



# **AMN Coalition Interoperability Assurance and Validation (CIAV)**

Owner:	CIAV Management Group
Originator:	US CIAV Chairman/TKR
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- **Operational Issue**
- **Afghanistan Mission Network**
- **Coalition Mission Threads**
- **Coalition Interoperability Assurance & Validation (CIAV)**
- **Coalition Test & Evaluation Environment (CTE2)**
- **AMN Governance**
- **Change Management**
- **CMT Review**
- **Summary**



# What is Going to Change and When?



Network experts are not Operational Mission Thread experts-neither are aware of the others market space

**Operational Requirement**

**Development**

Requirements change, funding cut  
Design decisions not documented  
Interoperability needs and testing given low priority

**Integration**

Testing occurs late  
Expensive to resolve anomalies  
Modification \$ used to fix problems vice add capability

**Acceptance**

**Service Use**

**In-Service Modifications**

**Interoperability Testing / A&V**

Poorly defined IERs  
Incomplete Operational requirements  
Standards not identified or not a complete source of interoperability requirements

Developer fills in missing requirements  
Ambiguous requirements interpreted differently by developers and nations

Source(s):  
•Software Engineering Economics by B. Boehm. 1981  
•NCTSI research –Rissinger 2003



- **Coalition forces within Afghanistan could not communicate effectively and share operational Commander's guidance, information and intelligence**
- **Operational Requirements were Nationally specific, not oriented to Coalition Data Sharing and enterprise mission based execution**
- **Different networks with inadequate cross-domain solutions resulted in poor ops, planning and intelligence information exchange between U.S. and NATO forces in International Security Assistance Force (ISAF)**
- **Communication gaps between partner nations increased risks to life, resources, and efficiency**



The underlying importance of the AMN as a **blueprint for future Alliance mission networks** and for the **governance model** for new complex programs in theater is a fundamental underpinning of the AMN Capability Planning approach. AMN and its **spiral development** is proving to be a test bed for **future capability development**, stressing the importance of progressive development processes whereby increasingly adaptive and agile CIS delivery is being expedited **in support of operations**. The collapsing of traditional acquisition processes is bringing innovative and flexible solutions to the war-fighter in shorter timescales than hitherto deemed possible. This trajectory in CIS delivery is underpinned by COMISAF whereby he states that the AMN is the most important enabling capability he has as a commander. The approach is about **'command – centric' delivery that is 'network –enabled' and not 'network – centric'**.

*Gen David Petraeus COMISAF, Dec 10*

# Afghanistan Mission Network (AMN)

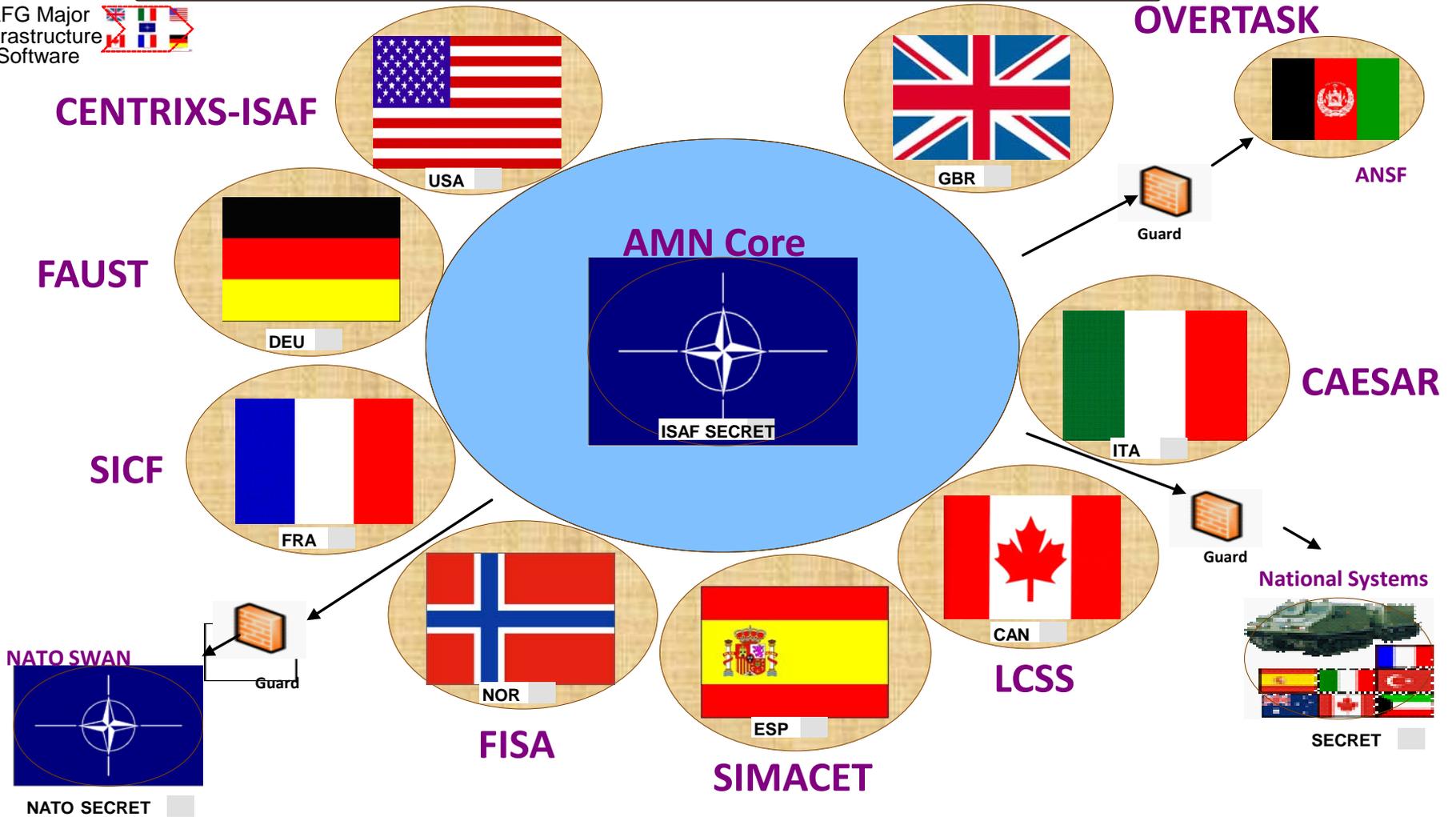


- **Primary Command, Control, Communications, Computers, Combat Systems, Intelligence, Surveillance, and Reconnaissance (C5ISR) network in Afghanistan for all ISAF forces and operations**
- **Consists of the ISAF SECRET network as the core with connections to national extensions from numerous TCNs**



AFG Major Infrastructure Software

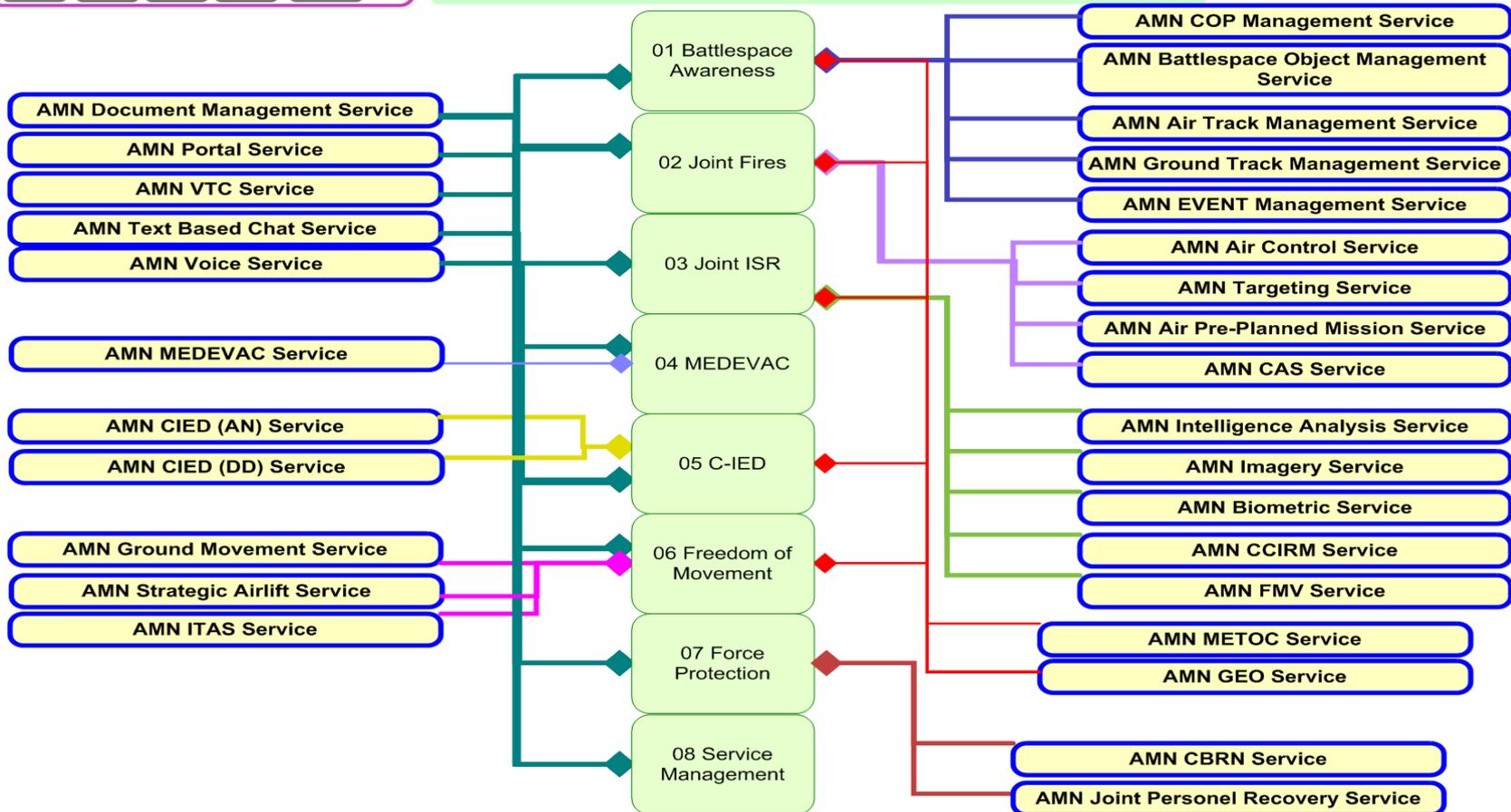
AMN FOC Concept

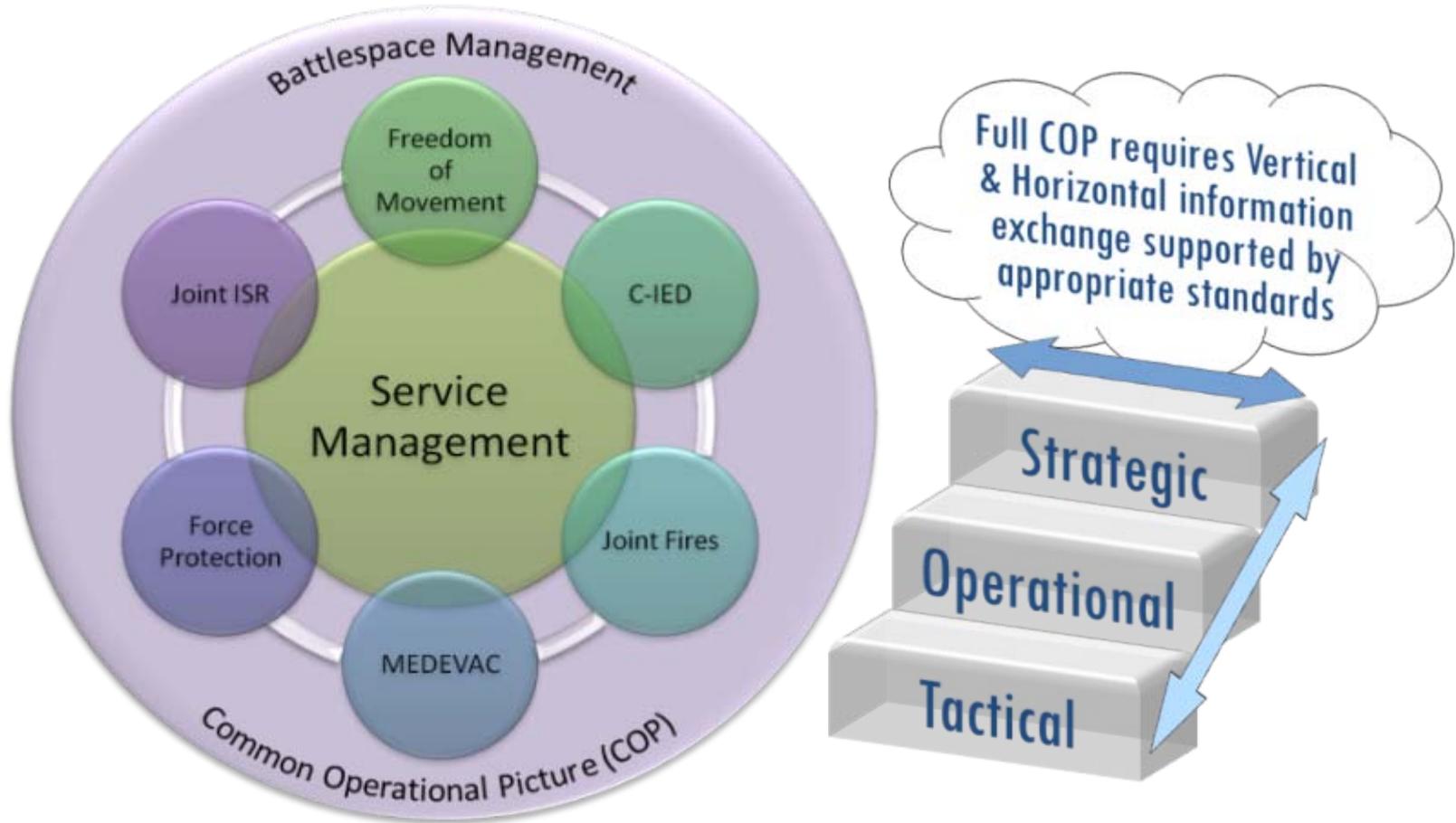


# AMN Eight Initial Mission Threads and Services

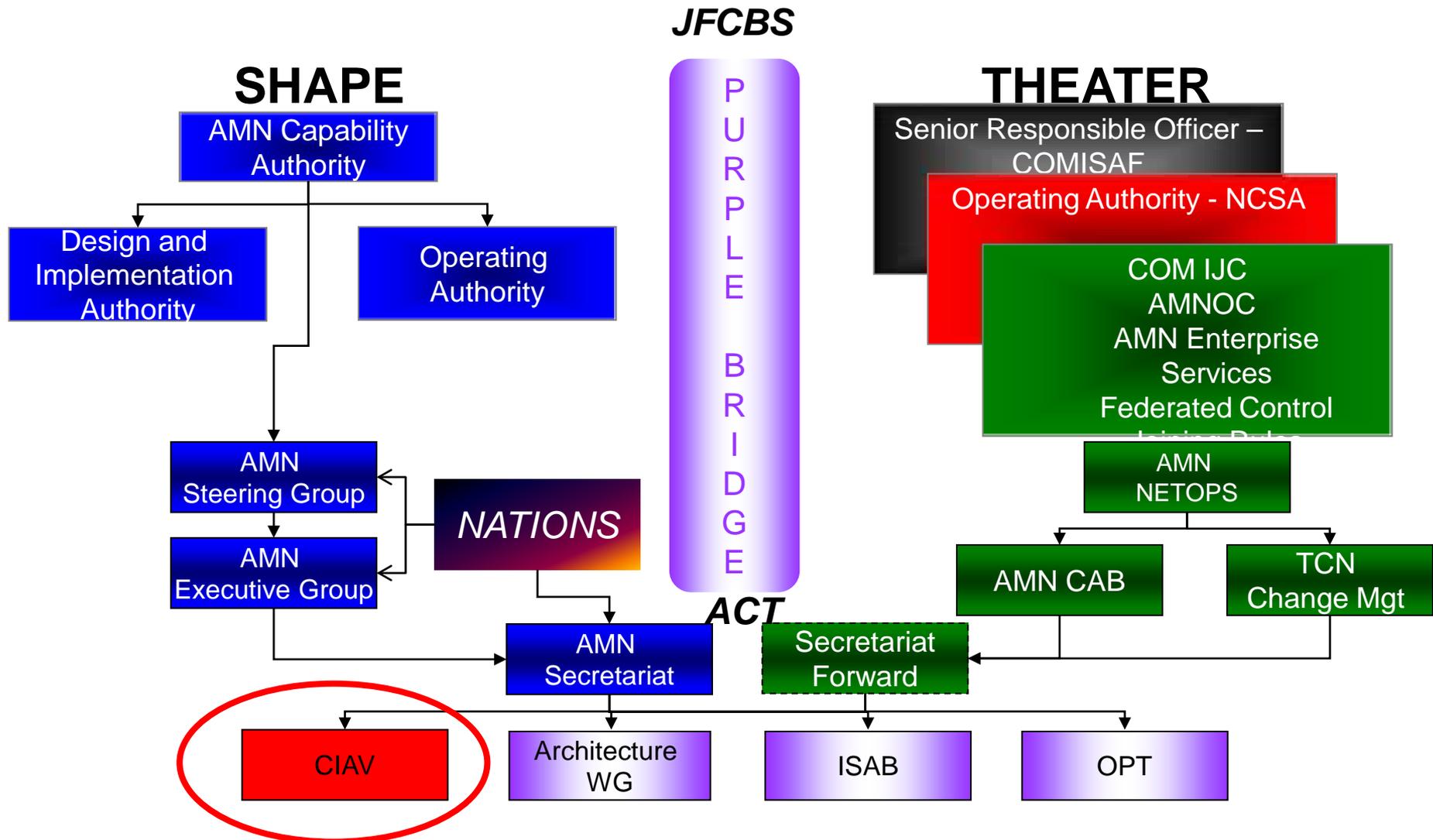


## AMN Mission Thread to Service





**One mission thread is not independent of the others and each drives the other threads in various ways**



# What is CIAV?



- **Process and methodology for Assurance & Validation (A&V) of mission thread interoperability on the AMN**
- **Process for validating Coalition Mission Threads (CMT) and Coalition Tactics, Techniques, and Procedures (CTTP)**
- **Assures information exchanges and operational information exchange processes**
- **Provides CMT Capability and Limitation Reports supported by Operational Impact Statements**
- **Provides 'Risk to Fielding' of major software/system changes and new capabilities**



## The CIAV Mission Statement:

***Increase the exchange of critical Coalition Mission Thread (CMT) warfighting information and improve overall interoperability allowing Coalition forces to fight more effectively and efficiently.***

## The CIAV Vision:

**To improve overall global interoperability through the implementation and execution of a Coalition focused, mission based interoperability process enabling multiple nations to fight as one.**

**Ensure a succinct exchange of critical warfighting information to multiple Coalition partners.**

**Assure & Validate interoperability of authorized mission threads and capabilities through standardized operational requirements.**

# CIAV Principles



**CIAV is a function that provides operational A&V of coalition interoperability based on authorized CMTs**

**CIAV interoperability is NOT about providing opinion; it is about providing C5ISR mission risk assessment and operational impact with appropriate mitigation**

**CIAV does NOT replace National/Joint/System testing activities**

**CIAV is tasked by the Capability Authority and is executed by the CIAV Management Group**

**CIAV is operationally relevant and persistent; it is enduring**



- **Purpose:** Responsible for assuring and validating services, systems and business processes supporting AMN mission threads
- **Interoperability execution arm for the AMN Governance structure**
- **Managed by national heads of delegation from participating troop contributing nations (TCNs) and NATO**
- **Coordinates Assurance & Validation events per AMN Secretariat and National direction and provides results/recommendations on mission and coalition interoperability improvement across AMN**
- **Executing mission thread assurance for initial 8 AMN Coalition Mission Threads prioritized by IJC in 90 day sprints**

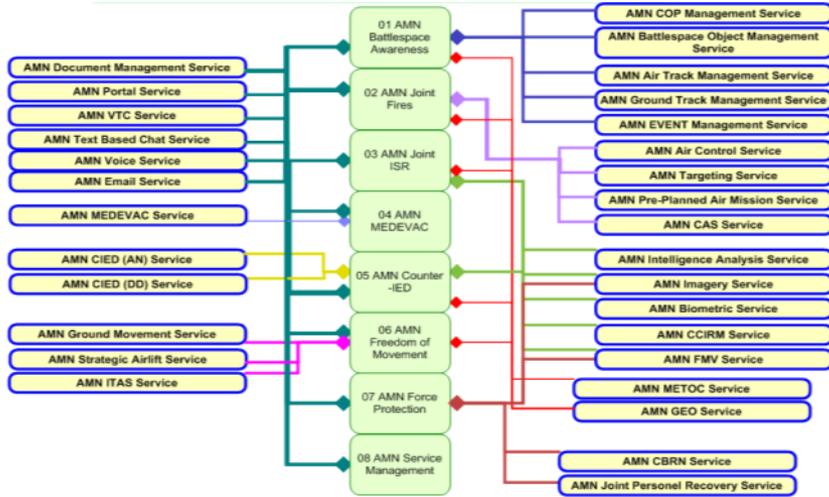
# CIAV WG Members



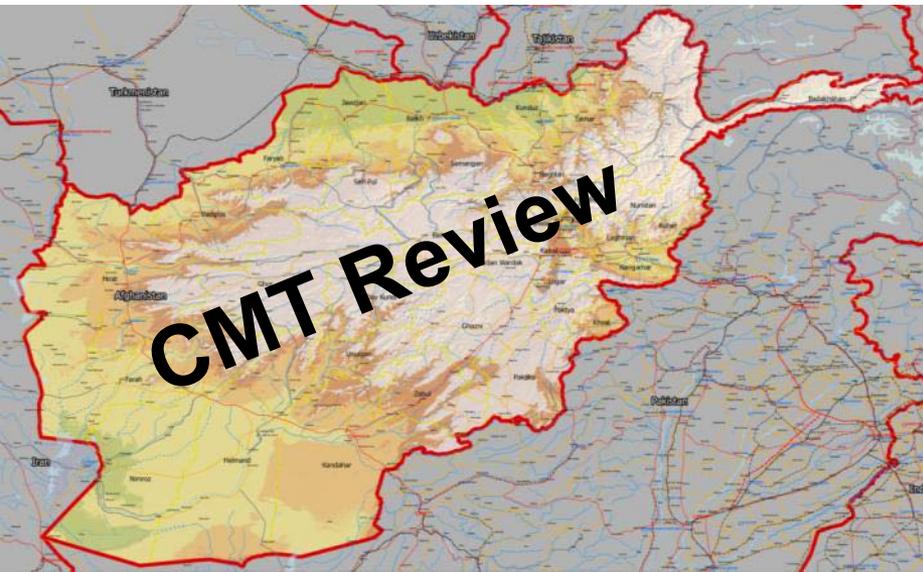
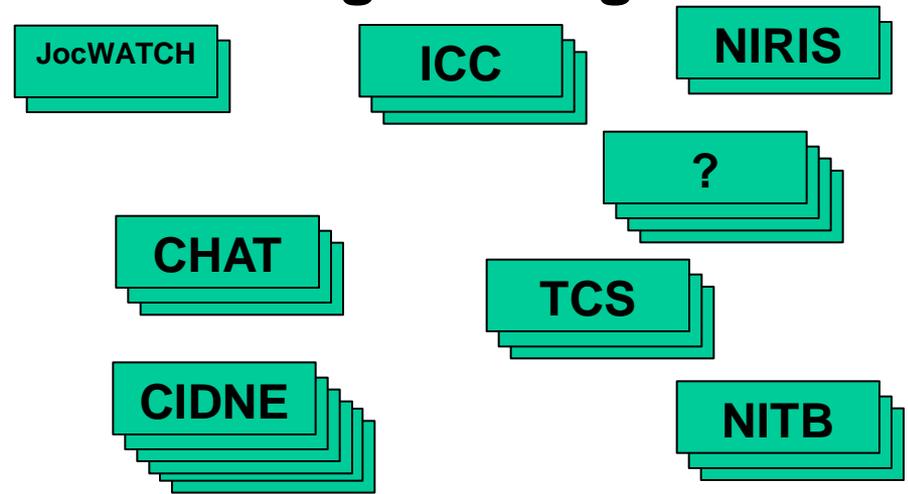
- **CAN**
- **DEU**
- **DNK**
- **FRA**
- **GBR**
- **ITA**
- **NLD**
- **NOR**
- **NATO (NC3A and NCSA)**
- **SWE**
- **USA**



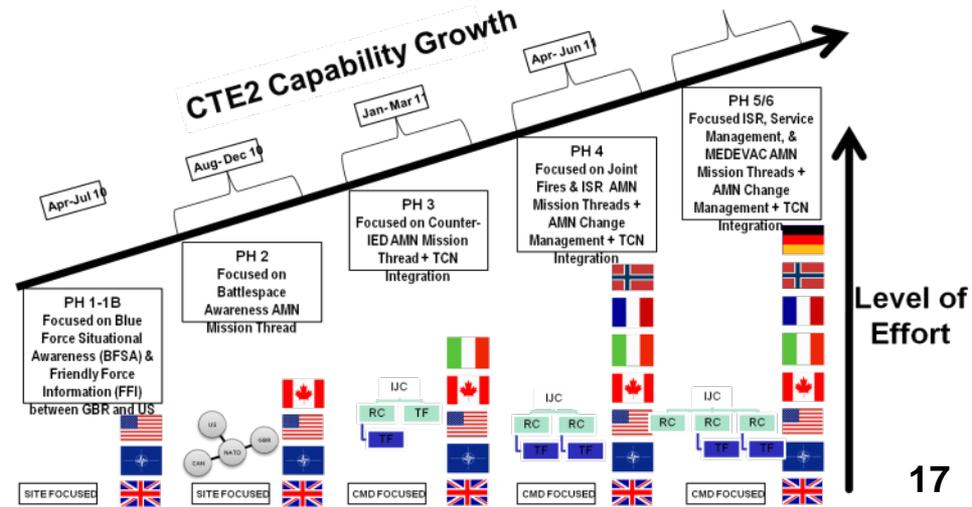
## HQ IJC 8 CMTs



## Change Management



## New Joiners





- **CIAV embedded into AMN Change Management**
  - Identified Cat 3 and all Cat 4 changes must go through CIAV
- **TCNs must follow national Change Management requirements**
- **TCNs must inform the AMN Change Manager about upcoming changes on the AMN for inclusion in the AMN Strategic Roadmap**



- **Purpose:**

- Capture and discover the RC's operational and technical requirements, business processes, and systems utilized to conduct the successful execution of coalition mission threads

- **Authority:**

- HQ IJC via FRAGO

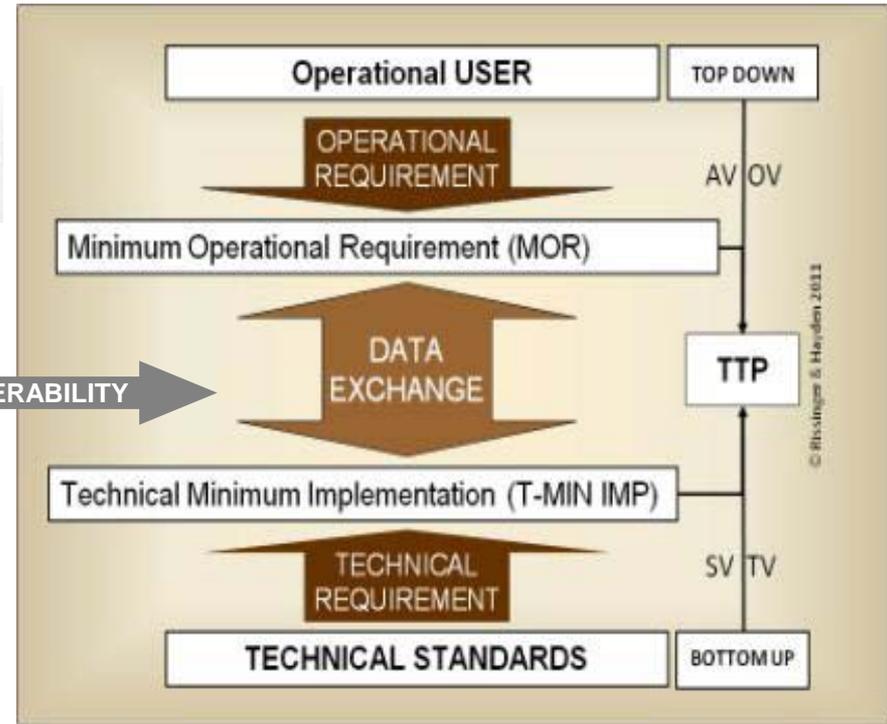
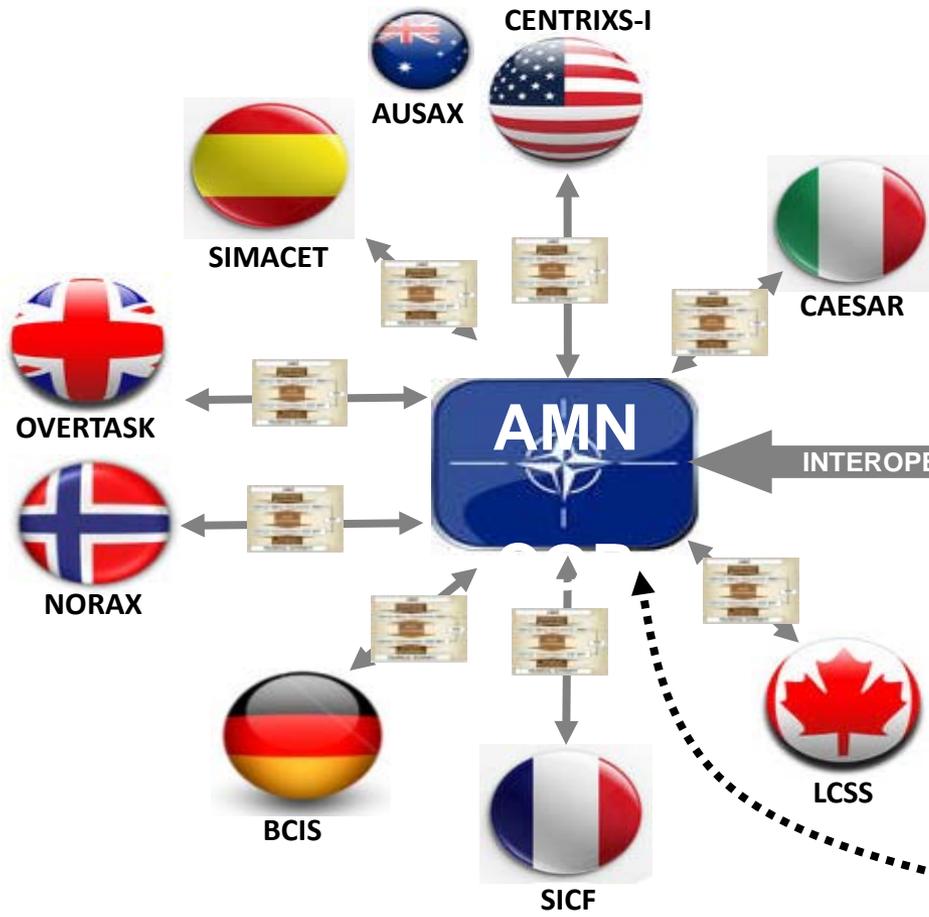
- **Outputs:**

- ✓ Recommend mission and coalition interoperability improvements across AMN
- ✓ Identify limitations (gaps) in process and technology
- ✓ Update AMN Architecture

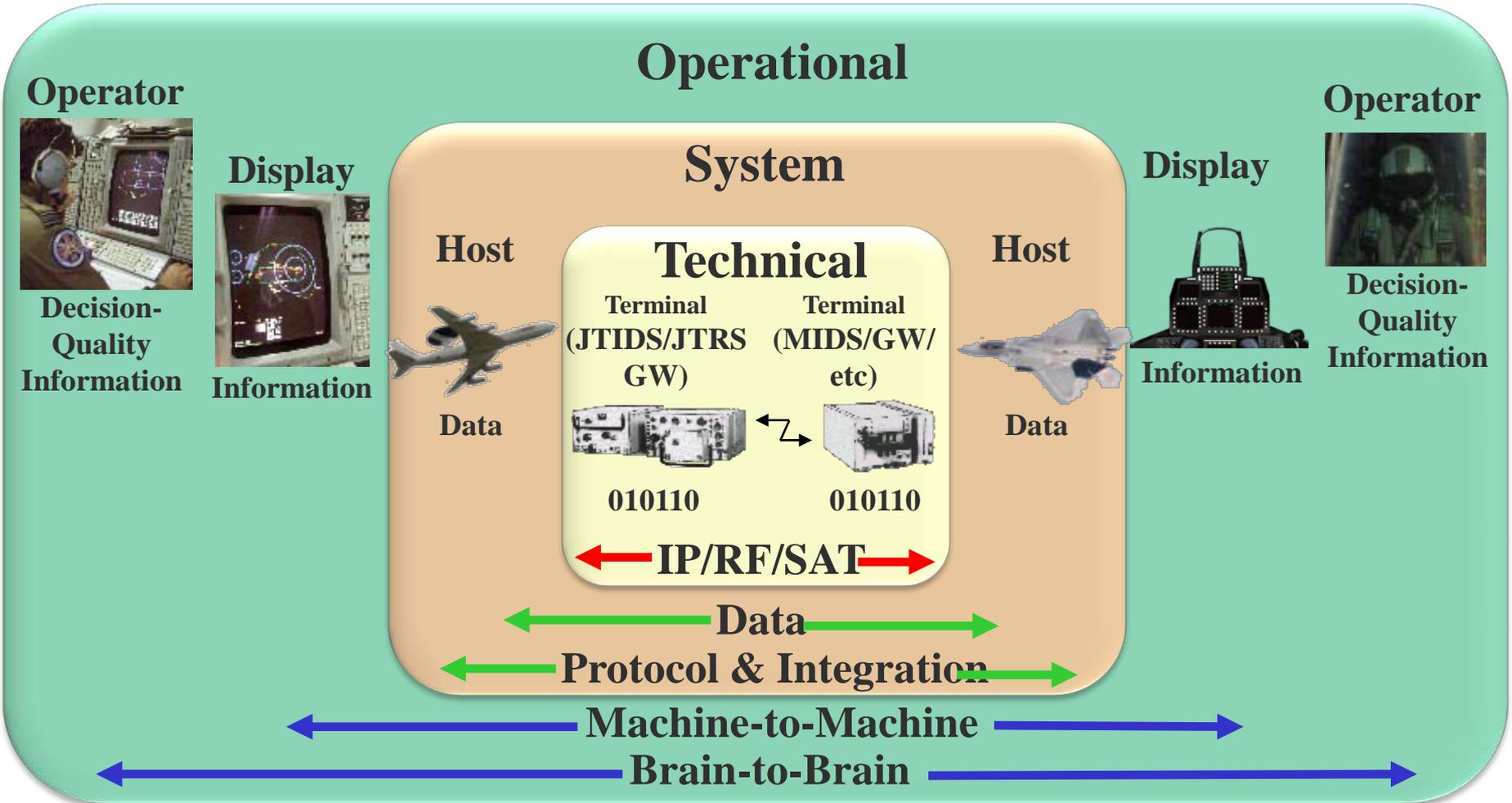


- **Develops the overall AMN architecture and modeling of the AMN mission threads in order to support multinational C5ISR planning at the enterprise level. AWG activities are focused on supporting the conduct of safe operations and enable operational agility in the Afghanistan Area of Operations. The AMN AWG supported the following objectives:**
  - **Migration to a common Coalition C5ISR network**
  - **Identify common coalition “mission threads” and ensure each has adequate information systems support**
  - **Ensure data consistency and availability across the AMN for the duration of the operation**
  - **Enable nations to bring their own tools to the fight, yet fight using common AMN data**
  - **Improve efficiency and effectiveness by reducing the number of systems and data sources**
  - **Enable the sharing of information**

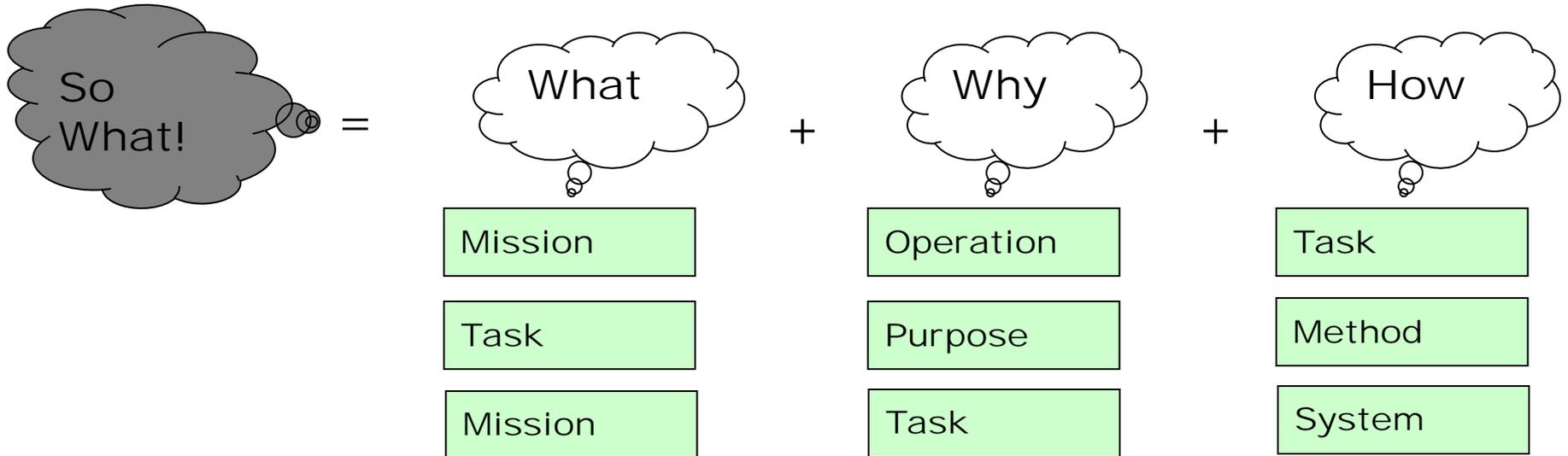
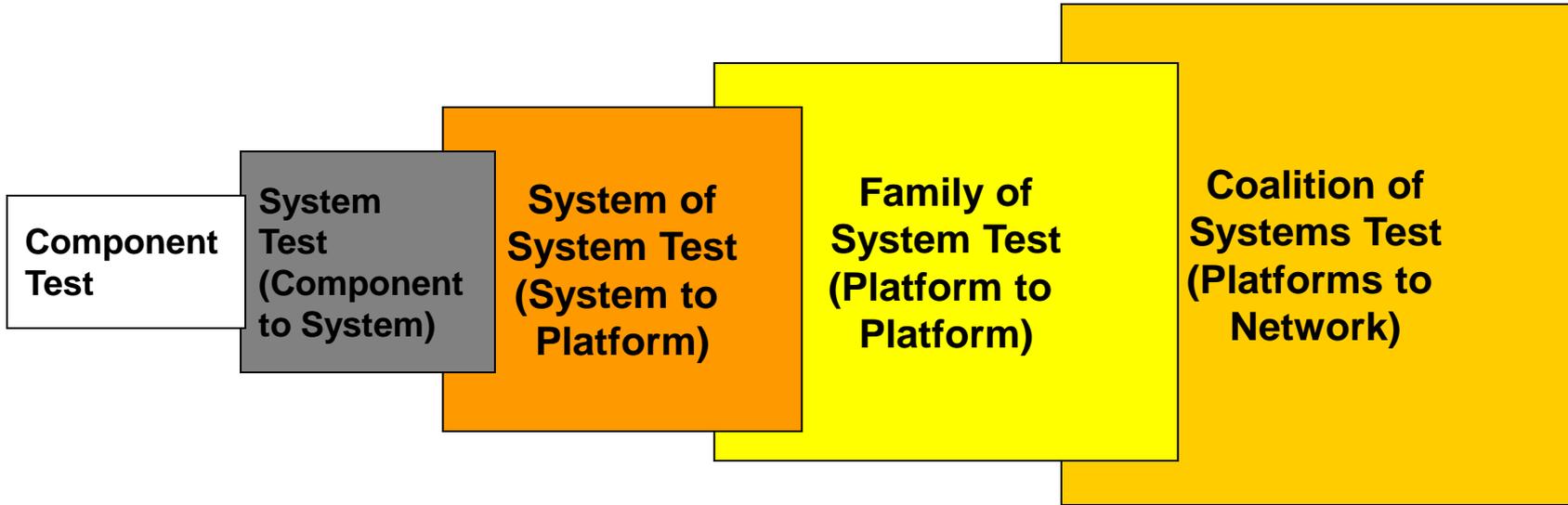
# Coalition Interoperability



# Operator-to-Operator Mission Interoperability



Legend: █ Technical IO █ Procedural IO █ Operational IO



# Methodology Applied to AMN CIAV Mission Thread Events



## Mission Measures

- Operational Measures
- Attributes: Complete/Accurate/Timely
- Desired Effects

## Task Measures

- Task Measures
- Attributes: Complete/Accurate/Timely
- Mission Execution Tasks

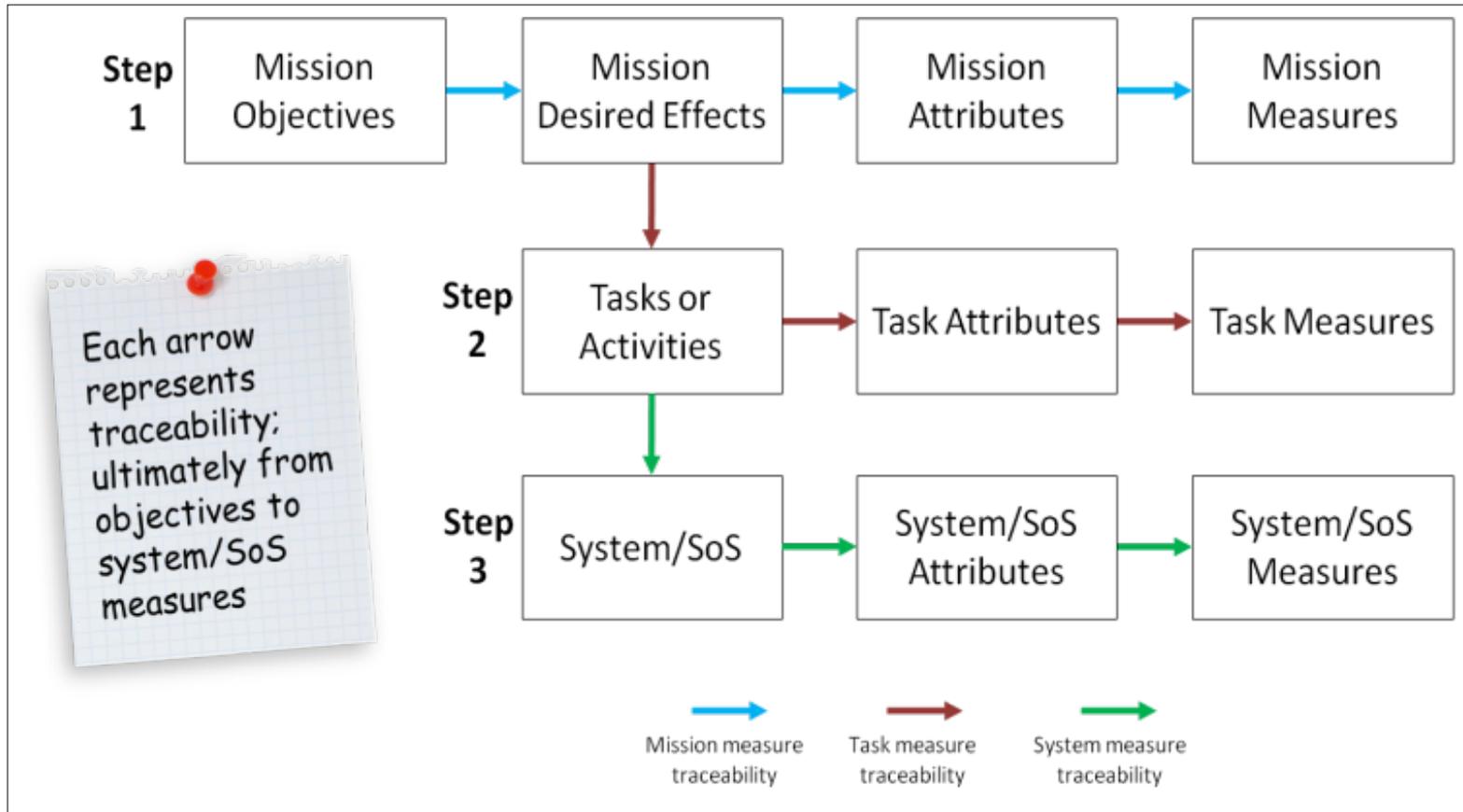
## System Measures

- System measures
- Attributes: Per TV-1 Standards Requirements Standards Conformance/Compliance
- Link-16/GCCS/OTH-Gold/PASS/NFFI

Measures across Mission, Task, System provide initial requirements for CIAV event planning and possible instrumentation pick points

# DISA CIAV Measures Development

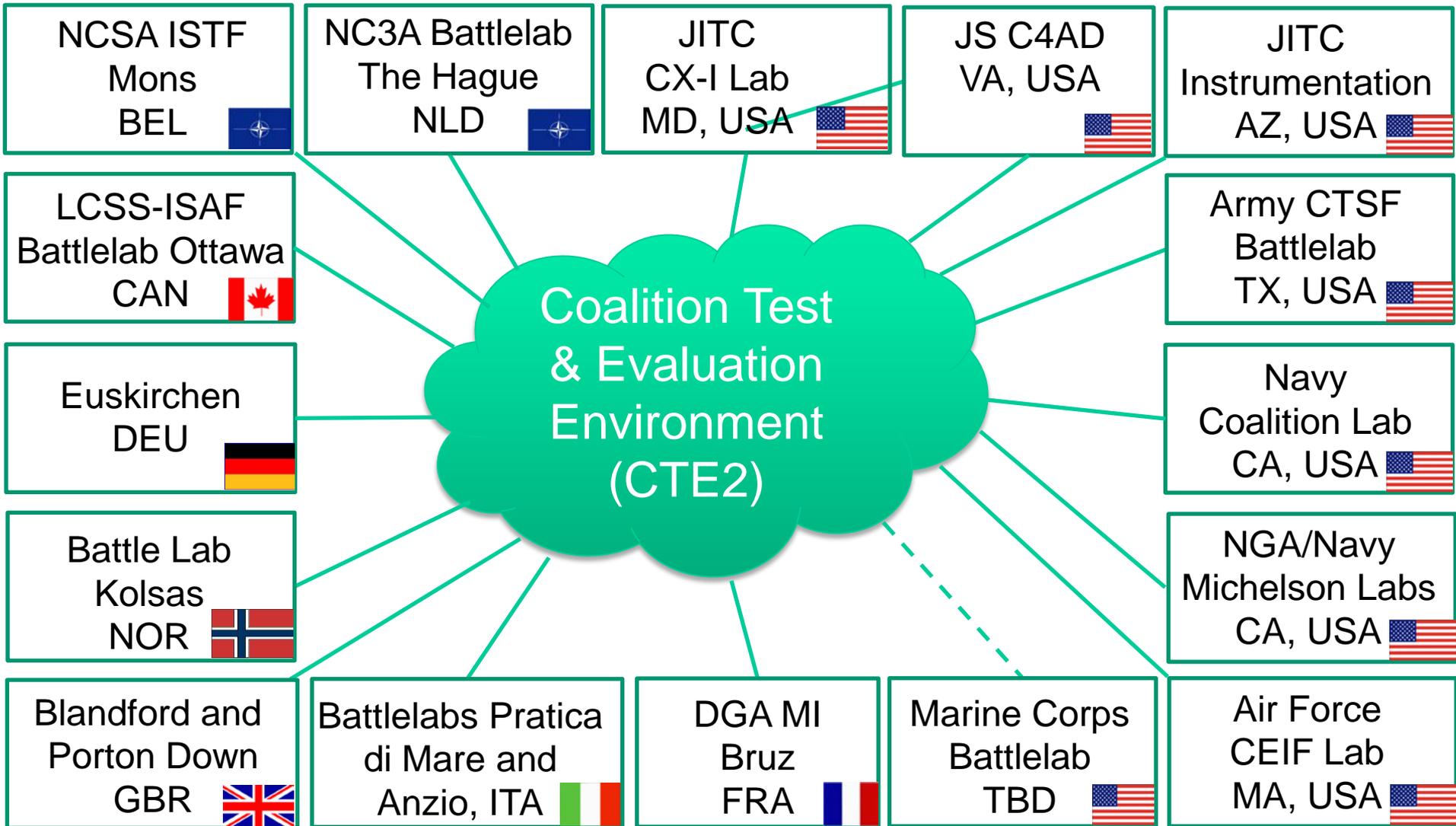
A Combat Support Agency



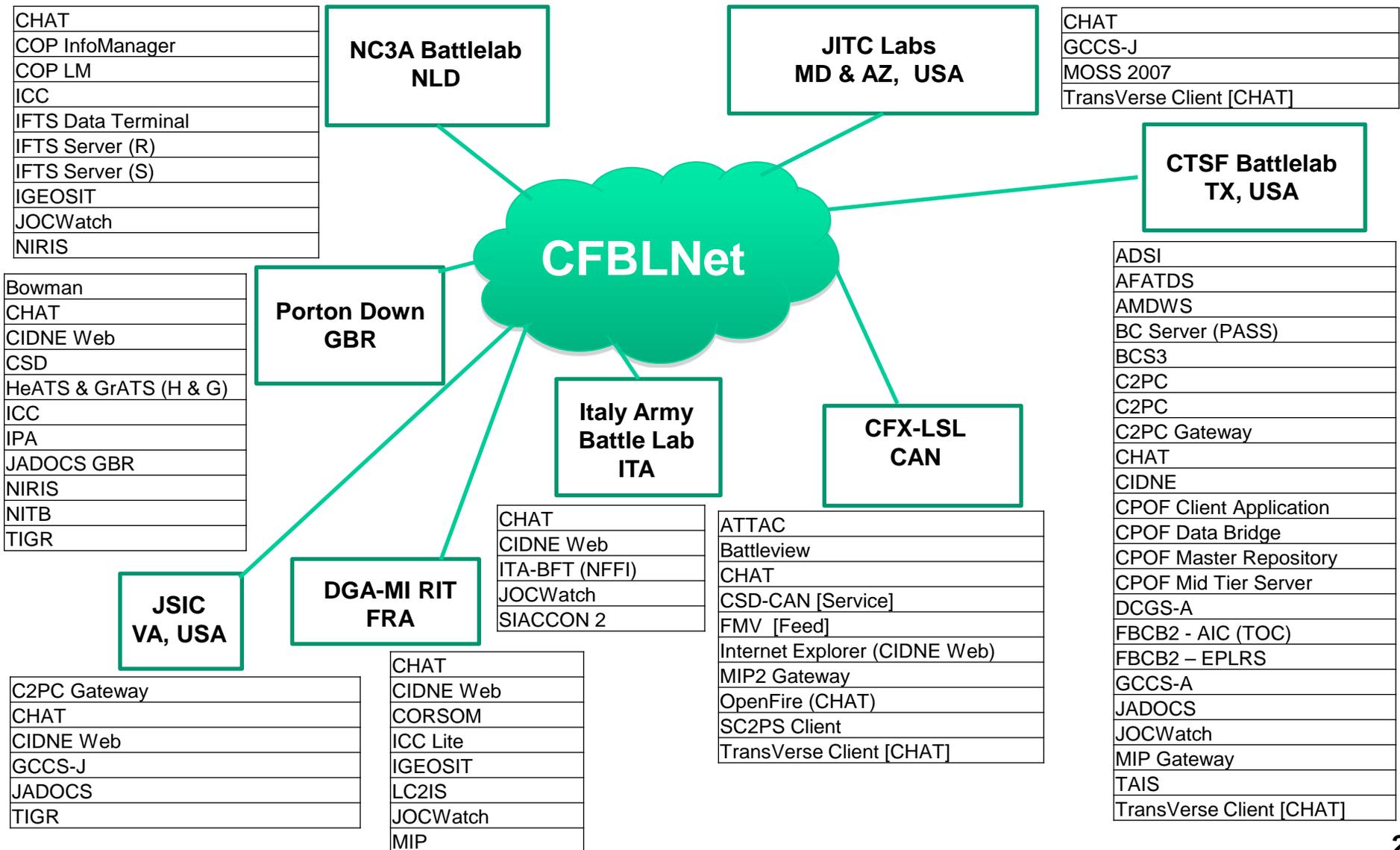
## Mission Thread Analytic Framework

3/20/2012

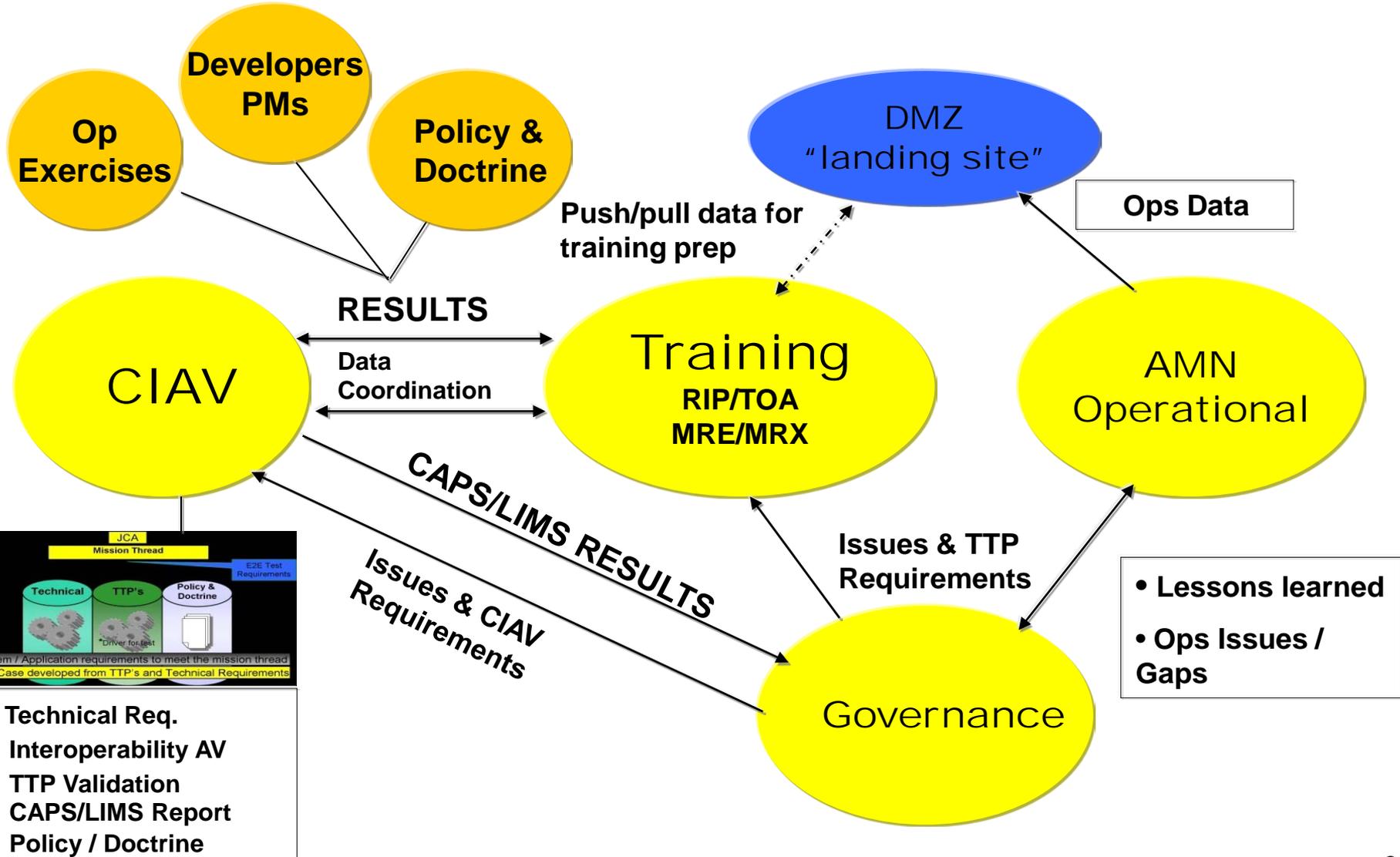
# CTE2 – Current Sites



# CTE2 CIAV Environment (Phase 3: CIED)



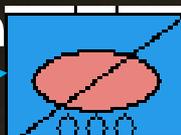
# CIAV "Big Picture"



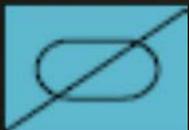
# Minimum Military Requirement – Avoid This thru Good ISAF BFSA

**COP**  
**BFT**  
**FFI**

**USMC Recon**



**GBR Recon**



**“Enable Safer Ops in ISAF” [Gen McChrystal]**





# Questions?

