

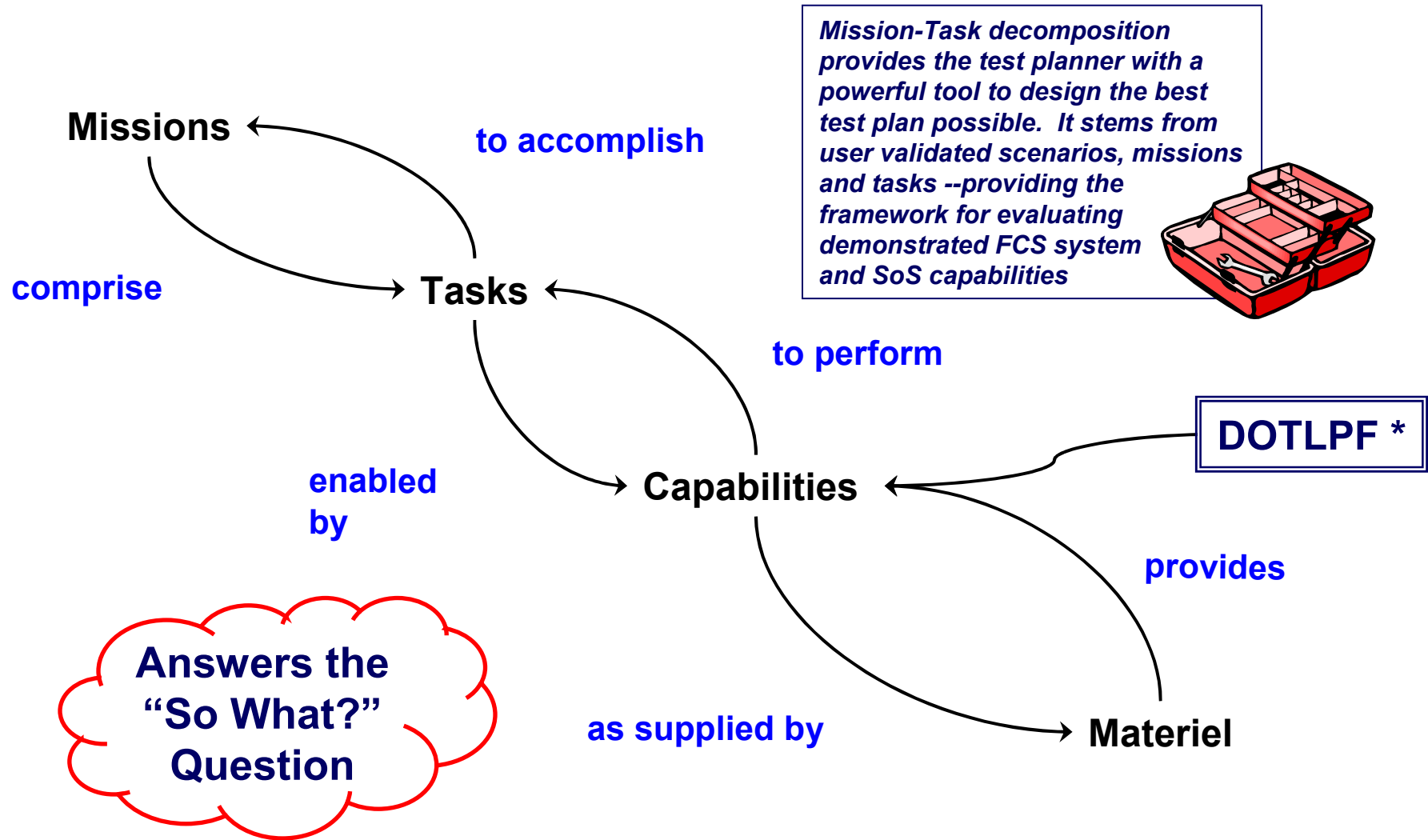
Test and Evaluation WIPT

11 December 2003

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Army Test & Evaluation Command

Mission to Capability Trace



* Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities³

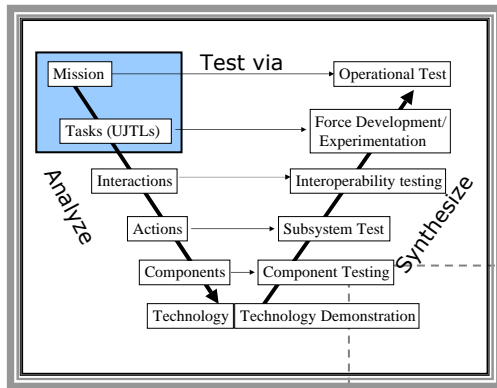
9 Step Evaluation Methodology



- 1. Mission-Task Decomposition**
- 2. Critical Task Selection**
- 3. Performance Capabilities for Critical Tasks**
- 4. Capabilities to Evaluation Focus Areas**
- 5. Capabilities to FCS Sub-Systems**
- 6. FCS Sub-System Performance**
- 7. Degraded States of FCS Sub-System Performance**
- 8. Aggregation to ESS**
- 9. Model-Test -Model**

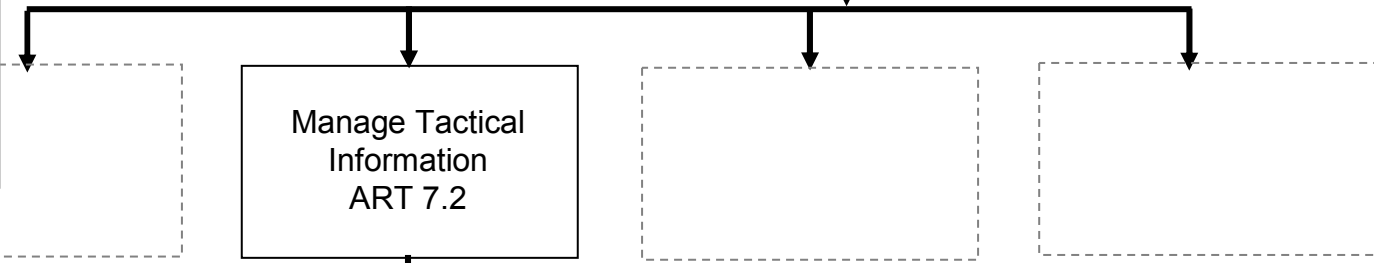
Missions ← **to accomplish**
comprise → **Tasks**

Combined Arms Battalion (CAB)
 •Phase 1-CAB2 attacks to secure Objective Camel
 •Phase 2-CAB2 ...
 •Phase 3-CAB2 ...



Phase 1

Command and Control
 Army Tactical Task
 (ART) 7.0



What does the Operational & Organizational (O&O) Plan and Operational Requirements Document (ORD) really mean with respect to enabling accomplishment of the Unit of Action Missions and how the materiel will be fought?

Step 1 & Step 2

Step 1: Mission-Task Decomposition
Step 2: Critical Task Selection

Tasks Identified For Mission Mapped To O&O Capabilities

(What must be done in a test to enable evaluation of capabilities?)

Tasks ← to perform **O&O Capabilities**

enabled by

Capabilities

TASK	AUTL Ref #	F12: Enable dissemination of tactical scheme	F15: Enable continuous situational understanding through networked force	F16: Facilitate automatic language translation	F17: Enable information exchange via adaptive, integrated communications	F18: Detect/prevent intruders/malicious software; identify points of intrusion/origin, information compromised/introduced into the network	F19: Enable Positional Navigation (POSNAV)	F20: Enable information management to fuse, monitor and disseminate information to support CC/IR, combat action, decision-making and analysis	F21: Establish an adaptive learning repository to build and manage a library of friendly and enemy DTLOMS and lessons learned	F22: Enable terrain analysis	F23: Integrate synergistic use of ISR to see the full range of operational variables
Manage Tactical Information	ART 7.2		x	x	x	/		x			x
Process Relevant Information to Create a Common Operational Picture	ART 7.2.2		x	/	/	x	/	x	x	x	/
Display a Common Operational Picture (COP) Tailored to User Needs	ART 7.2.3	/	x	x	/	/		/			
ART 7.2.4 Store Relevant Information											
Disseminate COP and Execution Information to Higher, Lower, Adjacent, Supported, and Supporting Organizations	ART 7.2.5	x	x	/	x	/		/			/
ART 7.2.6 Communicate with Non-English Speaking Forces and Agencies											

Step 3: Performance Capabilities for Critical Tasks

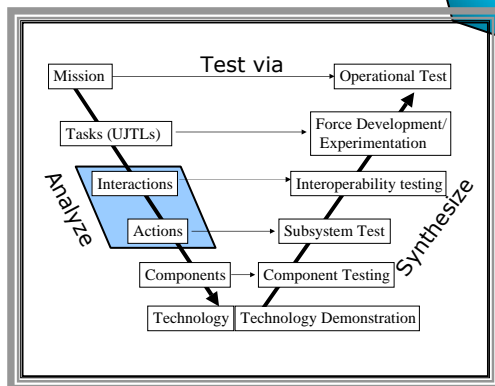
Red with an X = Direct enabler of intent of task
 Yellow with a / = Enables performing task to standard

Step 4: Functional Capabilities to Evaluation Focus Areas

Lethality
F1: Capability to destroy enemy formations via LOS, BLOS and/or NLOS
F2: Organizationally employ fire delivery
F3: Scale effects to focus precisely
F4: Employ minefields
F5: Maximize lethality of dismounted
F6: "Avenge" kill enemy systems engaging or preparing to engage friendly systems
F7: Air defense (AD) lethality

C4ISR
F8: Support mission planning/mission rehearsal
F9: enable battle command and control
F10: Enable continuous estimate of situation
F11: Enable visualization of tactical scheme
F12: Enable dissemination of tactical scheme
F13: Detect presence/identify disposition of anti-tank/personnel mines, booby traps
F14: Detect, locate other non-mine/booby trap, man-made obstacles
F15: Enable continuous situational understanding through networked force
F16: Facilitate automatic language translation
F17: Enable information exchange via adaptive integrated communications
F18: Detect/prevent intruders/malicious software; identify points of intrusion
F19: Enable POSNAV

C4ISR (cont.)
F20: Enable information management to fuse, monitor and disseminate information to support CCIR, combat action, decision-making and analysis
F21: Establish an adaptive learning repository to build and manage a library of friendly and enemy DTLOMS and lessons learned
F22: Enable terrain analysis
F23: Integrate synergistic use of ISR to see the full range of operational variables
F24: Provide combat identification to detect, locate and identify friend, for and noncombatants and systems
F25: Determine what is most dangerous
F26: Enable command and control needed to synchronize fire, maneuver and ISR
F27: Enable sensor to shooter linkage
F28: Provide improved early warning and dissemination of threats



Step 4: Functional Capabilities to Evaluation Focus Areas (cont.)



Mobility
F29: Maneuver into and out of contact
F30: Enable decisive maneuver
F31: Enable development of situation out of contact
F32: Provide for tactical mobility
F33: Counter/neutralize/clear/mark anti-tank/personnel mines, booby traps
F34: Breach disrupting/fixing obstacles
F35: Cross gaps (i.e. streams, irrigation ditches)
F52: Conduct air assault operations

Survivability
F36: Enable protective countermobility and survivability support
F37: Enhance individual soldier survivability
F38: Degrade enemy detection and terminal targeting
F39: Defeat/intercept enemy threats
F40: Enable blinding the enemy
F41: Provide area suppression capability

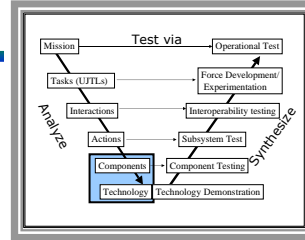
MANPRINT
F42: Facilitate improved soldier performance
F51: Provide a multi-echelon training construct

Sustainability
F43: Enable medical treatment and evacuation of wounded soldiers
F44: Enable reduction in the maneuver sustainment footprint and demand for replenishment
F45: Enable organic Unit of Action sustainment
F46: Simplified systems maintainability to reduce maintenance and replenishment burden
F47: Water generation and replenishment
F48: Provide capability to monitor, report and submit requests to facilitate anticipatory sustainment
F49: Provide a means of transporting people and materiel
F50: Dismounted forces must be self-sustaining

Step 4: Capabilities to Evaluation Focus Areas

O&O Capabilities Mapped to Materiel via ORD & PCDs

(What materiel will be assessed to evaluate capability of interest?)



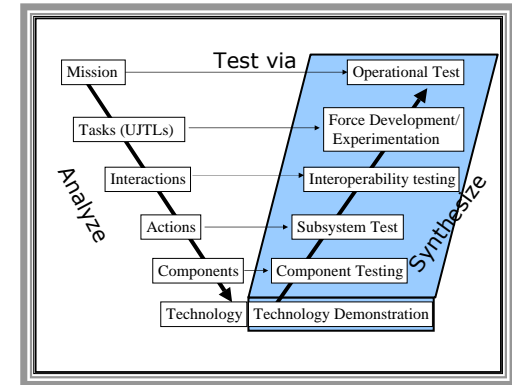
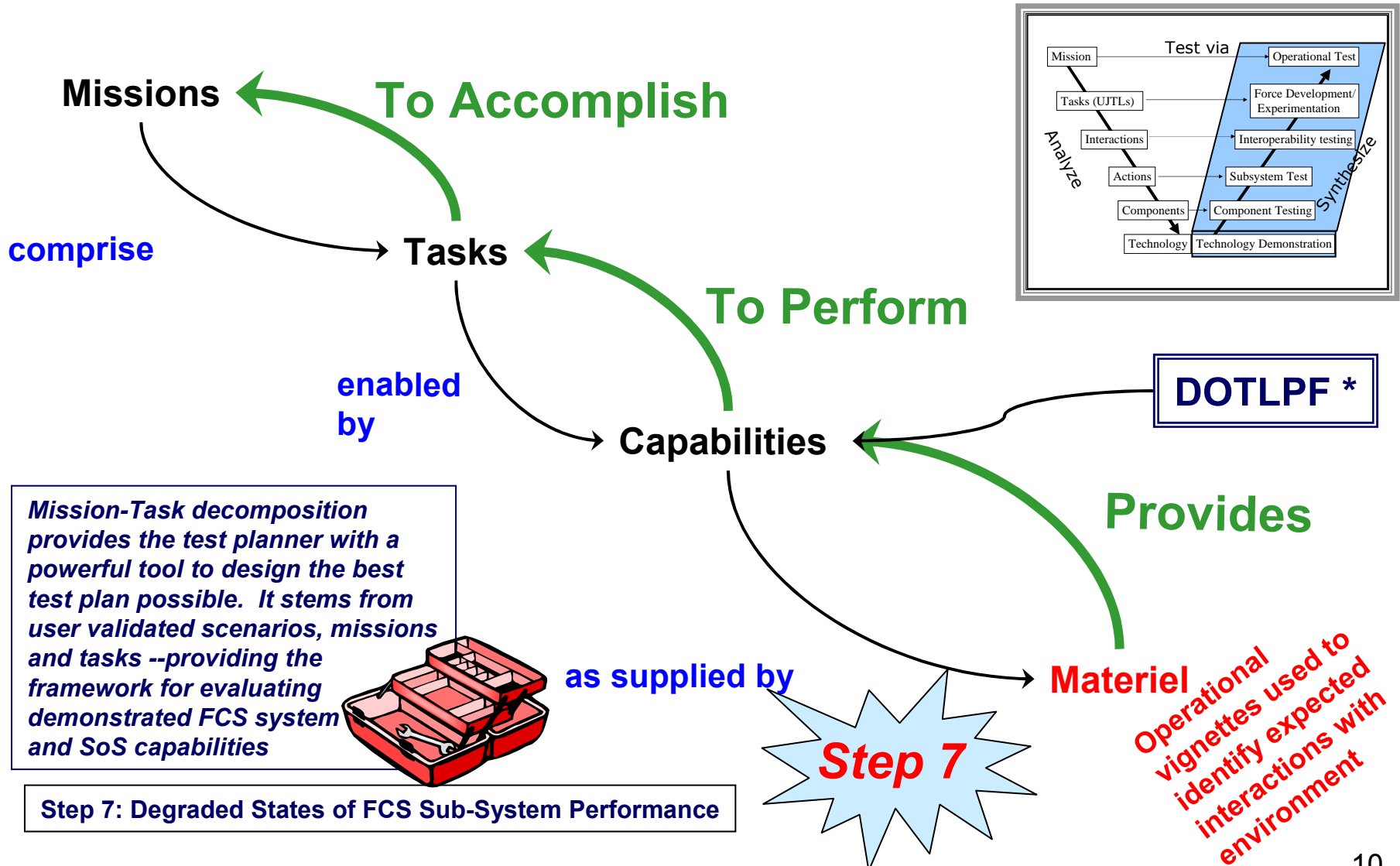
Step 5: Capabilities to FCS Sub-Systems

Capabilities ← provides Materiel
as supplied by

O&O Capability **ORD Ref. #** **SoS Spec. Citation** **Procurement Control Drawings (PCD)**

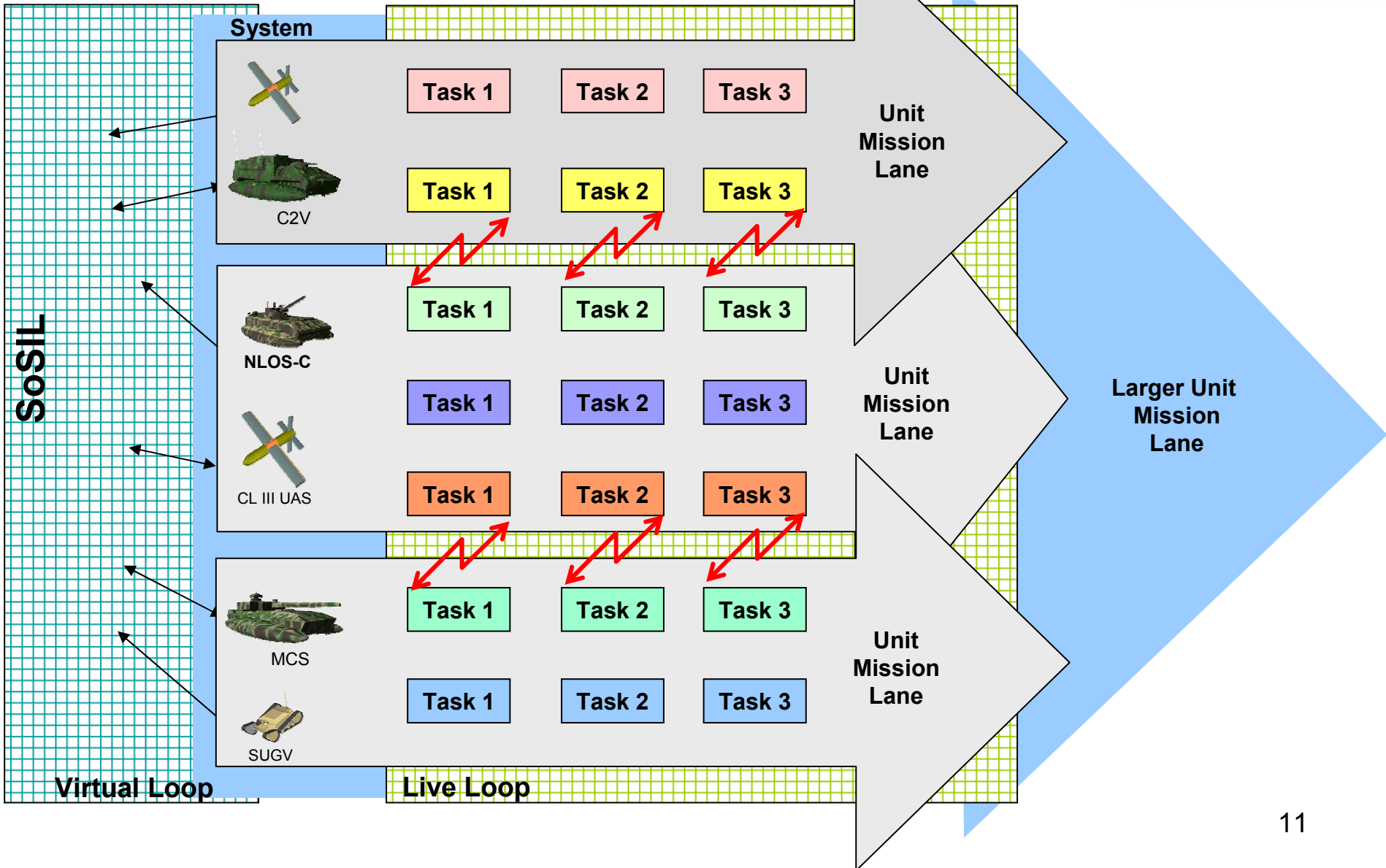
F23: Integrate synergistic use of ISR to see the full range of operational variables	3160	3.2.1.2.1.8; 3.7.23.2.1.14	786-300146, Situation Understanding (SU) SSS; 786-300151
	2392	3.2.1.2.1.3; 10.2.1.2.3.1	786-300151
F24: Provide combat identification to detect, locate, and identify friend, foe and noncombatants and systems	2850	3.2.1.2.3.4.2; 3.7.23.2.1.2.18; 3.7.23.2.1.18.1; 3.7.23.2.1.2.5; 3.2.1.2.3.4.5; 3.2.1.2.3.4.3; 3.2.1.2.3.4.1; 3.2.1.2.3.4.4	786-30022, Armed Robotic Vehicle (ARV); 786-30082, Combat ID System; 786-300146, Situation Understanding (SU) SSS; 786-300151
F25: Determine what is most dangerous	1215	3.2.1.4.4	786-300144, C2 Battle Command & Mission Execution SSS; 786-300145, C2 Planning & Preparation SSS; 786-300151
	3407	3.7.4.2.1.4.1; 3.7.4.2.1.4.2	786-30001, MCS; 786-300145, C2 Planning & Preparation SSS; 786-300146, Situation Understanding (SU) SSS
F26: Enable command and control needed to synchronize fire, maneuver and ISR	1061	3.2.1.2.3.5; 3.2.1.8.15.1.1; 3.2.1.8.15.1.2; 3.2.1.8.15.1.2.2; 3.7.23.2.1.2.8.5; 3.7.23.2.1.7.1; 3.7.23.2.1.7.2	786-300144, C2 Battle Command & Mission Execution SSS; 786-300145, C2 Planning & Preparation SSS; 786-300146, Situation Understanding (SU) SSS; 786-300149, Warfighter Machine Interface (WMI), 786-300151
F27: Enable sensor to shooter linkage	2406	3.2.1.2.3.2	786-30090, Sensor Data Management; 786-30091; 786-30092, C4ISR Level 1 Sensor Fusion; 786-300144, C2 Battle Command & Mission Execution SSS; 786-300145, C2 Planning & Preparation SSS; 786-300146, Situation Understanding (SU) SSS; 786-300151

Army Test & Evaluation Command Mission to Capability Trace

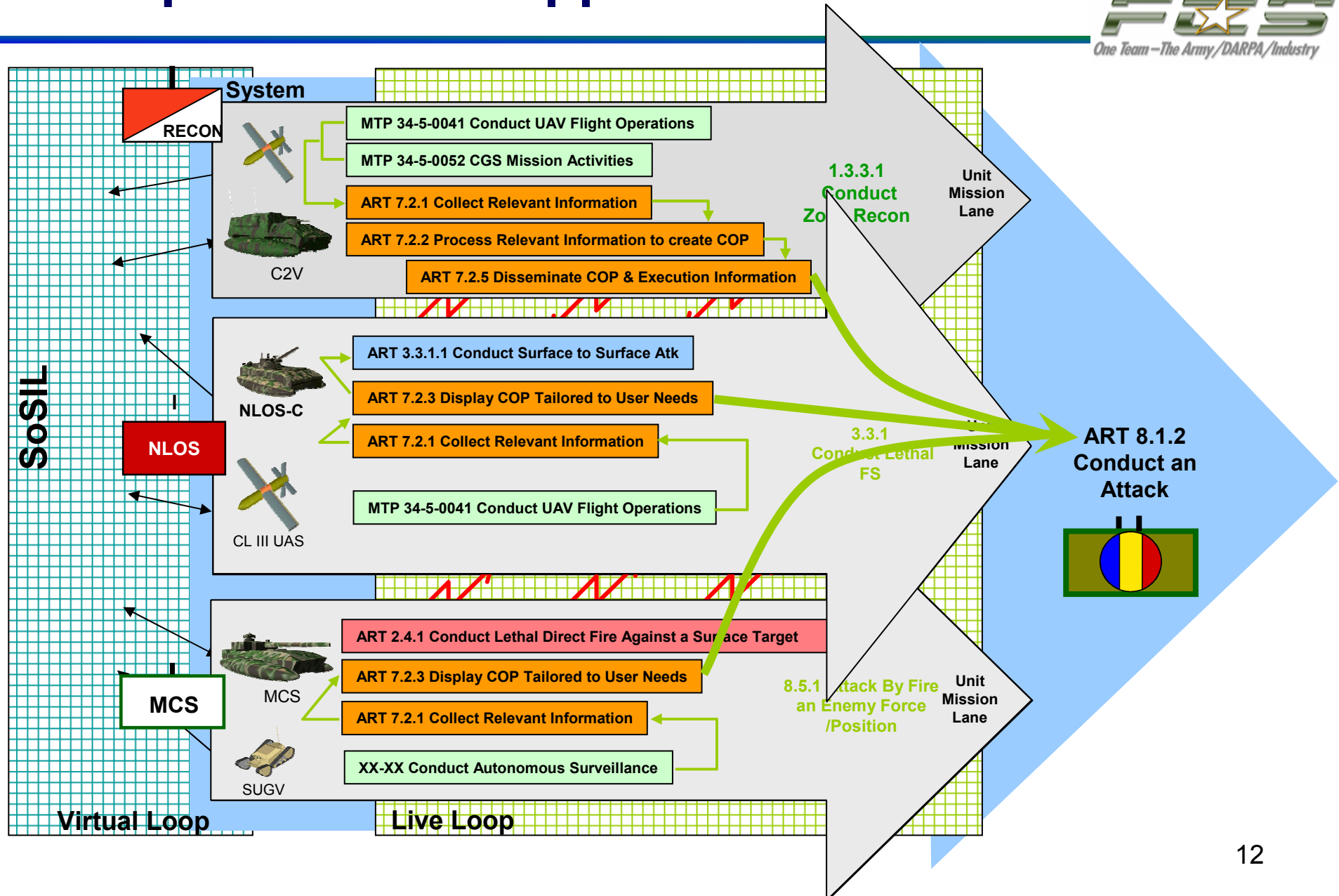


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UA Missions in OT



Sample Task Set Applied OT Model



Conclusions



- **Understanding User's Intent and Operational Concept informs Evaluator and enables construction of doctrinally valid and viable test events to assess FCS capabilities in meeting Operational Effectiveness, Suitability, Survivability**
- **Mission to Means Framework is clearly understand and promoted by the Program Manager and is being implemented**
- **Framework was demonstrated and approved by Senior Army and PEO leadership at T&E Summits III and IV**