

Headquarters U. S. Air Force

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Operational Thread Development



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Overview

- **Background**
- **Analysis Framework**
- **Operational Thread Development Process**
- **Online Toolset**

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Background Benefit

- **Standardized approach**
 - **Facilitates cross-team collaboration**
 - **Consistent terminology usage**
 - **Improves experiment design**
 - **Supports joint and service capability-based assessment framework**
- **Analysis support**
 - **Core analysts will assist in application of this approach**
- **Phased approach**
 - **Manageable workload for CDTs**
 - **Clearly identified milestones for thread development products**

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Background

Purpose of Operational Threads

- **Facilitate examining a potential improvement to a deficient capability**
 - **The contribution of one or more initiatives or improved infrastructure either through**
 - a new process or modification to an existing process
 - a new organizational construct
 - a new system level (i.e., “machine-to-machine”) dialogue between databases, applications, or hardware
- **Allow us to influence player activity (by tailoring scenario events) to ensure we are able to demonstrate capability goals**
- **Provide operational context and therefore relevance**
 - **When reporting results (of initiatives, capability goals, anything else)**

Identify the contribution of initiatives to operationally significant activities and processes (i.e., operational threads)



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Analysis Framework

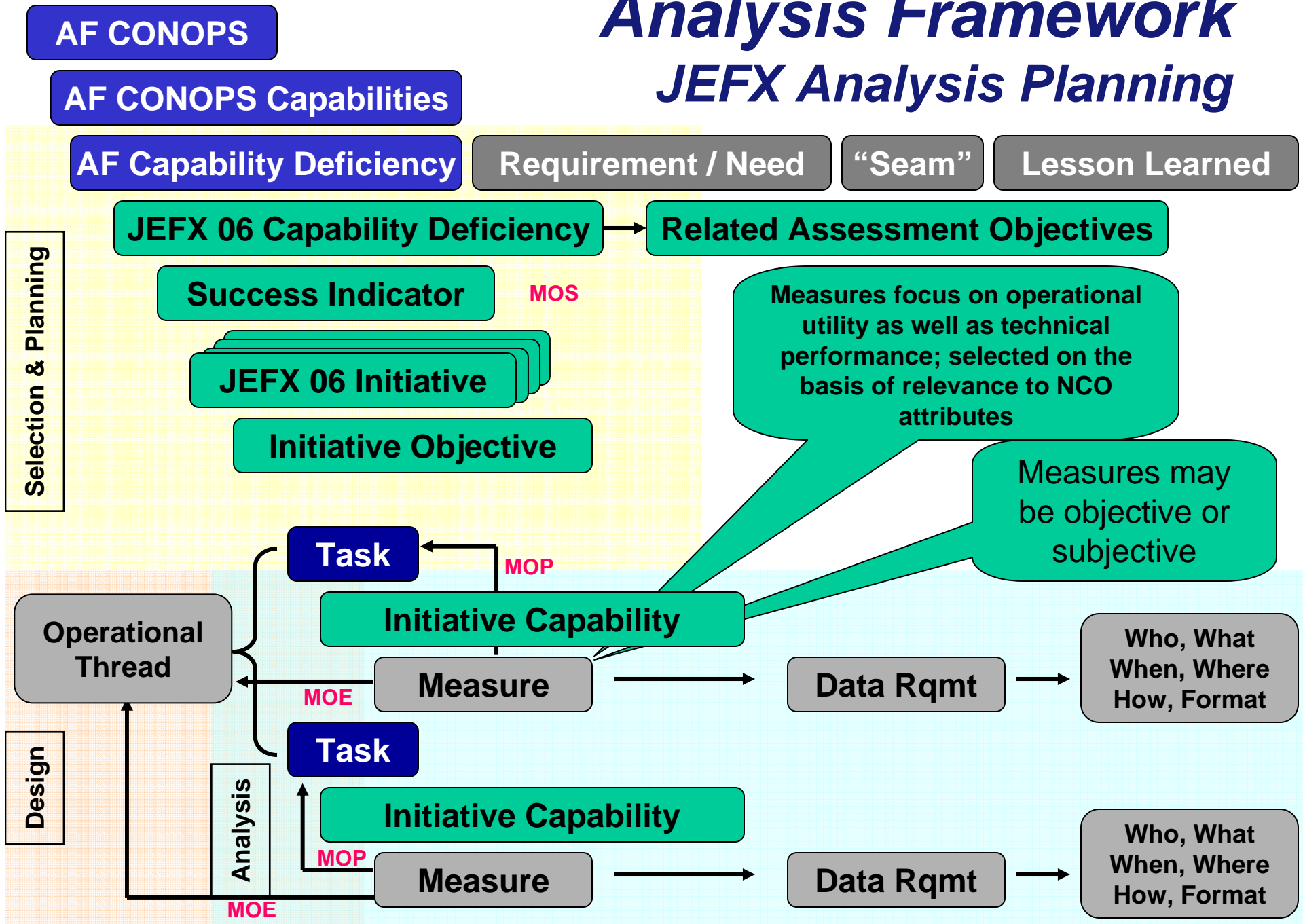
Basic Definitions

- **Capability**: The ability to achieve a **desired effect** under specified **standards and conditions** through combinations of **means and ways** to perform a set of **tasks** (CJCSI 3170.01E) Inherent to a capability are the organizations and people, processes and technical means used to accomplish a **military task** or mission. Standard AF capabilities are found in the Master Capability Library Version 5.5.
- **Task**: A discrete event or action—not specific to a single unit, weapon system, or individual—that enables a mission or function to be accomplished—by individuals or organizations (AF Doctrine Center glossary.) Standard C2 tasks are found in the C2 Task List developed by the C2 Capability Assessment Team.
- **Initiative**: Any potential solution—across the DOTMLPF spectrum—for addressing a recognized warfighting need or **capability gap**. Initiatives result from the JEFX initiative selection process.
- **Capability Gaps**: The inability to achieve a desired effect under specified standards and conditions through combinations of means and ways to perform a set of tasks (CJCSI 3170.01E). Synonymous with capability “deficiency”

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Analysis Framework

JEFX Analysis Planning





Analysis Framework

Operational Thread Definition

- **Definition**: A series of operational tasks that relate initiatives and/or improved infrastructure systems to one or more C2 processes
- **Characteristics**
 - A design feature of the experiment; used by Capability Development Teams to assess contribution of potential solutions to capability gaps
 - Should be represented by an operational architecture and supporting systems views; facilitates transition within the Joint Capabilities Integration and Development System (JCIDS) (OV-6C)
 - Observable and measurable; defines specifically what the assessment team will examine



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Analysis Framework

Required Elements

- **Name & Identifier:** Uniquely identifies the thread (e.g., “01A: Joint Air Estimate Process”)
- **Description:** Description of the capability deficiency or gap this operational thread will examine
- **Operational Tasks:** Related C2 & ISR tasks and player activities
- **Measures:** Characterize the performance of tasks and overall effectiveness of the operational thread
- **Initiatives:** Initiatives (and innovations) that contribute to the thread (i.e., potential “solutions”)



Development Process

Operational Thread Integration

- Provides a framework to view the interrelationship among operational threads
- Incorporates most operational threads, but not everything
 - Homeland Security threads do not fit this construct
 - Some Constellation Net specific threads do not fit
 - Possibly others that do not fit (e.g., SOF specific)
- Based on Joint Publication 3-30, ***Command and Control for Joint Air Operations***
 - Air Tasking Cycle



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Development Process Joint Air Tasking Cycle

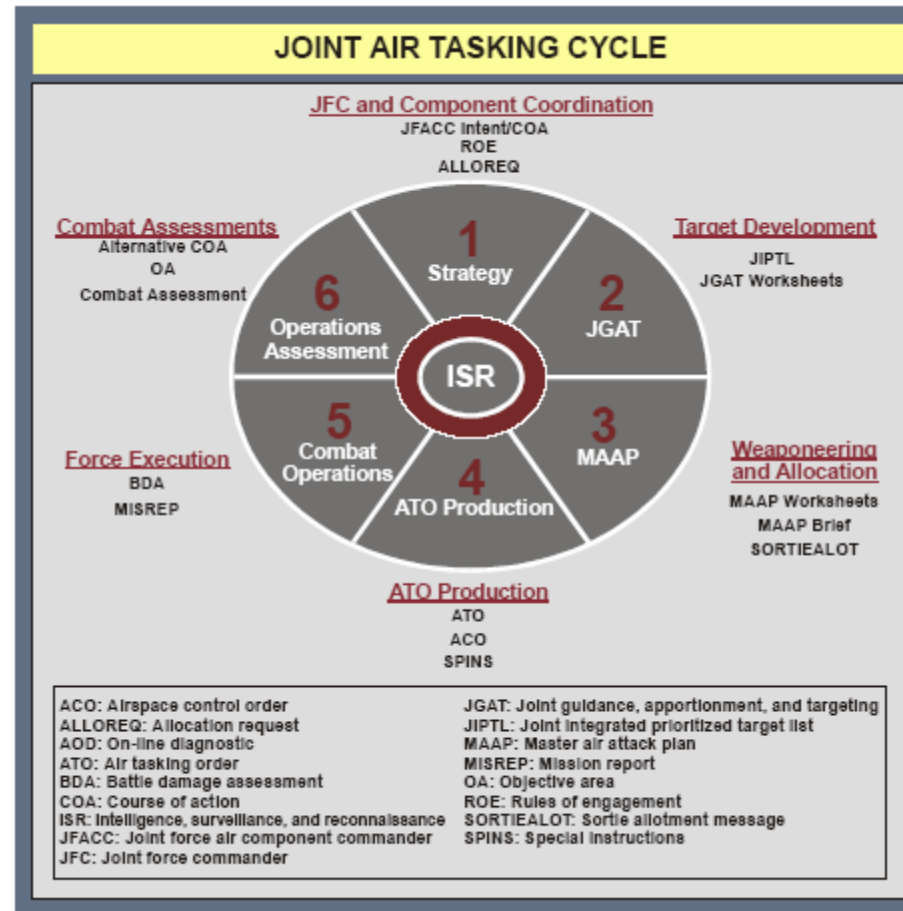


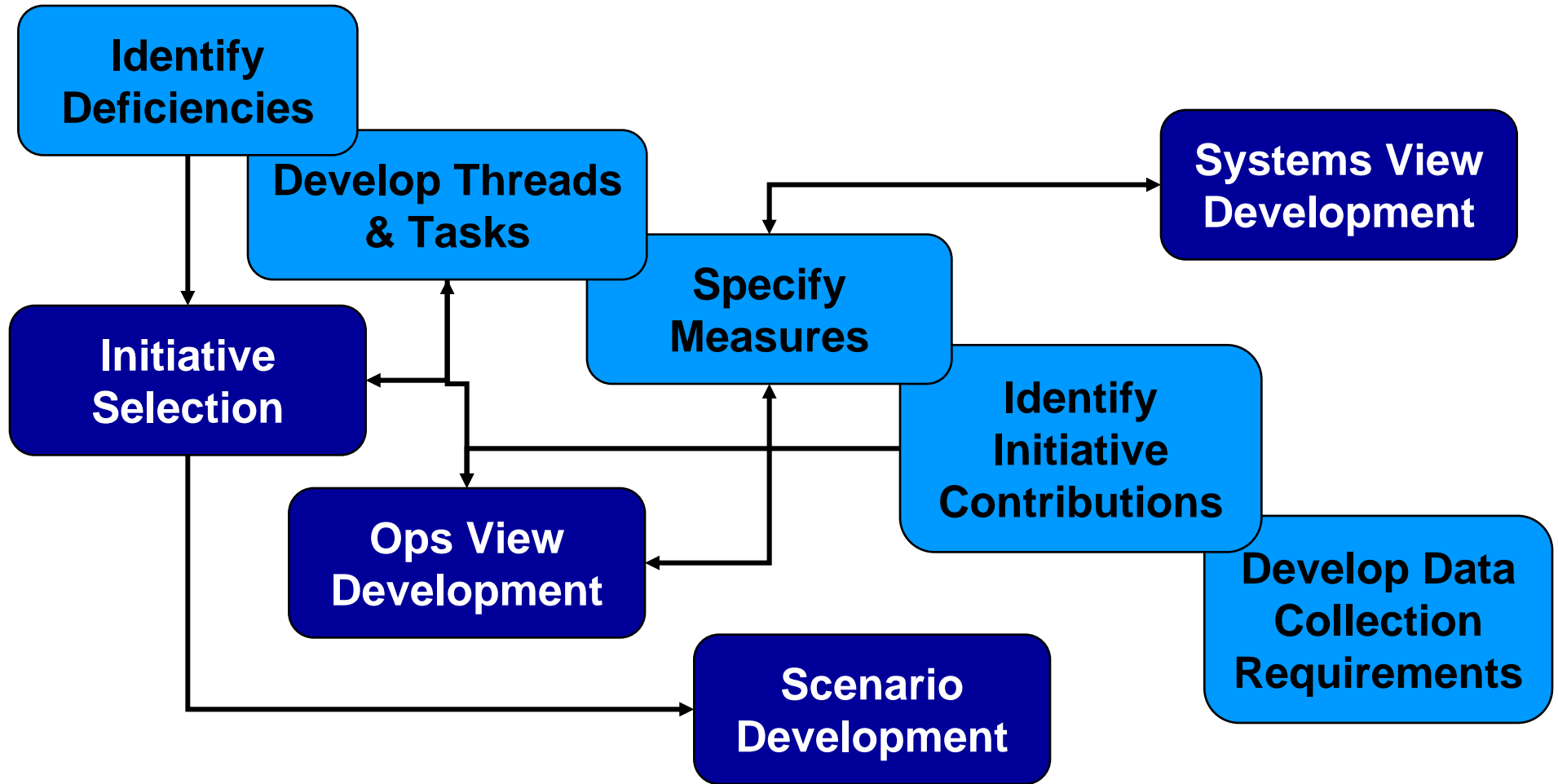
Figure III-13. Joint Air Tasking Cycle

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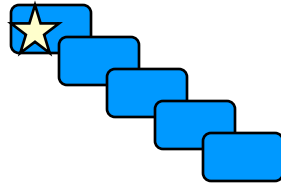
Development Process Phased Approach



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Development Process

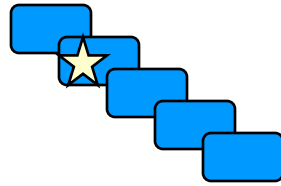
Gap Identification

- **Identify the specific capability gap or deficiency in sufficient detail to ...**
 - **Facilitate call for initiatives**
 - **Determine measures of success that are associated with each gap**
- **Focus of CDC**
 - **Should be complete; reflected in the sub-capability goal statements and documentation**
 - **Adding or revising capability gaps at this point affects all follow-on activities**
- **Example**
 - **There is currently a deficiency in our ability to receive real-time data from organizations external to the AOC and perform Level 0 fusion on that data.**

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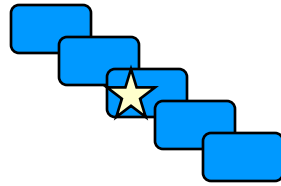


Development Process

Task Development

- **Identify a series of operational tasks (i.e., an operational thread) that allow examination of each capability gap**
 - **Begin at a high level (e.g., 1. Find, 2. Fix, 3. Track, 4. Target, 5. Engage, 6. Assess)**
 - **Add details and supporting activities over time, as required**
 - **Player-operator participation is essential**
- **Reference the Master Capabilities Library, Functional Area Assessment, AOC functional decomposition, AFOTTP, functional area CONOPS & CONEMPS**
- **Most difficult step—but the most critical**
- **Example**
 1. Remote sensors collect intelligence
 2. AOC ISR-D receives INT data from remote nodes
 3. ISR-D performs Level 0 fusion
 4. ISR-D provides fused INT product to end user (plans & ops)
 5. End user acts on information

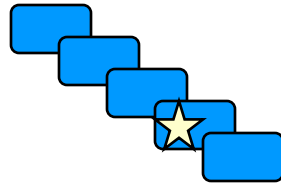
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Development Process

Measure Development

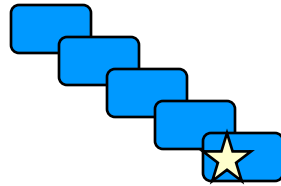
- **Identify measures for each task**
 - Measures of performance for each task and measures of effectiveness for each operational thread
- **Refine measures of success**
 - Developed at CDC
 - Characterize success in achieving capability goals
- **Example (for Task 2—receive INT data)**
 - Timeliness of receipt of INT information (time lag from send to receive)
 - Diversity of INT received (# and type of sources providing INT data)
 - Diversity of nodes providing INT (# and location of remote nodes)



Development Process

Identify Initiative Contribution

- **Identify the contribution each initiative will make to the operational tasks**
 - Could lead to additional measures
 - Initiatives may contribute to many operational threads and associated tasks
- **Coordinate with 46TS Det 1**
 - Lead for technical assessment of initiatives
 - Develop “initiative core capabilities” for each initiative
- **Example (for Task 2—receive INT data)**
 - Initiative X will improve the timeliness of receipt of INT from remote nodes through improved M2M connection



Development Process

Data Collection Requirements

- **Identify specific data collection requirements**
 - Based on pre-identified measures (MOE and MOP)
 - Collectively, represents an Integrated Data Requirements List (IDRL)
- **Example**



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Development Process Considerations

- **Planning or execution? (Temporal focus)**
- **Inter-theater or intra-theater? (Geographic focus)**
- **Where do initiatives fit into this thread?**
 - **How do they support operational tasks?**
- **What measures are relevant?**
 - **Based on Network Centric Operations Conceptual Framework Version 2.0**
- **What scenario supports this thread?**
 - **Real-world or fictitious?**
 - **What scenario vignettes are required?**
- **Operational threads should be prioritized**
- **Expectation: 15-20 operational threads *total***

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Backups

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