



DAFITC 2023 – Track 2: C3BM, JADC2, and the Future Fight

CJADC2, MPE, and CCMD Alignment

28 August 2023

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EXPERTISE and **TECHNOLOGY** For National Security

DAFITC 2023, Track 2 – C3BM, CJADC2, and the Future Fight

What do the Air & Space Force need to do to **transform** the way we **command & control**, and what does that look like?

What efforts are **underway** to build the **DAF BATTLE NETWORK** of the future?

What must we do to **improve intelligence** and **targeting** in an increasingly contested information environment?

What **investments** do we need to make in our **networks** and **infrastructure** to support the **distributed communications** needs of tomorrow?



Agenda

CJADC2 Review

MPE Review

Situation: DAF Battle Network and MPE

Background: Accelerate Change or Lose

Analysis: Program and
Engineering Rationalization

Recommendation

Integrated and **Interoperable** –
Areas of Momentum & Risk

Detailed Recommendations



Framing Defense – Wide JADC2 Efforts & Key Leaders

Joint Staff J-6

- Serve as JADC2 CFT Lead
- JADC2 Campaign Plan/C2 Concepts, technologies & processes
- Proponent for JADC2 capabilities integration, synchronization and interoperability



Joint Staff J-6
Lt Gen Mary O'Brien



OUUSD (R&E)
Heidi Shyu

OUUSD (R&E) Innovation

- Manage Software Architectures for JADC2
- Rapid Defense Experimentation Reserve (RDER)
- Assault Breaker II Initiative
- Experiments w/commercial innovation



OUUSD (P)
Colin Kahl

OUUSD (P)

- National Defense Strategy Prioritization

CAPE Analysis

- JADC2 Strategic Portfolio Review (SPR)



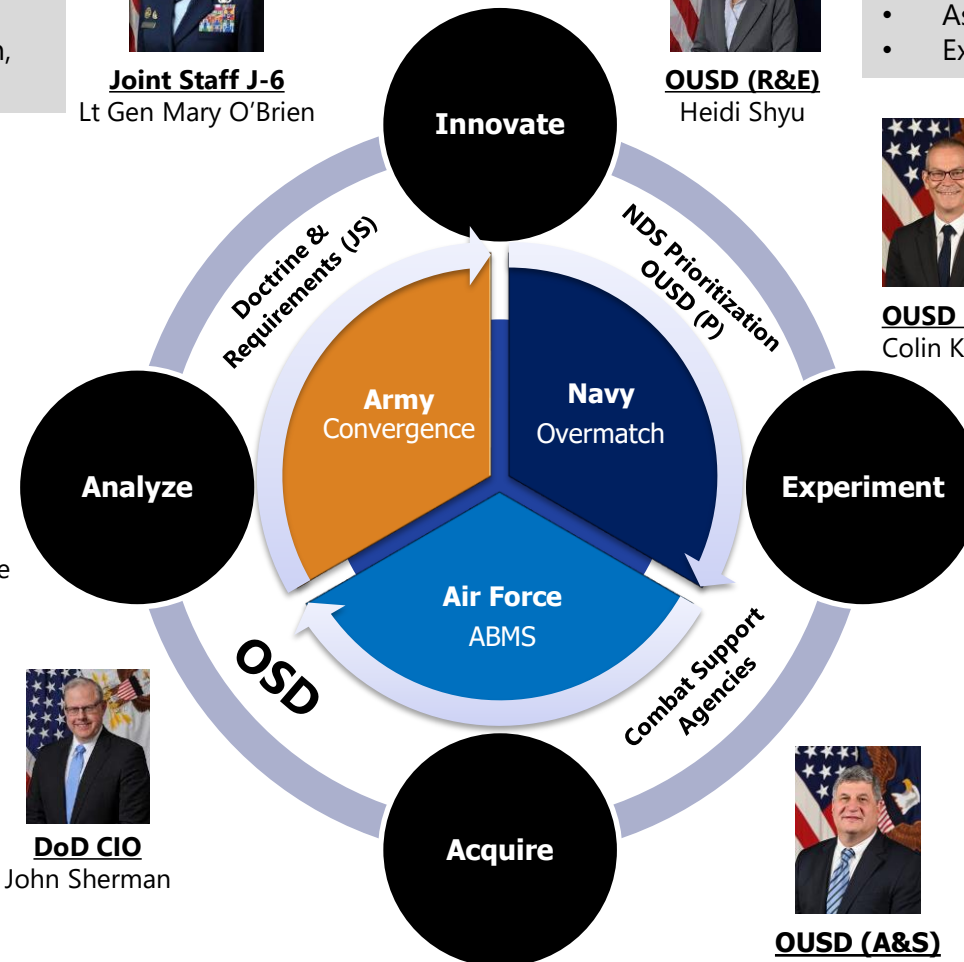
CAPE
Suzanne Blume

DoD CIO

- DoD Information Network Modernization
- Joint Warfighter Cloud Capability (JWCC)
- Oversee IT Standards
- ZeroTrust/Identity Credential & Access Management (ICAM)



DoD CIO
John Sherman



CDAO
Dr. Craig Martell

CDAO Experimentation

- Lead Global Information Dominance Experiments
- Field JADC2 Data Integration Layer
- Enterprise Scaffolding for AI/ML
- Digital Talent Management



OUUSD (A&S)
William A. LaPlante

OUUSD (A&S) Acquisition

- Provide Acquisition oversight for JADC2
- Acquisition Integration Interoperability Office (AI2)

What Does the CJADC2 Strategy Look Like Today?

CJADC2 Strategy (Mar 2022) – Sense, Make Sense and Act: Five Lines of Effort (LOE)

1. **Establish the JADC2 data enterprise**
2. Establish its human enterprise
3. Establish its technical enterprise
4. Integrate nuclear command, control and communications with JADC2
5. **Modernize mission partner information sharing**

The DoD decided years ago for the Army, Navy and Air Force move out with their own programs to develop the capabilities relevant to respective functions and missions

- Air Force – Advanced Battle Management System (ABMS)
- Space Force – Space-based Transport Layer
- Army – Project Convergence
- Navy – Project Overmatch
- Marine Corps – Marine Corps Warfighting Laboratory (MCWL)



PEO C3BM: ABMS and the DAF Battle Network

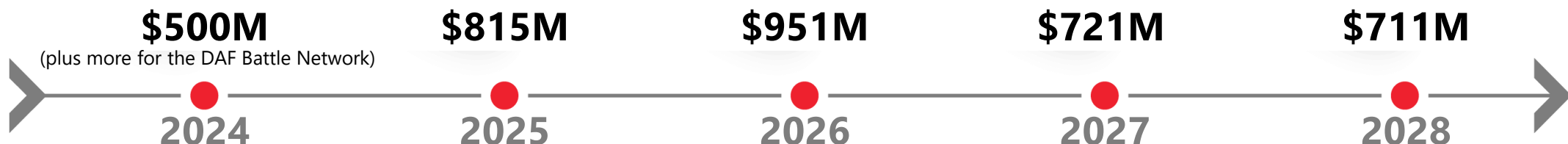
The Air Force launched the **ABMS** program to:

- Build a resilient command-and-control infrastructure to connect and integrate sensors,
- Move and manage data and enable commanders
- Make operational decisions quickly

DAF Battle Network programs continue the evolution of ABMS

- Creates a distributed, adaptive, and resilient network of systems with speed and agility
- Connects sensors and shooters around the world
- Comprised of over 50 core programs distributed across multiple PEOs and organizations
 - HAF A5 CFT, SHoC-N, SAF AQ, PEO C3BM, PEO C3I&N, PEO Digital, AF RCO, Space Force BMC3, SDA, NRO, MDA, and more

Budget documents projecting \$3.7B in R&D spending through FY28



The Space Force Space-based Transport Layer

A Space-based Transport Layer will be essential because the CJADC2 construct demands a fully integrated, connected system



Strong Data Fabric – A comprehensive data layer

Efficiently integrate and manage escalating amounts of data from various disparate data sources to enable

- Application delivery
- In-depth analysis
- Data-driven decision making across echelons and functional communities



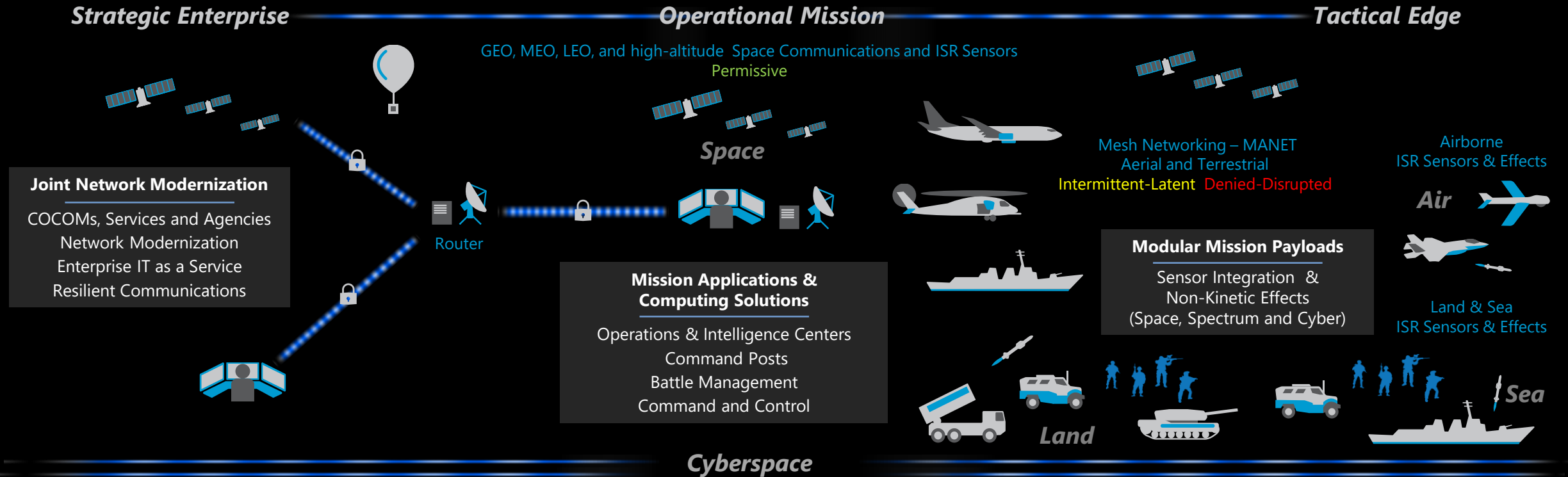
Resilient Networks – Proliferated Warfighter Space Architecture (PWSA)

Launch a “Tranche” of MVP satellites and capabilities to build a LEO constellation that can continually deliver space-based capabilities

- Tranche 0 (FY22) — Warfighter immersion
- Tranche 1 (FY24) — Initial warfighting capability
- Tranche 2 (FY26) — Global persistence over Tranche 1
- Tranche 3 (FY28) — Advancements over Tranche 2
- Tranche 4 (FY30) — Continual advances to the layers

SMART: Sense, Makes Sense, Act, Resilient Technology Campaign

Combined Joint All Domain Command & Control (CJADC2)



Sense	Make Sense	Act
- Deep sensing in stand-off, denied environments; strategic intelligence - Electromagnetic spectrum (EMS), SIGINT, and cyber convergence CACI Examples: LIDAR (Photonics), TROJAN, Bullseye, Spectral, TENCAP	- Open architecture solutions; responsive mission software - Optimize edge processing, data management, AI/ML, Applications CACI Examples: ARES, VITO, CLASSIC REACH, DCGS, FADE/MIST, Archon and MDAP	- Non-kinetic convergence: EW, SIGINT and cyber - Payload integration: multiple platforms, assured PNT, sensors, and effects - Resilient terrestrial, aerial, and space communications CACI Examples: Shadow Beam mm Wave, free-space optical laser communications, satellite payloads

What is the MPE and the MPCO?



DoD Executive Agent for DoD MPE



DepSecDef Direction to DoD Executive Agent

“Rationalize and modernize the overall portfolio of coalition command and control and intelligence information sharing capabilities.”

- DepSecDef designated SecAF as DoD Executive Agent (EA) for DoD MPE
- Air Force established the Mission Partner Capabilities Office (MPCO, SAF/CDMX) to support/execute SecAF roles/responsibilities as the DoD EA for DoD MPE

Joint MPE CONOPS (June 20)
DoDD 5101.22E (Aug 20)
DoDI 8110.01 (June 21)

The Mission Partner Capabilities Office

MPCO Vision:
The Mission Partner Capabilities Office (MPCO) will develop and operate a **resilient, worldwide interoperable information sharing capability for enterprise-level command and control and intelligence functions**, enabling the DoD to execute unified actions with Allies and Mission Partners across all phases of military operations.

MPCO Mission:
The Mission Partner Capabilities Office (MPCO) **designs, resources, and sustains the Mission Partner Environment (MPE)** to provide a secure, agile, resilient, and interoperable worldwide enterprise command and control and intelligence information sharing capability between the Department of Defense and mission partners during all types and phases of military operations **with the objective of rationalizing and modernizing the MPE to enhance operational effectiveness, lethality, and survivability of United States military forces.**

Fulfill National Strategy: Strengthen DoD connectivity, collaboration, coordination, and interoperability with Allies and Mission Partners

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UNCLASSIFIED

MPE

Alignment to US National Strategy



MPE is a Manifestation of US National Strategy and Priorities

Interim National Security Strategic Guidance, ‘National Security Priorities’, March 2021

- “We will **reinvigorate and modernize our alliances and partnerships** around the world.”
- “Together with our allies and partners, we can modernize the architecture of international cooperation for the challenges of this century.”

SECDEF Memo for all DoD Employees ‘Succeed through Teamwork’, March 2021

- **Join Forces with our Allies and Partners** – Collaboration as a Force multiplier and strategic asset.
- **Work in Partnership with Our Nation** – Requires cooperation with all who have a stake in our national security: our interagency, Congress, private industry, and the American people.
- **Build Unity Within the DoD** – Build **unity of effort** and mission across components, commands, services, and theaters. Need to ensure delivery of meaningful civil-military cooperation.

National Defense Strategy, 2018

- “Investments will prioritize **developing resilient, survivable, federated networks and information ecosystems from the tactical level up to strategic planning**”
- “A more lethal, resilient, and rapidly innovating Joint Force, combined with a **robust constellation of allies and partners**, will sustain American influence and ensure favorable balances of power”
- “**Deepen interoperability**. Each ally and partner is unique. **Combined forces able to act together coherently and effectively to achieve military objectives requires interoperability**. Interoperability is a priority for operational concepts, modular force elements, communications, information sharing, and equipment.”

National Military Strategy, 2018

- “Building a strong, agile, and resilient force **requires better interoperability and enhancing the combat lethality and survivability of our allies and partners.**”

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DEPSECDEF designated **SECAF** as DoD EA: Established **DoD CIO** as the OSD Principal Staff Assistant (**PSA**) with oversight of DoD EA for DoD MPE.

SECAF design, implement, operate, resource, and sustain a **DoD-wide enterprise-level capability** that supports **joint and multinational warfighting functional information-sharing** requirements with **Mission Partners**.

SECAF evaluates, recommends prioritization, and incorporates requirements, capabilities, and solutions for the integration and evolution of **C2 and intelligence information sharing** capabilities in a **coalition environment**.

CCMD Expressed Pain Points: CJDAC2 & MPE Interoperability

1. Need for Zero Trust and ICAM now
2. Persistent connection - Enduring to the Edge
3. Commercial hybrid cloud technology to the edge
4. Data Centricity not Network Centricity
5. Unified SD-WAN solution
6. Fight tonight in one environment with the coalition
7. Integrated, interoperable mission systems and apps
8. CSfC for multidomain and multi-classification levels
9. Accelerated, federated, integrated data-centric orchestration of data
10. Secure mobile comms across multiple domains & security classification levels in DDIL environments



Situation:

The DAF Battle Network Should Quickly Integrate the MPE

How might the DAF concretely integrate CJADC2 and Mission Partner Environment (MPE) requirements and investments in ways that are assured for interoperability **now** to meet the requirements of an integrated and interoperable **multinational coalition** fighting force for the CCMDs?

- CJADC2, MPE, and the CCMDs must develop and integrate **complementary priorities and capabilities** that are technically and programmatically aligned
- **Formally adopt MPE** to achieve coalition interoperability for C2 and information sharing
- Develop MPE with flexibility and adaptability to a secure, **data-centric approach with the unified data library**
- **Address challenges** posed by MPE and JADC2 integration including **cost, storage, security, and breadth**
- **Improve campaigns and operations** among coalition partners through **interoperability**
- Plan, demonstrate, integrate, and operationalize **integrated capabilities into the CCMDs**
- MPE requires **Enterprise Modernization** and **Digital Transformation**

China and Russia are the pacing threats that dominate the national defense strategy. The need to ensure better alignment for integrated interoperability for a federated enterprise MPE supporting CJADC2 and the CCMDs has never been greater

Background: Accelerated Action is Required

Accelerate Change or Lose

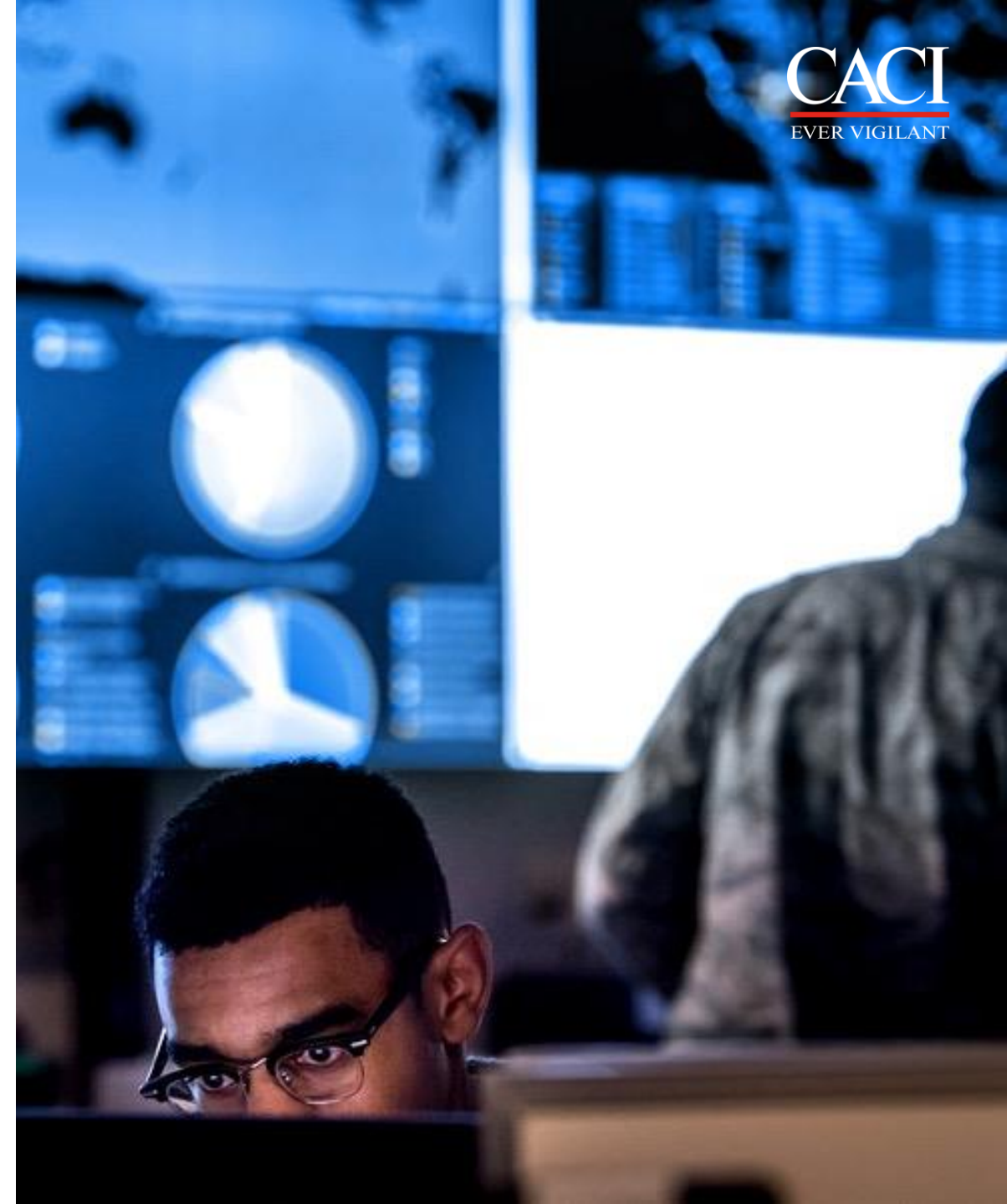
The SECAF Operational Imperatives (OI)

- OI-2: Operationally Focused ABMS;
OI-7: Readiness to Deploy and Fight

In any modern and realistic strategic context,
all war is **coalition** war

Urgent action is required

- Deter, Defend, and Defeat the pacing threats
- Ensure data driven decision superiority, ops impact, and ORM
- Ensure the acquisition strategies focus on developing and delivering integrated and interoperable technologies and capabilities that meet future requirements



Analysis: Rationalizing the Trade-space and Outcomes

Balancing Act at Epic Levels

- Immediate and future needs and requirements of the Warfighter
- Technical and Programmatic Planning, Programming, Budgeting and Execution
- Cost, Schedule, and Performance
- Risk Management: Risk to Mission, Risk to Force, and Risk to International Relations

Leverage the success of current MPE programs to further the evolution of the DAF Battle Network

- The Technology, Infrastructure, Governance, Policy, Agreements, CONOPS, TTPs, Training, Programs, Funding, Strategic Planning, Lifecycle Management, etc, are already in place

Integrated and Interoperable – Areas of Momentum & Risk

Recommendation:

A Connected, Federated Enterprise MPE and CJADC2 is Needed

A federated enterprise MPE is needed for the CJADC2

- Foundational to Command and Control (C2) and Intelligence Information Sharing (I2S) with allies and partners
- Strengthening alliances with like-minded nations is critical to deterring, defending, and defeating pacing threats
- A federated enterprise MPE is the unifying element and the backbone for coalition interoperability of CJADC2

Leverage the success of current MPE programs to further the evolution of the DAF Battle Network

- The Technology, Infrastructure, Governance, Policy, Agreements, CONOPS, TTPs, Training, Programs, Funding, Strategic Planning, Life-cycle Management, ETC, Are Already In Place
- US Battlefield Information Collection and Exploitation Systems (US BICES) and US BICES-Extended (US BICES-X) is a global legacy network across all the CCMDs providing coalition mission partner C2 and I2S capabilities today
- The Multi-National Information Sharing (MNIS) legacy systems, include Virtual Data Center (VDC), the All-Partner Access Network (APAN), Combined Federated Battle Laboratories Network (CFBLNet), PEGASUS, and Combined Enterprise Regional Information Exchange System (CENTRIXS)

Integrated and Interoperable – Areas of Momentum & Risk

Cost

Risk, Readiness and Costs

Reliance on Legacy Systems
Legacy Expansion
Cascading Acquisition Strategies

Independently Developed Solutions

CCMD Specific Requirements
Multiple Baselines to Support
Policy Driven Choices

Technical Debt

Lack of Modernization Funds
Perpetuates Status Quo
Model-based Systems Engineering

Schedule

Complex Architectures

Multiple Programs to Collapse
and Converge
Differing Maturity Levels
Across All Domains

Enterprise Modernization

>\$1B Deployed Infrastructure
Campaigns, Exercises, Experiments

Digital Transformation

Speed and Scalability
Explicit Agreements w/partners

System-of-systems Approach

Challenging Future State
Highly Resilient Global Access

Performance

Need for Speed and Agility

CCMD priorities and changing conditions
Leverage Rapid Capabilities

Rally Around the Data

All War is Coalition War
Data-driven Decision Superiority
From minutes to seconds

Strategic Standards Performance

Combined and Joint Interoperability
Federated Mission Networking
Unlock the power of data

Unity of Effort

Centralized Across Programs
Maximize Resources

Detailed Recommendations

1. Consider ***agile rationalization principles*** to quickly make decisions that evaluate and prioritize technology options that best fit the unique CCMD problems sets; best defines cost, scalability, security, and compatibility for as-is and to-be systems configuration and architecture over time.
2. Facilitate ***greater solution development collaboration, cooperation, and communication between the CJADC2, MPE, and CCMDs programs stakeholders*** (i.e., C3BM, MPCO, Joint Staff, etc); requires SLB, PEO and PSA governance and intervention to emphasize legacy system transition or retirement for greater CCMD mission partner capabilities but would leverage advances made by the MPCO and CCMDs in integrated and interoperable sharing environments.
3. The MPCO and DoD-CIO CDAO, Joint Staff and SECDEF, in support of the Services, CCMDs, and Agencies, should develop in-earnest and with a ***greater sense of urgency***, a collective ***Campaign Plan*** to deliberately guide the resourcing and implementation decisions of these massive programs, and to translate strategic CJADC2 and MPE guidance into activities executable by the services and CCMDs. The MPCO could coordinate the development of the Campaign Plan to organize, integrate, execute and assess significant MPE activities or capabilities supporting the CJADC2 strategy.
4. Focus on the ***fundamentals for digital transformation and enterprise modernization***. The future state MPE will likely draw upon three foundational capabilities: 1) technology at the edge, persistent, secure, and reliable hybrid multi-cloud infrastructure, 2) data-centric architecture with agile DEVSECOPS, and 3) model-based systems engineering for a SoS architecture.

Thank You