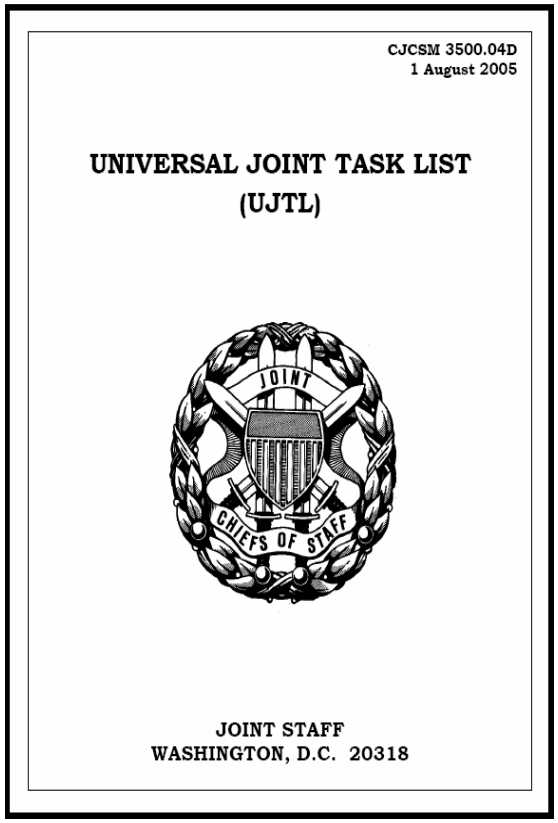
Using Mission Essential Task Lists as a Basis for Mission-Based Operational Test Planning



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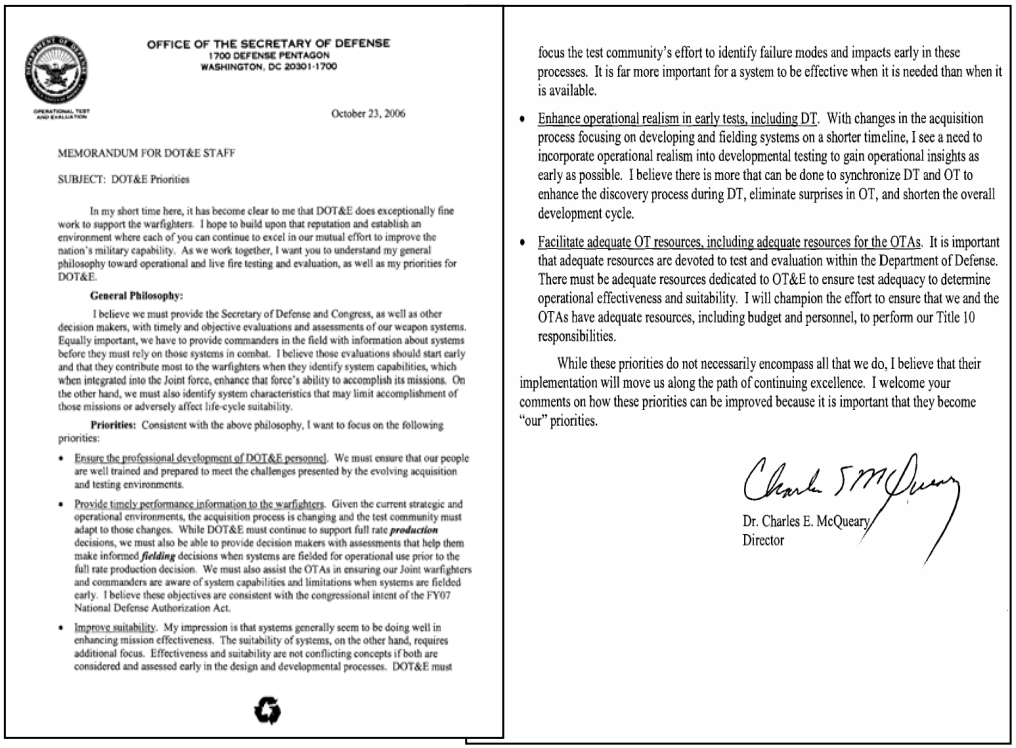
Using Mission Essential Task Lists as a Basis for Mission-Based Operational Test Planning

Outline

- Introduction/Background
- Missions, Operations, Tasks, and Task Lists
- Describing a Method
- Lessons Learned

Planning Meaningful Operational Tests

DOT&E Priorities



OFFICE OF THE SECRETARY OF DEFENSE
1700 DEFENSE PENTAGON
WASHINGTON, DC 20301-1700

October 23, 2006

MEMORANDUM FOR DOT&E STAFF

SUBJECT: DOT&E Priorities

In my short time here, it has become clear to me that DOT&E does exceptionally fine work to support the warfighters. I hope to build upon that reputation and establish an environment where each of you can continue to excel in our mutual effort to improve the nation's military capability. As we work together, I want you to understand my general philosophy toward operational and live fire testing and evaluation, as well as my priorities for DOT&E.

General Philosophy:

I believe we must provide the Secretary of Defense and Congress, as well as other decision makers, with timely and objective evaluations and assessments of our weapon systems. Equally important, we have to provide commanders in the field with information about systems before they must rely on those systems in combat. I believe those evaluations should start early and that they contribute most to the warfighters when they identify system capabilities, which when integrated into the Joint force, enhance that force's ability to accomplish its missions. On the other hand, we must also identify system characteristics that may limit accomplishment of those missions or adversely affect life-cycle suitability.

Priorities: Consistent with the above philosophy, I want to focus on the following priorities:

- Ensure the professional development of DOT&E personnel. We must ensure that our people are well trained and prepared to meet the challenges presented by the evolving acquisition and testing environments.
- Provide timely performance information to the warfighters. Given the current strategic and operational environments, the acquisition process is changing and the test community must adapt to those changes. While DOT&E must continue to support full rate ***production*** decisions, we must also be able to provide decision makers with assessments that help them make informed ***fielding*** decisions when systems are fielded for operational use prior to the full rate production decision. We must also assist the OTAs in ensuring our Joint warfighters and commanders are aware of system capabilities and limitations when systems are fielded early. I believe these objectives are consistent with the congressional intent of the FY07 National Defense Authorization Act.
- Improve suitability. My impression is that systems generally seem to be doing well in enhancing mission effectiveness. The suitability of systems, on the other hand, requires additional focus. Effectiveness and suitability are not conflicting concepts if both are considered and assessed early in the design and developmental processes. DOT&E must focus the test community's effort to identify failure modes and impacts early in these processes. It is far more important for a system to be effective when it is needed than when it is available.
- Enhance operational realism in early tests, including DT. With changes in the acquisition process focusing on developing and fielding systems on a shorter timeline, I see a need to incorporate operational realism into developmental testing to gain operational insights as early as possible. I believe there is more that can be done to synchronize DT and OT to enhance the discovery process during DT, eliminate surprises in OT, and shorten the overall development cycle.
- Facilitate adequate OT resources, including adequate resources for the OTAs. It is important that adequate resources are devoted to test and evaluation within the Department of Defense. There must be adequate resources dedicated to OT&E to ensure test adequacy to determine operational effectiveness and suitability. I will champion the effort to ensure that we and the OTAs have adequate resources, including budget and personnel, to perform our Title 10 responsibilities.

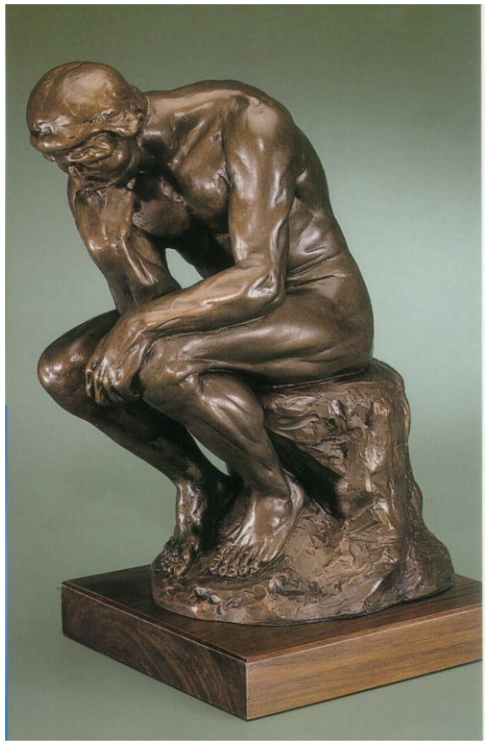
While these priorities do not necessarily encompass all that we do, I believe that their implementation will move us along the path of continuing excellence. I welcome your comments on how these priorities can be improved because it is important that they become "our" priorities.

Dr. Charles E. McQueary
Director

- Provide timely performance information to the warfighters
- **Improve suitability**
- **Enhance operational realism in early test, including DT**
- Facilitate adequate OT resources, including adequate resources for the OTAs

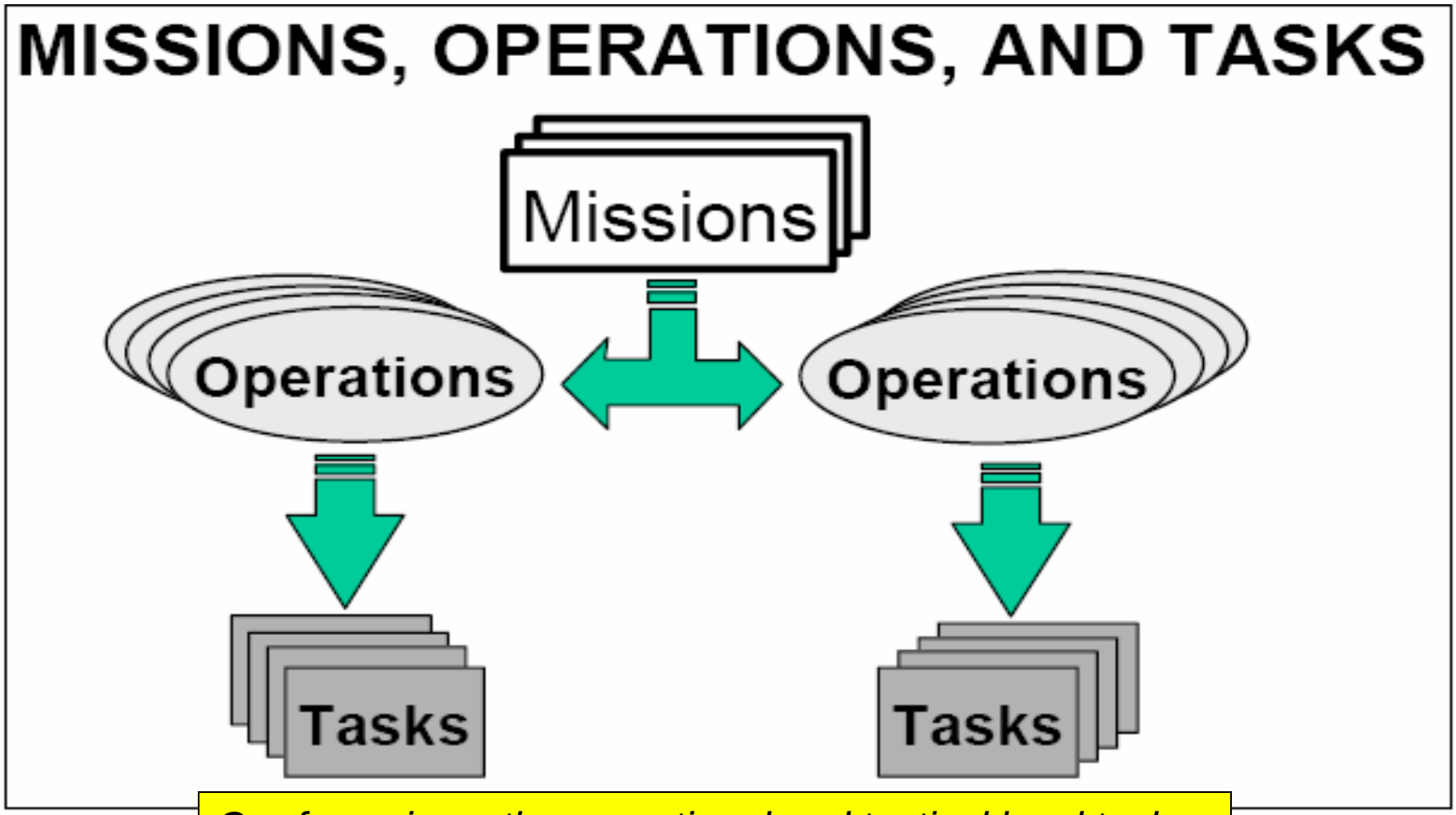
Leadership recognizes the real need for operational realism in early testing

So then, how do you inject realism into operational test planning?



We believe one good option is to go to the source - UJTLs

Relationship of Missions, Operations and Tasks



Our focus is on the operational and tactical level tasks

Extracted from CJCSM 3500.04D

Other Important Terms

- **Mission Task**
- ***Mission Essential Task (MET)***
- **Conditions**
- **Standards or MOEs**
- ***Supporting & Enabling Tasks***
- ***TYPES OF TASK LISTS***
- ***Mission Essential Task Lists (METL)***
- ***Joint Mission Essential Task List (JMETL)***

USES of UJTLs & AMETLs.

The Joint and Service task lists (both UJTLs and AMETLs) may be used to support education and training, test and evaluation, operational planning, and readiness assessment.

Air Force Task List

PROVIDE AIR AND SPACE SUPERIORITY AFT 1

Provide Counterair Capabilities	Provide Counterspace Capabilities
AFT 1.1	AFT 1.2

PROVIDE PRECISION ENGAGEMENT AFT 2

Provide Lethal Precision Engagement Capabilities	Provide Nonlethal Precision Engagement Capabilities	Provide CSAR Capabilities
AFT 2.1	AFT 2.2	AFT 2.3

PROVIDE INFORMATION SUPERIORITY AFT 3

Provide Information Operations Capabilities
AFT 3.1

PROVIDE GLOBAL ATTACK AFT 4

Provide Strategic Attack Capabilities	Provide Counterland Capabilities	Provide Countersea Capabilities	Provide Special Operations Forces Employment Capabilities
AFT 4.1	AFT 4.2	AFT 4.3	AFT 4.4

PROVIDE RAPID GLOBAL MOBILITY AFT 5

Provide Airlift Capabilities	Provide Air Refueling Capabilities	Provide Spacelift Capabilities	Provide Air Expeditionary Force (AEF) Capabilities
AFT 5.1	AFT 5.2	AFT 5.3	AFT 5.4

PROVIDE AGILE COMBAT SUPPORT AFT 6

Provide the Capability to Ready the Force	Provide the Capability to Protect the Force	Provide the Capability to Prepare the Operational Environment	Provide the Capability to Position the Force	Provide the Capability to Employ the Force	Provide the Capability to Sustain the Force	Provide the Capability to Recover the Force
AFT 6.1	AFT 6.2	AFT 6.3	AFT 6.4	AFT 6.5	AFT 6.6	AFT 6.7

PROVIDE COMMAND AND CONTROL AFT 7

Monitor Global Conditions and Events	Assess Global Conditions and Events	Plan Military Operations	Execute Military Operations
AFT 7.1	AFT 7.2	AFT 7.3	AFT 7.4

Extracted from AFDD 1-1

AFTL Tasks in Relationship to UJTL "Tactical Level of War" Tasks

	TA1 Deploy/ Conduct Maneuver	TA2 Develop Intelligence	TA3 Employ Firepower	TA4 Perform Logistics & Combat Service Support	TA5 Exercise Command & Control	TA6 Protect the Force
Air & Space Superiority	X	X	X			X
Precision Engagement	X	X	X	X	X	X
Information Superiority	X	X	X	X	X	X
Global Attack	X		X			X
Rapid Global Mobility	X	X	X	X		X
Agile Combat Support	X	X	X	X	X	X
Command & Control	X	X	X	X	X	X

Extracted from AFDD 1-1

Army Universal Task List

ART 1.0 Intelligence

ART 1.1	ART 1.2	ART 1.3	ART 1.4
Provide Support to Situational Understanding	Support Strategic Responsiveness	Conduct ISR	Provide Intelligence Support to Effects

ART 2.0 Maneuver

ART 2.1	ART 2.2	ART 2.3	ART 2.4
Perform tactical Actions Associated With Force Projection and Deployment	Conduct Tactical Maneuver	Conduct Tactical Troop Movements	Conduct Direct Fires

ART 2.5	ART 2.6
Occupy an Area	Employ SERE Techniques

ART 3.0 Fire Support

ART 3.1	ART 3.2	ART 3.3
Decide Surface Targets to Attack	Detect and Locate Surface Targets	Employ Fires to Influence the Will and Destroy, Neutralize or Suppress Enemy Forces

ART 4.0 Air Defense

ART 4.1	ART 4.2	ART 4.3	ART 4.4
Prepare to Defend Against Air Attack and Aerial Surveillance	Process Tactical Aerial Platforms	Destroy Aerial Platforms	Deny the Enemy Use of Airspace

ART 5.0 Mobility/Countermobility/Survivability

ART 5.1	ART 5.2	ART 5.3
Conduct Mobility Operations	Conduct Countermobility Operations	Conduct Survivability Operations

ART 7.0 Command and Control

ART 7.1	ART 7.2	ART 7.3	ART 7.4	ART 7.5	ART 7.6
Establish Command Post Operations	Manage Tactical Information	Assess the Tactical Situation and Operations	Plan tactical Operations Using the MDMP/TLP	Prepare for Tactical Operations	Execute Tactical Operations

ART 7.7	ART 7.8	ART 7.9	ART 7.10
Support the Commander's Leadership Responsibilities for Morale, Welfare, and Discipline	Conduct Continuous Operations	Develop and Implement a Command Safety Program	Conduct Public Affairs Operations

ART 6.0 Combat Service Support

ART 6.1	ART 6.2	ART 6.3	ART 6.4	ART 6.5
Provide Supplies	Provide Maintenance	Provide Transportation Support	Provide Sustainment Support	Provide Force Health Protection in Global Environment

ART 6.6	ART 6.7	ART 6.8	ART 6.9	ART 6.10
Provide Human Resource Support	Provide Finance & Resource Management Services	Provide Religious Support	Provide Legal Support	Provide General Engineer Support

ART 6.11	ART 6.12	ART 6.13	ART 6.14
Provide Contracting Support	Provide Distribution Management	Conduct Internment and Resettlement Activities	Conduct Civil-Military Operations

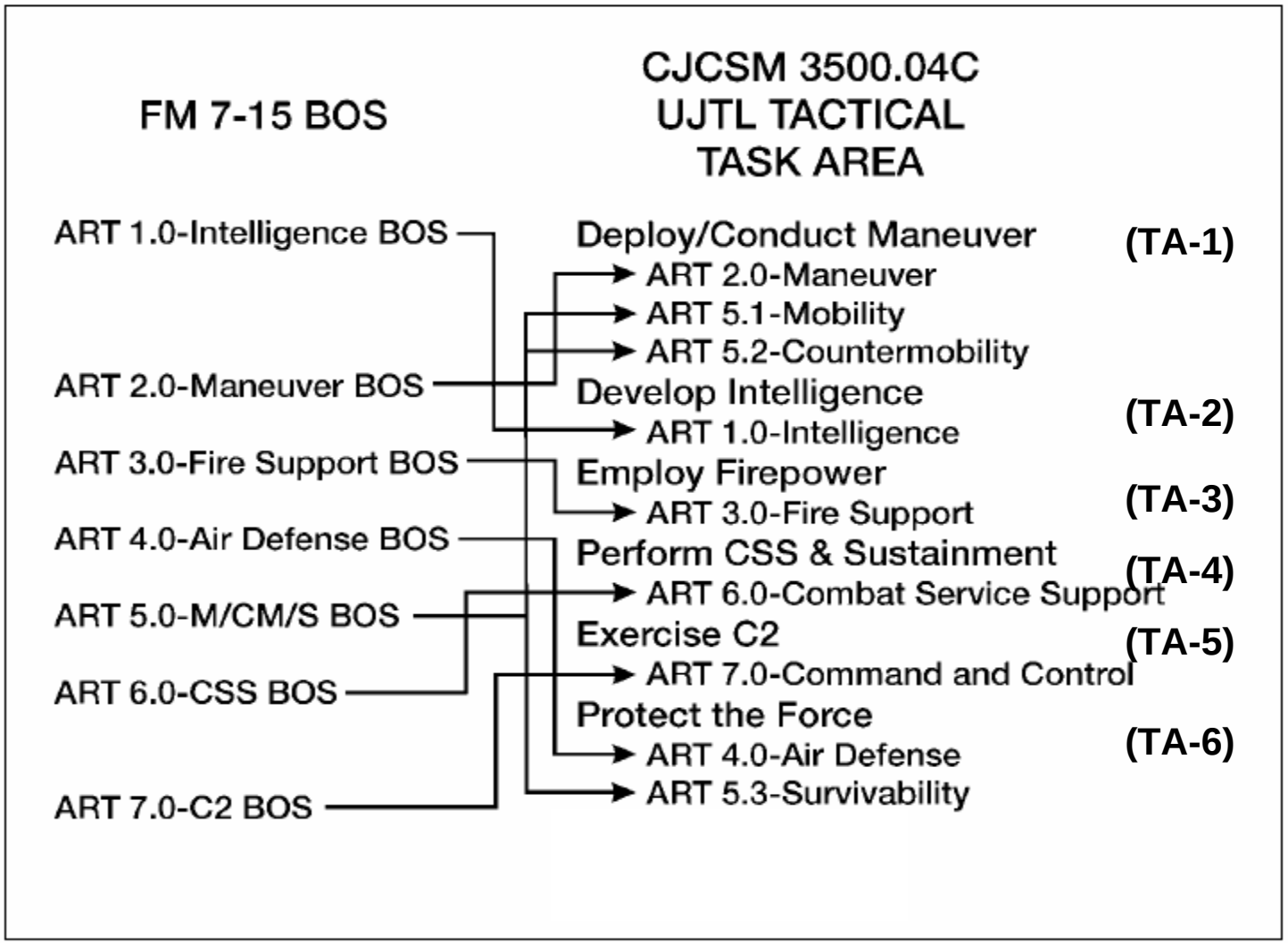
ART 8.0 Conduct Tactical Mission Tasks and Operations

ART 8.1	ART 8.2	ART 8.3	ART 8.4	ART 8.5
Conduct Offensive Operations	Conduct Defensive Operations	Conduct Stability Operations	Conduct Support Operations	Conduct Tactical Mission Tasks

Note: ARTs 1-7 constitute the Battlefield Operating System

Generated from FM 7-15

Army Tasks in Relation to UJTL "Tactical Level of War" Tasks



Extracted from FM 7-15

Universal Naval Task List

NTA 1
Deploy/Conduct Maneuver

- NTA 1.1 Move Naval Tactical Forces
- NTA 1.2 Navigate and Close Forces
- NTA 1.3 Maintain Mobility
- NTA 1.4 Conduct Countermobility
- NTA 1.5 Dominate the Operational Area

NTA 2
Develop Intelligence

- NTA 2.1 Plan and Direct Intelligence Operations
- NTA 2.2 Perform Collection Operations and Management
- NTA 2.3 Process and Exploit Collected Information and Intelligence
- NTA 2.4 Conduct Analysis and Produce Intelligence
- NTA 2.5 Disseminate and Integrate Intelligence
- NTA 2.6 Evaluate Intelligence Operations

NTA 3
Employ Firepower

- NTA 3.1 Process Targets
- NTA 3.2 Attack Targets
- NTA 3.3 Conduct Special Weapons Attack

NTA 4
Perform Logistics and Combat Service Support

- NTA 4.1 Arm
- NTA 4.2 Fuel
- NTA 4.3 Repair/Maintain Equipment
- NTA 4.4 Provide Personnel and Personnel Support
- NTA 4.5 Provide Transport Services
- NTA 4.6 Supply the Force
- NTA 4.7 Perform Civil Military Engineering Support
- NTA 4.8 Conduct Civil Affairs in Area
- NTA 4.9 Train Forces and Personnel
- NTA 4.10 Perform Resource Management
- NTA 4.11 Provide Operational Legal Advice
- NTA 4.12 Provide Health Services
- NTA 4.13 Conduct Recovery and Salvage
- NTA 4.14 Provide Support Services

Naval Tactical Tasks Mimic the UJTL "Tactical Level of War" Tasks

NTA 5
Exercise Command and Control

- NTA 5.1 Acquire, Process and Communicate Information and Maintain Status
- NTA 5.2 Analyze and Assess Situation
- NTA 5.3 Determine and Plan Actions and Operations
- NTA 5.4 Direct, Lead and Coordinate Forces
- NTA 5.5 Conduct Information Warfare (IW)
- NTA 5.6 Conduct Acoustic Warfare
- NTA 5.7 Establish a Task Force Headquarters
- NTA 5.8 Provide Public Affairs Services

NTA 6
Protect the Force

- NTA 6.1 Enhance Survivability
- NTA 6.2 Rescue and Recover
- NTA 6.3 Provide Security for Operational Forces and Means
- NTA 6.5 Perform Consequences Management
- NTA 6.6 Provide for Operational Safety of Personnel and Equipment

Generated from OPNAVINST 3500.38B

Why Use UJTL/AMETLs for Operational Test Planning

- "UJTL linkage to capability development processes enhances the identification of joint requirements, capability shortfalls and deficiencies." (Extracted from CJCSM 3500.04D)
- Service task lists capture service doctrine and therefore is an excellent representation of required mission capability.
- Service task lists provide a concise picture of the major activities of a force (provide increased detail on what the force must do to accomplish its mission).
- Service task lists provide all the collective tasks possible for tactical units.

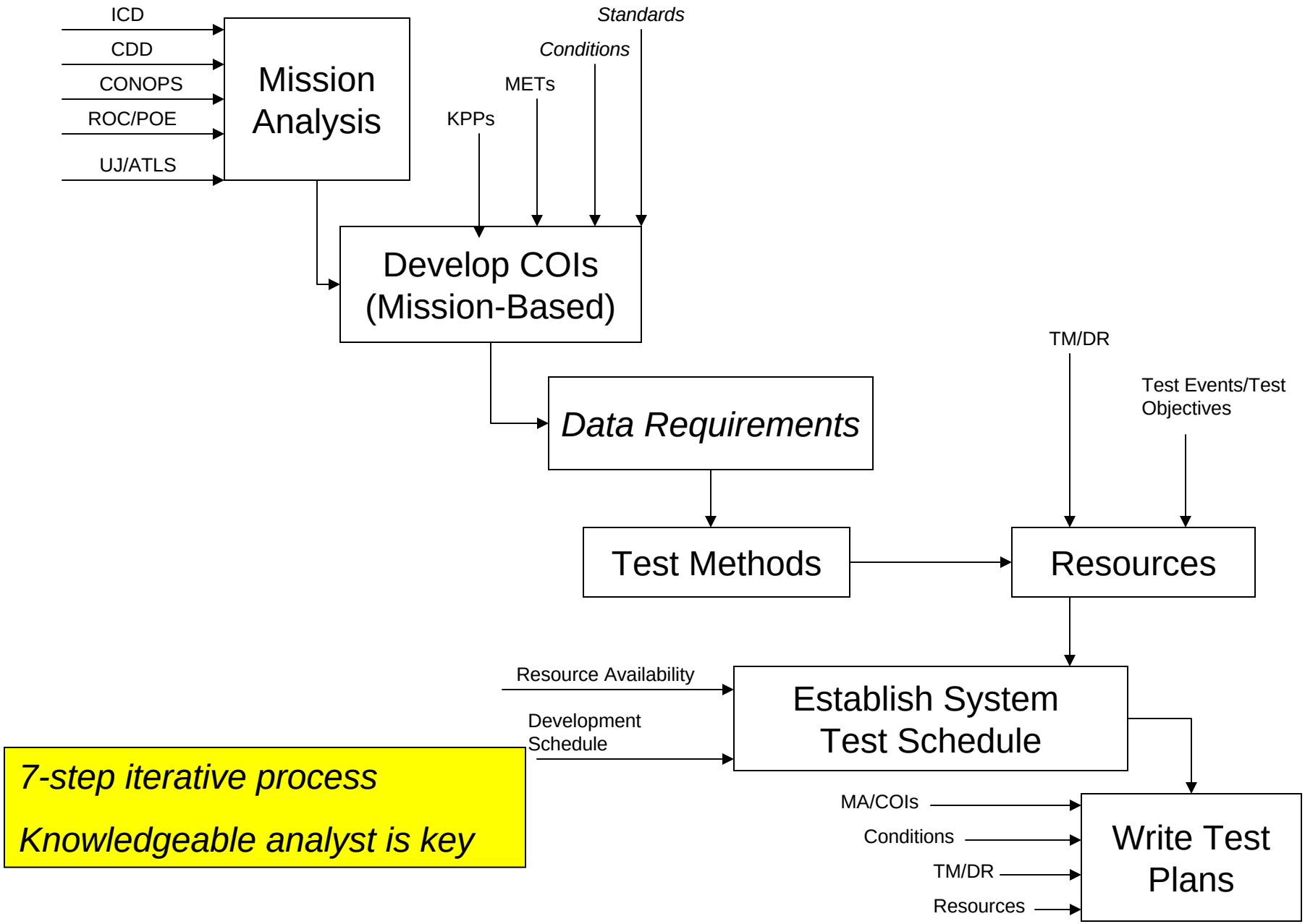
Task lists provide a basis for mission analysis, which identifies those "essential" tasks necessary for mission success.

So What?

- Using mission requirements to assess the capability new systems will provide is a logical “next step”.
- The ability to define capabilities-based requirements early in the acquisition process and to make better use of combined/integrated testing facilitates program manager’s delivery of effective and suitable systems to the warfighter with greater potential for reduced schedule and total ownership cost
- Defining the capabilities-based requirements early on in a program also facilitates early test resource determination (i.e. facilities, test equipment, test objectives, data requirements, etc.) and more accurate cost projection

This methodology capitalizes on the overarching direction already in place within the DoD 5000 and service acquisition regulations.

Mission-Based System Operational Test Planning Process



Lessons Learned

- Using the Universal Joint Task List/Service Task Lists to support mission analysis has proven useful in deriving mission essential tasks from which to develop mission-based COIs.
- This methodology can be applied to any developmental system in any service.
- This methodology can be used regardless of whether or not combined/integrated testing is used
- This methodology would also prove useful for the developmental test community.
- Use of a database to manage data generated during this process is key to success.
- An experienced analyst is worth his weight in gold.
- DoD policy guidance enhancement is required to fully optimize this methodology for integrated testing.

Using Mission Essential Task Lists as a Basis for Mission-Based Operational Test Planning

Questions?

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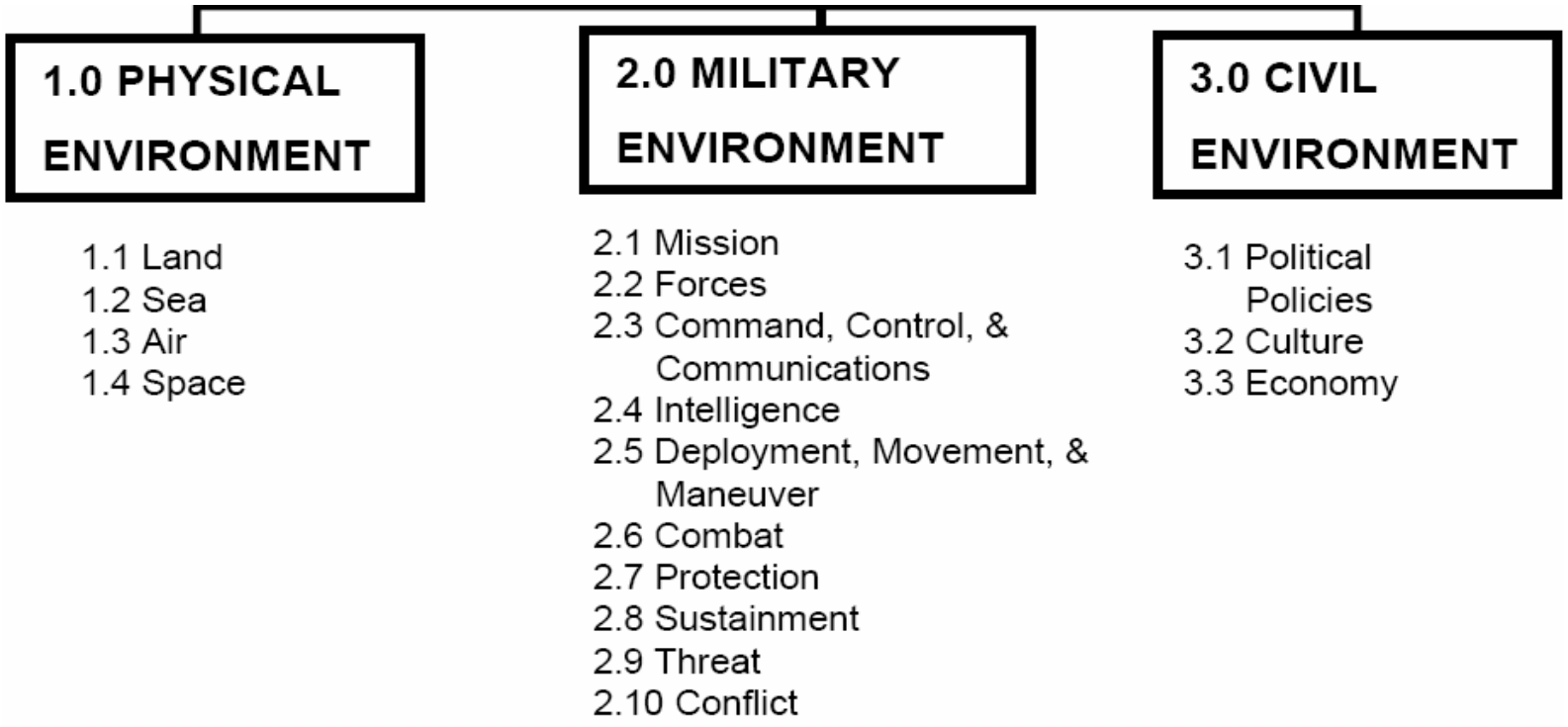
Back-up Slides

Talent and genius operate outside the rules, and theory conflicts with practice.

Major General Carl von Clausewitz
On War

Organization of Conditions for Joint/Agency Tasks



Match tasks to conditions

(These categories as the basis for defining service-specific conditions)

Extracted from CJCSM 3500.04D

What is JCIDS

Ensures the joint force has the capabilities to perform across the range of military operations

Is a primary interface to the DoD acquisition system

Implements an integrated process to guide new capabilities development

A key linkage on how the future joint force will fight

Provides the analytic baselines to support studies to inform capability development

Leverages expertise to identify improvements to existing capabilities and to develop new warfighting capabilities

JCIDS ***along with the*** *Defense Acquisition System and the Planning, Programming, Budgeting and Execution processes form the principal DOD decision support processes for transforming the military forces to support the national military strategy and the defense strategy*

Describing the Process

- **Conduct mission analysis** and identify specified and implied tasks contained in the guidance (ICD, CDD, CONOPS, etc.)
  - **IDENTIFY THE MET** – This will require thorough analyst knowledge of the system or OTA determination
  - **DESCRIBE CONDITIONS** - Conditions are used in the METL development process to express variables of the environment that affect task performance.
  - **ESTABLISH STANDARDS -** The final step in developing the MET involves selecting or developing performance standards consistent with the commander's intent and CONOPs for a mission.
  - We found it useful to develop an Access database (or any other database product of your liking) that contains tasks and metrics matched from the Joint and Service task lists.
  - A database can be used to output tables that link tasks to CDD attributes as well as other references.

- **Develop COIs** (mission-based from METs)
  - The UJTL is used to help frame COIs in terms of the Joint and Composite Warfighter. The UJTL also helps define relevant Joint operational measures and conditions for the system under test.

- **Determine data required** to assess effectiveness and suitability of the system under test
- **Define test methods** to obtain required data
- **Determine required resources**
- **Establish a test schedule**
- **Write the test plan**
  - A database will prove useful not only in maintaining the linkage between tasks, metrics, test methods, data requirements and resources but can also provide the framework for required test plans.

AVW uses this methodology in support of its clients.

Demonstration

- Process applied to System XX

Available at AVW TECHNOLOGIES, INC. Display Table