delivery – Systems enhancements
ILS STO-1: Enhanced Logistical Support of Joint Assets
C4ISR STO-1: Battlespace Awareness
C4ISR STO-2: Information Security / Information Assurance
C4ISR STO-3: Communications and Networks
C4ISR STO-4: Persistent target detection, discrimination, identification, and targeting
C4ISR STO-5: Tactical Decision Support
C4ISR STO-6: Combat Classification and Identification
EPE STO-1: Enterprise, Platform and Weapon Enablers
SSAA STO-1: System Safety and Availability
SSAA STO-2: System Affordability
NWP STO-1: Training and Education
NWP STO-2: Improved Human Performance
NWP STO-3: Warfighter Protection

Capability Gap Areas:

Force Protection (FP)
Surface Warfare (SUW)
Under Sea Warfare (USW)
Theater Air and Missile Defense (TAMD)
Strike Operations (STK)
Deploy and Employ Forces (DEF)
Integrated Logistics Support (ILS)
Command, Control, Communications, Computers,
Intelligence, Surveillance and Reconnaissance (C4ISR)
Enterprise Platform Enablers (EPE)
System Safety, Availability and Affordability (SSAA)
Naval Warrior Performance (NWP)



SUMMARY

- **AIR-4.0T is achieving the goals established by the NAE BOD and the Naval Studies Board**
 - S&T Objectives Development
 - S&T Investment Planning
 - S&T Project Execution
- **We are improving the way we plan and manage the NAE S&T program**
 - S&T Objectives jointly developed by warfighters and technologists
 - Roadmaps to guide investment strategy
 - Portfolio management enabled by common processes and metrics
 - Focus on transition of technologies to warfighting capability