ARMY, MARINE CORPS, NAVY, AIR FORCE, SPACE FORCE

OPERATION ASSESSMENT

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR OPERATION ASSESSMENT

ATP 5-0.3
MCRP 5-10.1
NTTP 5-01.3
AFTTP 3-2.87
STTP 3-9003

APRIL 2026

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MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES

FOREWORD

This multi-Service tactics, techniques, and procedures (MTTP) publication is a product of the Air Land Sea Space Application (ALSSA) Center in accordance with the memorandum of agreement between the Headquarters of the United States (US) Army, Marine Corps, Navy, Air Force, and Space Force doctrine commanders directing ALSSA to develop MTTP publications to meet the immediate needs of the warfighter.

This MTTP publication has been prepared by ALSSA under our direction for implementation by our respective commands and for use by other commands as appropriate.

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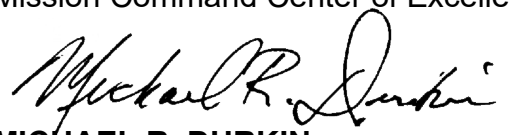

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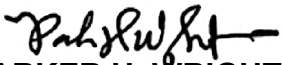

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PREFACE

1. Purpose

This multi-Service tactics, techniques, and procedures (MTTP) publication serves as a commander and staff guide for integrating operation assessments into planning and execution of operations across the competition continuum. It provides operation assessment how-to techniques and procedures which complement current joint and Service doctrine. The MTTP is a means for ensuring appropriate assessment information gets to the right decision maker at the right time.

2. Scope

This MTTP publication explains assessment techniques and procedures to make operations more effective. It provides an assessment framework that aligns with Joint Publication 5-0, *Joint Planning*, describes commander and staff assessment actions during planning and execution of an operation, and allows for a common reference to enable effective communication between echelons, and between commanders and their staffs.

3. Applicability

This MTTP publication applies to commanders and their staffs that conduct operations.

4. Implementation Plan

Participating Service command offices of primary responsibility will review this publication; validate the information; and, where appropriate, use it as a reference and incorporate it in Service manuals, regulations, and curricula as follows.

Army. Upon approval and authentication, this publication incorporates the TTP contained herein into the United States (US) Army Doctrine and Training Publishing Program as directed by the Commander, US Army Training and Doctrine Command. Distribution is in accordance with applicable directives listed on the authentication page.

Marine Corps.[*] The Marine Corps will incorporate the procedures in this publication in US Marine Corps doctrine and training publications as directed by Commanding General, Training and Education Command. Distribution is in accordance with the Marine Corps Order 5600.31 *Marine Corps Printing, Publishing, and Reprographics Equipment Regulations.*

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5. User Information

a. US Army Combined Arms Center; USMC, TECOM; NWDC; Curtis E. LeMay Center for Doctrine Development and Education; and Air Land Sea Space Application (ALSSA) Center developed this publication with the joint participation of the approving Service commands. ALSSA will review and update this publication as necessary.

b. This publication reflects current joint and Service doctrine, command and control organizations, facilities, personnel, responsibilities, and procedures. Changes in Service protocol, appropriately reflected in joint and Service publications, will be incorporated in revisions to this document.

c. We encourage recommended changes for improving this publication. Key your comments to the specific page and paragraph and provide a rationale for each recommendation. Send comments and recommendations directly to:

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SUMMARY OF CHANGES

ATP 5-0.3/MCRP 5-10.1/NTTP 5-01.3/AFTTP 3-2.87/STTP 3-9003, *Multi-Service Tactics, Techniques, and Procedures for Operation Assessment*.

This revision:

Updates:

- Six general questions of assessment
- Operation assessment steps
- Naval Warfare College of Maritime Operational Warfare Example in Appendices C and D
- Minor restructuring, grammatical and spelling corrections
- References

Additions:

- Appendix B: Measures of Performance (MOPs) and Measures of Effectiveness (MOEs)

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OPERATION ASSESSMENT

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES FOR OPERATION ASSESSMENT

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EXECUTIVE SUMMARY

OPERATION ASSESSMENT

Multi-Service Tactics, Techniques, and Procedures (MTTP) for Operation Assessment establishes techniques and procedures for staffs to better inform commanders of risks, resource requirements, and opportunities in order to improve operation effectiveness. There are three main concepts to introduce for the understanding and context of the manual: the definition and purpose of operation assessment, the role of commanders and staffs in assessing operations, and the steps of operation assessment.

Operation assessment is a continuous process that measures the overall effectiveness of employing capabilities during military operations in achieving stated objectives. This process is guided by the commander and/or key decision makers. Successful staffs conduct operation assessments using existing staff elements, supported and coached by the assessment cell. The staff member(s) assigned to conduct operation assessments leverage existing staff leads for particular lines of effort or lines of operation, as outlined in Joint Publication (JP) 5-0, *Joint Planning*, providing supporting evidence in coordination with and supporting the operations or plans officers in recommending actions to the commander and other key decision makers. Although the assessment staff may run a separate working group, their recommendations support either an operational or planning decision.

Successful assessment integration from the onset of planning throughout execution gives commanders a means to proactively identify and adjust to emerging opportunities and risks to mission accomplishment. Timely recognition of opportunities and risks affords commanders a distinct advantage by possibly catching the enemy off balance and rapidly ending a battle; refocusing capabilities to minimize disruption; or hastening accomplishment of objectives, conditions, and end states. Conversely, missed opportunities and risks can result in protracted engagements, higher casualties, and increased potential for setbacks.

Best practices for operation assessment include starting with the desired outcome, leveraging line of effort working groups, nesting higher and lower assessments, conducting an assessment to measure effectiveness, using strategic questions to communicate data requirements, using theories of change to frame and provide credibility for friendly actions, and publishing a written assessment to clearly communicate well-thought-out results of the assessment.

This MTTP nests within the six operation assessment steps introduced in JP 5-0. This publication will further explain why each of those steps are important and some methods to accomplish them.

A summary of each chapter and appendix of this publication follows:

Chapter I Operation Assessment Overview

Chapter I provides commanders and their staffs an overview of the assessment process and provides the link between JP 5-0 and MTTP discussed in this publication.

Chapter II Frame the Operation Assessment

Chapter II discusses the first and second steps of the assessment process. These two steps develop an assessment approach and the assessment plan, and occur during the planning phase of operations.

Chapter III Collect and Analyze

Chapter III discusses the third and fourth steps of the assessment process. These steps collect and analyze information and intelligence, and occur during operation execution.

Chapter IV Communicate the Assessment and Adapt the Plan

Chapter IV describes processes to accomplish the fifth step of the assessment process: communicate the assessment. This step is most commonly referred to as the assessment, as it entails communicating, through verbal, written, and visual means, the staff's assessment to the commander for decision. Chapter IV briefly discusses step six of the assessment process, which is adapting plans or operations.

Appendix A Connecting Outcomes to Indicators Model

Appendix A provides a detailed discussion of how to develop questions or statements to help identify indicators that form the basis of an operation assessment plan.

Appendix B Measures of Performance (MOPs) and Measures of Effectiveness (MOEs)

Appendix B provides a detailed explanation of developing MOPs and MOEs and linking them to objectives or tasks.

Appendix C Assessment Plan Examples

Appendix C shows an example assessment plan used by II Marine Expeditionary Force in a past operation. This example will assist by showing a working example of an assessment plan and how it was created. The Naval War College provided several examples for assessors to organize their thoughts, develop indicators, and display a data collection plan.

Appendix D Example Annexes and Appendices

Appendix D provides the doctrinal operation order assessment formats from Service doctrine and provides the source for each.

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Chapter I
OPERATION ASSESSMENT OVERVIEW

1. Operation Assessment

a. The joint force and Services use the word “assessment” in several contexts. In some instances, assessment refers to discerning the current state of a force or an area—readiness assessments and area studies are examples. Assessment is also part of targeting in the form of combat assessment. In other instances, assessment is a methodology to discern risk to the force and risk to mission known as risk assessment.

b. Within the context of campaigns and operations, assessment is the determination of progress toward accomplishing a task, creating a condition, or achieving an objective (JP 3-0). The process used by commanders and staffs to do this is operation assessment—a continuous process that measures the overall effectiveness of employing capabilities during military operations in achieving stated objectives (JP 5-0).

c. Operation assessment is fundamental to a military organization’s ability to adapt. Accordingly, observed and reported actions are of little value unless they can serve as a basis for future decisions and actions. Operation assessments enable adaptations, providing guidance and direction to make our forces more effective.

d. Continuous assessment, along with planning, preparing, and execution, comprise the operations process. As with any cycle, it has no beginning or ending once the process has commenced.

e. Operation assessment seeks to answer six general questions as seen in table 1:

Table 1. Six Assessment General Questions

Question	Details
How has the operational environment (OE) changed?	An OE is the aggregate of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander (JP 3-0). The staff must document key changes in the OE that are reflected in established indicators. Their focus is on understanding the impact of friendly and enemy operations and the impact of activities related to the commander’s decision making. Answering this question determines if the mission, tasks, and activities executed impact conditions in a positive or negative way.
How effective are a set of our activities in accomplishing our operational objectives?	Answers to this question help determine progress or lack of progress along measurable objectives. When progress is difficult to measure, using standards-based bins allows the staff to qualitatively relate if there is or is not discernable progress.

What do we think caused or prevented our activities from being effective in achieving our objectives?	Analysis will enable the staff to posit why they think changes in the OE occurred. Professional military judgment enables critical thinking on attributing causality, but the staff should maintain caution during this effort to avoid common biases. Leveraging a theory of change or a causal diagram can assist the staff in determining complex changes in the environment.
Do the changes in the OE cause a change to operations?	Answering this question queues the staff to recommend adjustments to order to include the execution of a branch or sequel.
What are the future opportunities or risks?	Assessment helps determine a variance—a difference between the actual situation during execution and what the plan forecasted the situation would be at that time or event. Variances can take the form of opportunities and risks. Opportunities provide better ways to accomplish the mission more effectively. Once identified, commanders adjust plans to exploit opportunities. The second form of variance is risk to mission accomplishment or to the force. When a risk is recognized, commanders adjust plans or request resources from higher headquarters to eliminate the threats advantage, restore the friendly advantage, and regain the initiative. *See Chairman of the Joint Chiefs of Staff manual 3105.01, Joint Risk Analysis*, for standardized risk definitions.
What do we need to do?	Operation assessment helps commanders determine effectiveness in attaining the desired end state, achieving objectives, creating effects, and performing tasks. However, unless assessment includes recommended adjustments to an operation (which may include making no adjustments), its use to the commander is limited. Just as the staff devotes time to collection and analysis, so too must it make timely complete, and actionable recommendations. The chief of staff ensures the staff completes its analyses and makes recommendations to improve the effectiveness of the operations as required.

f. Effective operation assessment:

(1) Enhances the commander's decision making, enables effective operations, and helps the commander's staff adapt to changing situations.

(2) Incorporates subordinate unit assessments.

(3) Focuses on the commander's objectives, end state, and related information requirements (IRs).

(4) Considers specific indicators in context with other indicators and professional military judgment.

(5) May incorporate quantitative and/or qualitative indicators from internal and external sources.

(6) Considers subordinate units' capabilities before assigning operation assessment-related requirements.

(7) Provides analysis that identifies particular trends and changes in the OE, and determines their impact on operations.

(8) Incorporates the insights and expertise of various staff sections and stakeholders.

(9) Leverages objectives, desired effects, and tasks that have effectiveness and performance indicators that forces can observe, measure, refine, and adapt throughout planning and execution.

(10) Conveys the operation assessment to the commander in a clear and concise manner.

(11) Provides analysis and synthesis supported by professional military judgment achieved in part through scrutiny of relevant evidence and logic.

(12) Provides context; i.e., explaining why evidence, arguments, and recommendations matter to the end state.

(13) Measures effectiveness toward achieving objectives.

(14) Incorporates best practices in operation assessments, including standards-based assessments, theory of change, and written assessments.

g. Operation assessment outcomes will:

(1) Depict effectiveness toward accomplishing the commander's intent.

(2) Deepen understanding of the OE.

(3) Inform the commander's decision making.

(4) Produce actionable recommendations.

(5) Make operations more effective.

h. Tenets of an Operation Assessment. The following tenets should guide the commander and the staff throughout assessment:

(1) Commander Centricity. The commander's involvement in operation assessment is essential to include prioritizing assessment efforts.

(2) Subordinate Commander Involvement. Assessments are more effective when used to support conversations between commanders at different echelons.

(3) Staff Integration. Staff integration is crucial to planning and executing effective assessments.

(4) Integration into the Planning Process and Battle Rhythm. To deliver information at the right time, operation assessment should be integrated into and synchronized with the commander's decision cycle.

(5) Integration of External Sources of Information. Operation assessment should integrate information and assessments from various external sources such as higher and subordinate headquarters, interagency and multinational partners, and other stakeholders to plan more effective operations.

(6) Credibility and Transparency. Assessment reports should cite all sources of information used to build the report.

(7) Continuous Operation Assessment. While an assessment product may be published on a specific schedule, assessment is continuous in any operation.

i. Staff Role in an Operation Assessment.

(1) Effectively supporting the commander requires staff assessment activities to conform to the commander's decision-making style. When it comes to thinking through how best to support commander decision making, several aspects are worth considering.

(a) How does the commander prefer to receive and process information?

(b) How does the commander prefer to make decisions?

(c) What role does the commander want to play in the assessment?

(2) Commanders can form a dedicated staff entity to lead operation assessment at all levels of command. This may be in the form of a cell, a special or coordinating staff section, or an element within an existing staff section. This publication refers to these entities as the assessment cell.

(a) An assessment benefits greatly from the professional military judgment of staff officers within their area of expertise. A broad range of skills adds balance to the assessment activity and products.

(b) Primary staff officers conduct the assessment process as part of their normal responsibilities. To do this, they can utilize working groups, joint planning teams, and operational planning teams, within their functional areas.

(3) Effective staffs leverage existing battle rhythm venues to help manage information in support of an assessment in order to reduce the burden to personnel and subordinate units.

2. Operation Assessment Process

a. There is no single way to conduct assessment. Every mission and OE has its own set of challenges, and every commander assimilates information differently, making every assessment plan unique. Table 2 summarizes the steps of operation assessment. A detailed description of each step is covered in chapter II-IV.

Table 2. Operation Assessment Steps					
Step	**Operations Process Activity**	**Personnel Involved**	**Input**	**Staff Activity**	**Output**
Develop Assessment Approach	Planning	• Commander • Planners • Primary staff • Special staff • Assessment cell • AWG personnel	• HHQ guidance • Commander's initial planning guidance and intent • JIPOE • Staff estimates • Operational approach development • JPP • Targeting • AWG	• Support development and refinement of end states, objectives, effects, and tasks and how to assess them • Identify potential indicators	• Input to information, intelligence, and collection plans • Refined commander's guidance and intent • Initial assessment approach
Develop Assessment Plan	Planning	• Operations planners • Intelligence planners • Assessment cell • AWG personnel	• Initial assessment approach • Operational approach • JIPOE • Specific outcomes (end state, objectives, effects)	• Refine and document the framework • Refine indicators (i.e. MOE and MOP) • Develop a feedback mechanism	• Assessment plan • Assessment battle rhythm
Collect Information and Intelligence	Execution	• Intelligence analysts • Current operations • AWG personnel • Assessment cell • Additional personnel at the Commander's discretion	• Data collection plan • Targeting • Assessment Plan • JIPOE • Staff Estimates	• Organize collected Indicators (MOE, MOP) • Check indicators for errors and inconsistencies • Merge indicators from disparate sources • Update JIPOE • Update Staff Estimates	• Data collected and organized, relevant to current and desired conditions
Analyze Information and Intelligence	Execution	• Primary staff • Special staff • AWG personnel • Assessment cell	• Collected and organized data	• Conduct intelligence assessments • Conduct staff assessments • Analyze data collected • Conduct effects assessment • Conduct task assessment	• Estimate of joint force effects on OE (draft assessment report) • Vetted and validated recommendations
Communicate Feedback and Recommendations	Execution	• Commander • Subordinate commanders (periodically) • Primary staff • Special staff • AWG personnel • Assessment cell	• Draft assessment reports and recommendations	• Provide a timely recommendation to the appropriate decision maker • Finalize assessment products	• Approved assessment report, decisions, and recommendations to AWG and to higher headquarters

Adapt Plans and Operations	Execution Planning	• Commander • Planners • Primary staff • Special staff • AWG personnel • Assessment cell	• Approved assessment decisions • Targeting • JPP	• Implement Commander's guidance and feedback	• Changes to the operation and assessment plan
Legend: AWG—assessment working group IR—information requirement ISR—intelligence, surveillance, and reconnaissance JIPOE—joint intelligence preparation of the operational environment OE—operational environment JPP—joint planning process MOE—measure of effectiveness MOP—measure of performance					

b. Step 1—Develop the Assessment Approach.

(1) This step focuses on determining what needs to be assessed and how to conduct the assessment process. Operation assessment begins during planning initiation to ensure the assessment approach develops as the plan and operational design also develops. The staff begins to develop the operation assessment approach by identifying and integrating the appropriate assessment plan framework and structure needed to assess execution effectiveness. If a HHQ assessment plan exists, assessment planners should align applicable elements of that assessment plan to the plan they are developing. The assessment approach becomes the framework for the assessment plan and will continue to mature through plan development. The assessment approach should identify the information and intelligence needed to assess effectiveness towards achieving objectives and inform decision making. Developing the assessment approach aligns to all steps of the planning process, as assessment should complement and be concurrent with the planning effort.

(2) Identifying objectives and the desired end state and associated conditions is critical to determining the effectiveness of any operation. Poorly defined objectives or end states typically result in ineffective planning, as well as increase the risks of wasting resources and opportunities to successfully accomplish the mission. The staff should identify clear objectives and tasks having effectiveness and performance indicators that forces can observe, measure, and refine throughout planning and execution. In turn, analysis and synthesis of anticipated and completed tasks should generate assessment recommendations to communicate to the commander.

c. Step 2—Develop the Operation Assessment Plan. This step overlaps step 1 during the identification of the objectives desired end state. The assessment plan focuses appropriate monitoring and collection of necessary information and intelligence to inform decision making throughout execution. The assessment plan should link objectives, desired effects, and tasks to observable key indicators. The assessment plan can be developed using the operational approach as a baseline to identify lines of effort (LOEs) or lines of operation (LOOs) that link directly to objectives and the desired end state. The assessment plan should include required information oversight responsibilities to gather, process and exploit, analyze and integrate, disseminate, classify, and archive the required information. Developing the assessment plan is a whole-of-staff effort and should include other key stakeholders to better shape the effort. The assessment plan should identify staff or subordinate

organizations to monitor, collect, analyze information, and develop recommendations and assessment products as required. Per JP 5-0 (2020), analysis associated with assessment helps facilitate greater understanding of the current conditions of the OE, as well as identifies how the command will determine the achievement of objectives if the plan is executed. A baseline understanding of the OE assists the commander and staff in setting objectives, if useful, for desired rates of change within the OE and thresholds for success and failure. This also focuses the assessment process on answering specific questions relating to the desired objectives of the plan. In order to perceive change in the OE, assessors and staff functional area experts formulate and refine a series of questions, which they formalize as information requirements (IRs). Then they select a set of indicators which answer their questions. Change in the OE is perceived as the quantitative or qualitative values of the indicators change over time. There will always be a first observation of any indicator. Appendix A provides a model for planners to use to develop indicators based on the desired end state.

d. Step 3—Collect Information and Intelligence. Organizations collect relevant information throughout planning and execution. They refine and adapt information collection requirements about the OE and anticipated and completed actions. Staffs and subordinate commands provide information during execution through applicable battle rhythm events. Intelligence staffs continually provide updates about the OE and the impact in support of the collective staff assessment effort.

e. Step 4—Analyze Information and Intelligence.

(1) Analysis seeks to identify positive or negative movement toward creating desired effects, achieving objectives, or attaining end states. Analysis seeks to identify trends and changes that can significantly impact the OE and the operation. Based on this analysis, the staff estimates the effects of force employment and resource allocation, determines whether forces have achieved their objectives, or have realized that a decision point has emerged. Using these determinations, the staff may identify additional risks or opportunities.

(2) Recommendations generated by staff analyses regarding achievement of the objective or attainment of the desired end state, force employment, resource allocation, validity of planning assumptions, and decision points should enable the staff to develop recommendations for consideration. Recommendations can include:

(a) Update, change, add, or remove critical assumptions.

(b) Transition between phases, stages, parts, steps (as appropriate).

(c) Execute branches or sequels.

(d) Change resource allocation.

(e) Adjust operations.

(f) Adjust tasks, objectives, and end states.

(g) Adjust priorities.

(h) Change priorities of effort.

(i) Change command relationships.

(j) Change task organizations.

(k) Adjust decision points.

(l) Refine or adapt the assessment plan.

f. Step 5—Communicate Feedback and Recommendations. Assessment products contain recommendations for the commander based upon the commander's guidance. Assessment products inform the commander about current and possible conditions within the OE, evaluate the ability of the force to impact the OE, evaluate effectiveness toward achieving objectives and end states, provide accountability to higher authority, and communicate effectiveness to external stakeholders. Regardless of quality and effort, the assessment process is useless if the communication of its results is deficient or inconsistent with the commander's personal style of assimilating information and making decisions. Additionally, there may be a requirement to provide input to HHQ assessments in which the requirements and feedback could be within a different construct.

g. Step 6—Adapt Plans or Operations. Commanders direct changes or provide additional guidance that dictate operations updates or modifications to drive effectiveness toward achieving objectives and end states. Staffs capture the commander's decisions and guidance in order to ensure forces take necessary actions. As the operation and OE evolve, the assessment plan needs to evolve as well.

ASSESSMENT BEST PRACTICES

Effective assessment practices clearly articulate progress, gaps, and the risk associated in accomplishing the unit's mission. Gap assessment, strategic questions, standards-based assessments, written assessments, and risk assessments are best practices that provide the tools required to assist operational assessments.

Gap Assessment. One outcome of an assessment process is to determine progress against a mission. When an objective will not be accomplished by the target date, it raises the question of what to do next. A structured method to align assessments to answer this question is gap assessment, which defines the gaps in the critical path to obtain a given objective along a timeline. Gaps fall into the categories of capacity, capability, or shortcomings in the willingness or capability of partner nations. Identifying these gaps and closing them provide the staff with a method to take action leading to the accomplishment of their objectives.

Strategic Questions. In determining progress and gaps for a given line of effort (LOE) or objective, several common questions arise. Recording these questions and reviewing them on a periodic basis is a best practice in many assessment programs. It allows those responsible for the assessment a method to record the assumptions and the logical lines followed by working groups, in detail, and to determine why they believe they are progressing or retrogressing.

Standards-based Assessment. This method provides the most accurate and successful summation of progress through operational and strategic commands. It is covered in detail in chapter III.

Written Assessment. Possessing a written document is important for many reasons. One such reason is the level of thought, staff coordination, and detail required to articulate an assessment in words and sentences is far greater than what is required to fill out a chart template. Some leaders and analysts recommend exclusive use of written assessments.

Risk Assessment. Chairman of the Joint Chiefs of Staff manual 3105.01, *Joint Risk Analysis*, provides definitions of military and strategic levels of risk. An example of a risk assessment begins with a statement of the objective or end state, describes the level of progress determined from the standards-based assessment, evaluates the risk of meeting objectives, and identifies the capability and capacity gaps.

Other Best Practices. Other best practices exist in related literature, such as theories of change, which ensure objectives and measures result from a logical process derived from causal assumptions. Additional best practices include using objective development criteria, such as the acronym SMART (specific, measurable, achievable, relevant, and time bound) or the similar initialism RMRR (relevant, measurable, responsive, and resourced). Best practices related to staff organization and functions include assigning senior leaders as LOE leads and gaining championship by the commander.

SOURCE: *Are We There Yet? Implementing Best Practices in Assessments,* Military Review, May–June 2018
COL Lynette Arnhart and LTC Marvin King

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Chapter II
FRAME THE OPERATION ASSESSMENT

1. Introduction

a. This chapter provides details of the relationship of the assessment cell or function to the planning process and the rest of the staff. JP 5-0 frames the task of planning the assessment as two steps: develop the assessment approach and develop the assessment plan. Table 3 shows these first two planning steps as part of the six-step process.

Table 3. Operation Assessment Steps One and Two

Step	Operations Process Activity	Personnel Involved	Input	Staff Activity	Output
Develop Assessment Approach	Planning	• Commander • Planners • Primary staff • Special staff • Assessment cell (if established) • AWG personnel	• HHQ guidance • Commander's initial planning guidance and intent • JIPOE • Staff estimates • Operational approach development • JPP • Targeting • AWG	• Support development and refinement of end states, objectives, effects, and tasks and how to assess them • Identify potential indicators	• Input to information, intelligence, and collection plans • Refined commander's guidance and intent • Initial assessment approach
Develop Assessment Plan	Planning	• Operations planners • Intelligence planners • Assessment cell (if established) • AWG personnel	• Initial assessment approach • Operational approach • JIPOE • Specific outcomes (end state, objectives, effects)	• Refine and document the framework • Refine indicators (i.e. MOE and MOP) • Develop a feedback mechanism	• Assessment plan • Assessment battle rhythm

Legend:
AWG—assessment working group
JIPOE—joint intelligence preparation of the operational environment
JPP—joint planning process
MOE—measure of effectiveness
MOP—measure of performance

b. Throughout planning, the assessment cell engages with the commander, lead planners, and staff to ensure the assessment plan is nested with the operational approach and supports the commander's visualization of desired end state. The most successful staffs are those that routinely integrate and implement assessment activity at the onset of the planning process.

c. Lead planners develop the tasks, effects, and objectives that form the framework of the plan. They work with the assessment cell to develop ways to assess effectiveness associated for each outcome. Appendix A contains a model that can help guide this process.

2. Organizing for Operation Assessment

Part of framing the operation assessment includes organizing the staff. Each Service organizes differently to conduct an operation assessment. Some Service components assign dedicated assessment personnel to a staff, while others establish assessment functions as part of the planning process or initiation of operations. Common elements include:

a. Assessment Cell. The assessment cell is the organization that is responsible for developing the assessment plan and managing the assessment process in execution. The assessment cell may be incorporated into a staff directorate, be a directorate unto itself, or a special staff section working directly for the commander, deputy commander, or chief of staff. There is no set size to an assessment cell as long as it can support operational planning teams (OPTs), working groups, and key battle rhythm events.

b. Assessment Working Group (AWG). The AWG is a cross-functional team that vets assessment products and recommendations. The AWG is composed from representatives from across the primary and special staff sections, as well as other SMEs depending on mission set. During planning the AWG meets periodically to review, revise, and provide input to that assessment plan as it is being developed and finalized.

3. Operation Assessment within the Planning Process

a. The focus of this section is to use the joint planning process (JPP) to identify assessment actions executed during each of the planning steps of the JPP. These actions are included in other Service planning processes.

b. During planning initiation, the assessment cell:

(1) Reviews HHQ order to consider:

(a) HHQ operational approach.

(b) HHQ assessment annex and requirements.

(c) HHQ joint intelligence preparation of the operational environment (JIPOE).

(2) Determines the identification of potential data sources, including academic institutions and civilian SMEs.

(3) Reviews any current or historically relevant assessment products, either classified or open-source, produced by civilian and military organizations.

(4) If required, conducts operation assessment training with the assessment cell, AWG, and staff.

(5) Actively participates in operational design and approach discussions.

(6) Develops initial template assessment plan and data collection plan based on operational design discussion with the AWG.

(7) Gains commander’s preferences for communicating the assessment.

c. During mission or task analysis, the assessment actions will include:

(1) Review and update JIPOE.

(2) Support the development of risk assessment, success criteria, and initial commander's critical information requirement development.

(3) Conduct AWGs to continue developing an assessment plan and data collection plan.

d. During course of action (COA) development, the assessment actions include:

(1) The assessment cell providing support to each COA development team.

(2) Reviewing JIPOE and if necessary providing updates to the rest of the staff.

(3) Conducting AWGs to continue developing an assessment plan and data collection plan.

(4) Providing staff estimate for each COA, if required.

e. During COA analysis and war gaming, the assessment actions will include:

(1) The assessment cell providing inputs to COA evaluations.

(2) Reviewing JIPOE and if necessary providing updates to the rest of the staff.

(3) Conducting AWGs to continue developing an assessment plan and data collection plan.

f. During COA comparison, the assessment actions include:

(1) The assessment cell providing inputs to COA evaluations.

(2) Reviewing JIPOE and if necessary providing updates to the rest of the staff.

(3) Conducting AWGs to continue developing an assessment plan and data collection plan.

g. During COA approval, the assessment actions include:

(1) The assessment cell providing inputs to COA evaluations.

(2) Reviewing JIPOE and if necessary providing updates to the rest of the staff.

(3) Providing inputs and analysis to finalize the operational approach.

(4) Conducting AWGs to continue to finalize an assessment plan and data collection plan. Assessment representatives are actively involved with the collection management working group to ascertain what is going to be collected. What is not collected is recognized as additional risk that is briefed to the commander.

h. During plan and order development, the assessment actions include:

(1) Develop an appropriate assessment annex or appendix as appropriate, if different from the assessment plan or data collection plan.

(2) Finalizing the data collection plan.

(3) Establish information exchange requirements.

(4) Maintain situational awareness and adjust the assessment plan as required.

4. Assessment Products Developed during Planning

a. Assessment Plan. Navy Warfare Publication (NWP) 5-01, Navy Planning, and Army Field Manual 5-0, Army Planning and Orders Production, provide procedures for developing an assessment plan. This document adapts those procedures for multi-Service use. Once the assessment plan is complete, it guides application of the assessment activity to monitor, evaluate, recommend, and direct continuously throughout the operations process. It is important to recognize, as operational plans are iteratively adjusted and improved, the assessment plan must undergo revisions to ensure alignment with the end state.

b. Data Collection Plan. To support the assessment plan, the staff may leverage a data collection plan that incorporates assessment requirements identifying where the information is found for each indicator and whom the lead is to collate the information for the assessment. Expect the data collection plan to evolve during execution as the OE evolves. Data collection plans are more critical when large amounts of quantitative data are required from other agencies or subordinate units, and less critical when more qualitative or standards-based assessments require less quantitative data, relying more on narrative reports.

c. Operation Order (OPORD) Annex or Appendix. North Atlantic Treaty Organization (NATO), the United States Marine Corps (USMC), the United States (US) Army, and the US Navy have identified an assessments annex or appendix for an OPORD. The annex or appendix is based on the assessment plan and data collection plan, so it is developed throughout the planning process. Example OPORD annexes are found in appendix C.

d. Commander’s Assessment Brief. Some organizations have developed a standard commanders’ brief template, which is revalidated prior to a planning effort. As each commander is different, the previous version may no longer be valid, requiring prior template validation. Additionally, as the plan is developed and finalized, the assessment cell or commander may see the need to make changes. Once the plan is approved, the brief template is revalidated (Reference Appendix C).

5. Assessment Planning during Execution

a. As the operation is executed, the original assessment plan will go through revisions based on the OE and the assessment associated with it.

b. What the assessment team must be prepared to support during execution of an operation is the requirement to evolve the assessment plan and data collection plan. This effort is associated with requirements listed below:

(1) Development of a branch or sequel.

(2) Major revisions to the operational approach.

(3) Additional assessment requirements from HHQ.

6. Considerations for Planning the Assessment Process

a. The remainder of this chapter describes planning considerations for each step of operation assessment. It explains conceptually how assessors structure the process to gather, store, and analyze information to better understand the OE, and how to design products that communicate these findings and associated recommendations for more effective operations to senior decision makers. These activities take place separate from, but in parallel with, the planning process, while assessors participate in staff-wide activities.

b. The task of planning the assessment is defined in two steps: develop the assessment approach and develop the assessment plan. The former makes inputs to initial decisions about the organization of the assessment effort, the relationship of assessors to the rest of the staff, the integration of AWGs into the battle rhythm, and the sort of information that is gathered and analyzed to improve the staff's understanding of the OE. The latter refines, formalizes, and communicates these decisions throughout the organization through written standard operating procedures (SOPs), an assessment annex, collection matrices, or other intermediate documents.

7. Develop the Assessment Approach

a. The initial framing of the assessment problem will establish an initial organization of the assessment cell, its place in the staff, its contribution to the planning process, and its participation in, or leadership of, battle rhythm events. There are many potential ways to organize the effort, and initial decisions can be refined as the staff learns, the operation evolves, and the OE changes.

b. An operation assessment begins when planning begins. This is critical because assessors provide a quality check on the planning or the design process. Assessors help planners clearly define end states, objectives, effects, and the desired outcomes of an operation. While assessment considerations should not drive operations, the inability to assess an unclear outcome statement is an excellent indicator that subordinate headquarters will have difficulty planning and executing operations to pursue it. In addition, an assessment is an activity; like any other activity it requires a plan, and the earlier assessors begin planning the assessment process, the more effective it is likely to be.

c. The assessment plan should reflect the logic of the operations plan, as the two develop simultaneously. For example, if the operations plan specifies LOOs or LOEs, then an assessment plan based on these LOOs or LOEs will likely provide the best understanding of the OE, provided those were a reasonable way to begin understanding the environment based upon the JIPOE. The assessment process may improve the understanding of the OE and this may recommend a change to the plan that organizes operations. In every case, the assessment plan should evolve as the operations plan changes. Or, if the operations plan is organized by phases with associated objectives and conditions by phase, then an assessment plan based on those phases will likely provide the best understanding on how well the operation is progressing by phase toward stated objectives. Based on this assessment, the commander may adjust the operations order in various ways ranging from

establishing new objectives to changing priorities of support. In every case, the assessment plan should evolve as the operations plan or order changes.

d. Assessment methods and techniques also add value to other staff processes by approaching information gathering and analysis in a structured way. All staff sections gather and analyze information relevant to their functional areas, but trained assessors can help structure collection efforts and information storage to improve analysis and speed up the publication of key products. Added structure may also reduce bias and provide a better empirical basis to staff estimates.

e. There are multiple implementation methods for the staff organization for assessments. Forming a multifunctional assessments working group led by the assessment team is a more direct approach for smaller staffs. Larger staffs that require more consensus may use planning working groups, led by operations or plans staffs, so that recommendations are made by the staff lead rather than the assessments team.

f. Decisions on these issues can be found in an SOP that establishes steady-state functioning of the assessment cell, a blueprint of the assessment process, and a schedule for the publication of assessment products. An assessment annex will communicate information required for people outside of the staff to facilitate assessment functions, particularly in collecting and providing information, or an annex will specify how to adapt from the SOP for particular short-term operations.

8. Develop the Assessment Plan

The development of the assessment plan adds detail to the assessment approach that is required to coordinate the efforts of all participants in the assessment process, including senior decision makers, assessors, staff, and even the junior Service members who will report the raw empirical information required for the assessment process as this information appears in the OE.

9. Developing Indicators

a. An indicator is defined as: a specific piece of information that infers the condition, state, or existence of something, and provides a reliable means to ascertain performance or effectiveness.

b. Developing indicators is about asking and answering the most important questions about the OE and the changes that the headquarters wants to make in it, that are specified as desired outcomes in the operational plan. Indicators answer these questions by reflecting the changes in the OE over time, that are pertinent to the operation, and that are essential for the assessment process to be effective. In essence, assessors are asking an increasingly specific series of questions about the OE and about the changes in the OE that joint forces are attempting to effect. The questions begin with the general form of: What questions do we need to answer to know we are accomplishing a specific effect or task? Possible answers may be more complex, but the idea is to frame questions that identify the facts assessors need to gather through direct observation or the judgment of a qualified and trusted observer. Analysis which considers multiple pieces of information simultaneously

allows the staff to come to more reasonable conclusions about the change occurring in the battlespace and the causes of it.

c. Indicators are only important if they answer the correct questions. Therefore, assessors should not fixate on collecting a number of indicators bearing on the operational problem. Instead, they should focus on asking the correct questions to determine if the organization is achieving its desired effects and objectives. These questions provide the logical links between stated objectives and effects and the indicators used to measure their attainment. Finally, collection assets and staff capacity are often limited. Therefore, the staff should not attempt to know all that can be known, but should focus information collection that answers the most important questions. The staff formalizes these questions as IRs.

10. Designing Effective Indicators

a. Assessment indicators generally come in two varieties. MOPs are indicators used to assess friendly actions tied to measuring task accomplishment. MOPs commonly reside in task-execution matrices, and answer general questions such as: Are we doing things correctly? Was the task completed to standard? MOEs are indicators used to help measure a current system state, with change indicated by comparing multiple observations over time to gauge the achievement of objectives and attainment of end states. MOEs help answer the question: Are we doing the correct things to create the effects or change in the OE that we desire?

b. Indicators must be relevant, observable or collectable, responsive, and resourced. That is, they should answer the important questions; be collectable at reasonable cost in time, money, or manpower; change perceptively in a time frame relevant to the operation; and have resources made available to collect them.

11. Fully Specifying Indicators

a. Selected indicators must be sufficiently well-specified such that they answer the IRs they are designed to answer, and such that any one indicator can be collected consistently by multiple observers, at different places, or over time. Each will need a definition, a plan for collecting the data (Who, What, When, Why, and How), and be sensitive to change within a relevant time frame. If it is calculated, it must have a formula; and it may have a target or threshold of success or a desired rate of change. This information is formalized in the data collection plan.

b. Questions (which are also IRs) and answers (which are also indicators) need not have a one-to-one correspondence. It may be that a single indicator answers a single IR, but it is also possible that a single indicator answers several questions, that several indicators answer a single question, or that several related indicators answer a set of related questions. The nature of the OE and the logic of the operations plan will dictate these specifics.

c. Indicators may be quantitative or qualitative. A quantitative indicator is a number that can express meaningful information about a quantity or amount. A qualitative indicator provides information about quality or kind and requires a description. The description can be a single word, a sentence, or paragraph. The qualitative description may be empirical (i.e. the bridge is still standing) or require some

judgment (i.e. I rate Alpha Company as trained on this collective task). Sometimes a qualitative judgment may be summarized as a number on an ordinal scale (i.e. The Romanian judge gave the Dutch gymnast a 9.8.; or: The local guide rates this restaurant as 3 stars).

Note: In these cases, assessors must be very careful with applying mathematical techniques to this sort of data. An average of equally weighted ordinal scores, like Olympic gymnastics scoring, is probably acceptable and provides leaders useful information; frequency distributions are also acceptable; but other mathematical techniques, such as adding, subtracting, applying ratios, and especially applying varying weights, to ordinal data, distorts the data and are not valid.

d. Take caution that some assessment schemes rely on the weighting and aggregation of a number of ordinal scores that represent information about various elements of the organization's performance or effectiveness. These schemes produce some sort of numeric index which people have treated as if this number had meaning; it does not. In general, if an assessor cannot tell the commander what unit of measure a number represents (e.g., attacks, casualties, sorties, etc.), then the number is questionable.

e. This criticism does not apply to standards-based assessment products which employ a simple ordinal scale, often one to five, as a shorthand to communicate a status. Because the product merely communicates a status, no mathematical operations are performed on the scores, and the appropriate analyses are performed behind the product. This format is commonly used at HHQ.

"Assessors do not understand that the E-4s through E-6s who will collect and report many assessment indicators do not have the assessors' organization-wide perspective. Therefore, assessors seeking data must ask specific questions and be very clear what information they want in reporting or patrol debrief formats."

Dr. Adam Shilling, Center for Army Analysis

March 2018

12. Considerations for Planning for Collection

a. There are a number of ways of gathering assessment information. Many potential indicators exist within the headquarters, and are contained in operational, intelligence, sustainment, or civil-military reporting. Other data sources include HHQ, interagency partners, allies, nongovernmental organizations, international organizations, and media reports. Additional important information may require special efforts to collect. Surveys and focus groups can provide information on public opinion, or assessors may draft report formats for operational forces to complete routinely or as needed. Each survey question or line from a report format is stored as a field in a database.

b. If Service members are reporting on events or situations encountered in the field, the questions embedded in the report format can anticipate assessors answering questions that the staff has not yet identified as important. In addition to the currently tracked indicator, the report may contain the answers to many more assessment questions. For example, a significant activities (SIGACTs) report from Iraq or

Afghanistan consisted of a number of fields asking questions to get a unit to describe an event that fit the definition of a SIGACT. When stored in an operational database, this report, and others like it, allowed assessors and other staff analysts to count the number of SIGACTS, to separate attacks from other types of SIGACTs, to separate indirect fire from direct fire from improvised explosive device (IED) attacks, to compare numbers and types of attacks from different time periods, to study geographic and temporal patterns, to analyze which sort of attacks produced the most casualties, and to conduct a wide range of analyses, which could not possibly have been completely anticipated at the outset of operations.

Note: The AWG coordinates with the knowledge or information manager to ensure standard reports such as: situation reports, intelligence summaries, personnel stats, logistical stats, etc., support the assessment plan, and insert specific reporting requirements if required.

c. The commander may task collection assets to answer IRs identified through the assessment process the same as for IRs identified by the intelligence or targeting processes; the staff uses the existing intelligence, surveillance, and reconnaissance (ISR)-collection matrix or Service-specific matrix. The frequency of observation required to satisfy IRs (e.g., hourly, daily, weekly, monthly) or the requirement for repeat versus one-time observation may govern whether one or more collection-tasking matrices are best, and assessment IRs may compete for collection assets with other IRs. Due to finite resources, the AWG must provide recommended prioritization for IR collection that supports the operation assessment.

d. Assessors and other staff members cannot ignore important information about events in the OE because these things are not in the collection plan. For example, an event such as the assassination of a key local national ally can change an operation in unexpected ways. When unexpected events occur, assessors should evaluate these for their importance to the mission, and may recommend changes to the operational plan to mitigate risk or exploit opportunity. They may also recommend changes to the assessment plan to monitor events which are newly recognized as important.

13. Considerations for Organizing Information for Analysis

a. As the plan matures, the assessment cell in conjunction with the AWG develops an assessment plan and a supporting data collection plan. The plan compartmentalizes the OE by end state, phase, and geography (i.e., purpose, time, and space), or by other means appropriate to the situation, as determined by commander's guidance. Assessors review what is recorded, consider the confidence of the data received, and then discern evidence-based conclusions of the current situation. The effective organization of these data leads to a clear understanding of their relevance and limitations, and the underlying logic behind their use; thus, supporting an effective assessment.

b. As information enters the headquarters it must be quality checked by the assessment cell; obvious errors must be corrected. For example, a map reference that is outside the operational area, a date from the distant past, or a casualty report that is far out of the norm is likely an error. After the quality check, information or

data must be organized and stored to facilitate analysis. The method must be sufficient for the intended analysis and might be as simple as a tally kept on a white board, but most assessment data would benefit from a more robust storage technique. Typically, this means storing the information on a database. Frequently, staffs get by with tables stored in a common commercial spreadsheet program to which most Service members have access and can use for simple information storage tasks. Because this database can sort data, create charts and graphs, and do a number of mathematical manipulations on quantitative data, it is usually superior to storing data as storyboards, slides, or printed reports (unless the data require a lot of narrative text). As the assessment problem grows with the complexity of the operation, a common commercial database will prove better, and ultimately, a special-purpose database may be required. Assessors store reports as a series of fields in the database, which facilitates planned analysis, answers key questions, and may answer other questions posed by analysts or key leaders as the staff learns or as the OE changes.

14. Considerations for Planning for Analysis

a. As noted in chapter 1, an assessment is trying to answer six general questions. These are:

(1) How has the operational environment (OE) changed?

(2) How effective are a set of our activities in accomplishing our operational objectives?

(3) What do we think caused or prevented our activities from being effective in achieving our objectives?

(4) Do the changes in the OE cause a change to operations?

(5) What are the future opportunities or risks?

(6) What do we need to do?

b. Analysis pursuant to assessment answers specific questions the commander and staff have determined are important to the success of operations, or that analysts or decision makers pose as operations progress. These are often termed assessment questions or strategic questions, and are more difficult to answer than the IRs that empirical indicators answer, in that the former require analysis, critical thought, reasoning, and military judgment.

c. Indicators answer IRs; therefore, they provide the empirical basis for the analysis which answers higher-order questions, and permits the staff to draw relevant conclusions about the OE. This allows the staff to recommend changes to the plan which will make operations more effective. Quantitative indicators are desirable because they are frequently less subject to bias than are qualitative indicators. However, in a complex OE, there are important aspects of it that defy quantitative measurement, and require qualitative description. Therefore, assessors must be able to analyze and synthesize both quantitative and qualitative data into an integrated understanding of the OE and communicate this understanding through an integrated assessment product.

d. Some quantitative indicators will require statistical description or other mathematical manipulation. Descriptive statistics: means, medians, modes, variances, frequency distributions, percentages of totals, etc., and simple data visualization in a graphic form can aid assessors in making sense of raw data or making relevant comparisons. More sophisticated mathematical techniques may require appropriately-trained operations research personnel to make the best sense of the data, and to minimize the possibility of misleading analytic errors. For example, a lot of quantitative assessment information is stored as time-series data. The assessor will display the data in appropriate ways, because the trend of the indicator, or the trends of several related indicators viewed together, tell the story that the assessor is trying to extract from the data. The assessor may also perform analytic techniques to smooth the data or to remove seasonality from the data and isolate the trend.

e. View the related indicators together when viewing the trends of indicators. There may be several reasons why one indicator is moving in a certain way, but some of these explanations can be discarded based on the simultaneous movement of other related indicators. Moreover, an assessment is frequently not as simple as observing an indicator increase or decrease over time. There may be setbacks or adversary activity reflected in the data, or the staff may find that an increase in the value of an indicator in a given time period is good, and a decrease in the same indicator in another time period is also good. For example, if a unit moved into a new area surrounded by a local population, they might begin tracking the number of tips per week; where the local people inform on enemy personnel. An initial increase in tips might indicate that the people are growing in their trust of the friendly unit, but over time, the number of tips per week reach a maximum and then begin to decline. This could indicate a loss of trust, but if contacts with the enemy have also topped out and begun to decline, it is likely the fewer number of tips reflects the fewer number of enemy personnel remaining in the area. In this case, both the increasing trend and the decreasing trend are good.

f. Viewing several indicators together also tells a more complete story. For example, if enemy-initiated attacks are down, but friendly casualties are up, it would appear that attacks are becoming more effective. The assessor would attempt to determine if this is true, and why it is occurring, so that the command can take action to mitigate this increased level of risk. Indeed, the important assessment question is not what the indicators are doing; but why they are doing it. Assessors must attribute change in the OE, reflected in the indicators, to the correct causes in order to know what joint forces should do next to be most effective.

g. Those assigned to work with quantitative data frequently shy away from talking about causality because the data, if they are the correct type, can only demonstrate a statistical correlation of an indicator to others. In an assessment, however, assessors cannot avoid the issue of causality because ultimately assessors and functional area experts on the staff must explain why indicators are moving as they are. Any operation’s plan that orders a set of tasks in pursuit of a set of objectives or effects is a set of causal hypotheses—that these tasks are performed to cause

desired changes in the OE. An assessment can be viewed as a testing of these hypotheses; therefore, assessors must address issues of causality.

h. Assessors cannot assume that a friendly action alone caused an outcome. A complex OE is full of other actors, some allied or sympathetic to US goals, some opposed or adversarial toward US goals, and many third-party actors that are pursuing agendas of their own. Assessors need to consider sets of related indicators together, determine possible causal relationships that would account for the simultaneous movements in indicators, and then go back into the data in an attempt to eliminate some possible causes, isolating the most likely cause.

i. Math, statistics, data visualization, and mapping techniques are important means of analysis. It should also be apparent that the most critical skill for assessment is critical thinking, particularly as the staff sorts through qualitative information and combines qualitative information with quantitative data. The assessment process and products are viewed as qualitative in nature for three reasons: in a complex environment, some important features cannot be adequately described by quantitative information; once the staff combines quantitative and qualitative information, the synthesis is qualitative; and human military judgment is required to make sense of the collection of indicators and analytic output.

15. Considerations for Planning to Communicate the Assessment

a. In determining the form of products that communicate the assessment, the most important thing is to remember that the product should not be confused with the assessment itself. The latter is the improved understanding of the OE gained from working through the assessment process; the former is merely a device to communicate the most pertinent portions of this understanding at a point in time to senior leaders.

b. Assessment products contain recommendations for the commander based on the commander's guidance. Regardless of quality and effort, the assessment process is limited if the communication of its results is deficient or inconsistent with the commander's personal style of assimilating information and making decisions. These products help the commander understand their OE and select appropriate actions for the force. Therefore, the product will reflect the commander's preferences for the display of information, and it needs only to address the things they asked to see, answer specific questions posed, and present things that the staff has discovered that require the commander's attention. It does not need to share the status of every indicator, but most frequently consists of one or more slides with appropriate graphs or graphics which make it clear to the commander what the staff has discovered. This depiction will often form the basis of a conversation between the staff and the commander, or among several commanders, that improves their understanding of the OE, aids their decision making, and leads to more effective operations.

c. Operation assessment also provides accountability of activities and resources to HHQ, and aids higher ranking commanders in allocating resources in the future, which in turn, makes the enterprise more effective. In this case, the higher ranking commander may specify what information is required by posing questions, imposing

IRs, or specifying a report format. Usually, the product takes the form of a report that contains empirical information explained by a narrative. This report should contain sufficient information about collection methods, sources, and analyses performed to provide transparency and permit a reader to form a judgment as to the quality of the report's conclusions.

d. An assessment may also assist a number of leaders other than the unit's commander and their higher ranking commander. Staff directors, subordinate commanders and staffs, adjacent commanders, allied leaders, interagency partners, and potentially a large number of audiences may benefit from a thorough assessment product communicated clearly.

e. Finally, assessment products may be released to the public, and these may become messaging tools to garner support for a greater effort or may be used by other actors to build a case for denying additional resources. Assessors must recognize that products may be used as messaging devices, and they must also understand that the use of products in this way creates pressure to tell a story in a particular way. This has implications for the veracity of assessment products, and requires an ethical commitment from assessors to perform analysis in valid ways so that they are telling the truth as they understand it.

16. Evaluating the Effectiveness of the Assessment Product

a. There are two criteria for evaluating an assessment product:

(1) Does the analysis conducted by the staff in support of an assessment product promote the best-possible understanding of the OE and help the staff recommend appropriate actions for the force?

(2) Does this depiction allow the effective communication of the staff's findings and recommendations, and their implications, to the commander?

b. If the above criteria are met, the assessment product is useful. If not, it requires revision. Under no circumstances is the mere production of a slide or a report sufficient to constitute assessment. Assessment is the process behind the depiction.

c. If the staff is not gaining an understanding of the environment, and conveying it to the commander for a decision, then a redesign of the assessment process and tools needs to be completed.

d. The assessment process is most useful when it compliments other corporate processes to include planning, budgeting, and operations. For example, using the assessment product to inform future campaign planning and orders as a feedback loop to complete the cycle of operationalization. Another example is using assessment recommendations to drive capability gaps and resourcing processes within an organization.

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Chapter III
COLLECT AND ANALYZE

1. Introduction

This chapter focuses on steps three and four of the operation assessment process. Conducting collection and analysis for an operation assessment is an integral part of planning and execution. Throughout planning and execution, the staff refines and adapts collection as well as analysis methods. This chapter provides tools, concepts, and techniques for enhancing the collection and analysis that leads to actionable recommendations to the commander and staff. Table 4 depicts steps three and four of the assessment process.

Table 4. Operation Assessment Steps Three and Four

Step	Operations Process Activity	Personnel Involved	Input	Staff Activity	Output
Collect Information and Intelligence	Execution	• Intelligence analysts • Current operations • AWG personnel • Assessment cell (if established) • Additional personnel at the Commander's discretion	• Data collection plan • Targeting • Assessment Plan	• JIPOE • Staff estimates • IR management • ISR planning and optimization	• Data collected and organized, relevant to current and desired conditions
Analyze Information and Intelligence	Execution	• Primary staff • Special staff • AWG personnel • Assessment cell (if established)	• Collected and organized data	• Conduct intelligence assessments • Conduct staff assessments • Analyze data collected	• Estimate of joint force effects on OE (draft assessment report) • Vetted and validated recommendations

Legend:
AWG—assessment working group
IR—information requirement
ISR—intelligence, surveillance, and reconnaissance
JIPOE—joint intelligence of the operational environment
OE—operational environment

2. Collect Information and Intelligence

a. Personnel involved. Information and intelligence collection is a continuous whole-of-staff effort. Effective staffs leverage existing reporting mechanisms, whenever possible, to enable collection of information and intelligence. An example of who is involved in the collection plan and their role is listed in table 5.

Table 5. Example Collection Roles	
Position	**Role**
Commander	Approve allocation of resources to an assessment process.
Deputy Commander or Chief of Staff	Managing battle rhythm, staff resources, and personnel dedicated to an assessment.
Assessment Cell	Identifying and refining assessment information requirements and organizing assessment data collected and stored to inform analysis.
Intelligence Section	Staff section responsible for identifying and refining threat and operational environment information requirements and organizing data collected and stored to inform intelligence analysis, for the collection of intelligence and managing the joint intelligence preparation of the operational environment process.
Current Operations	Staff section responsible for monitoring the activity of the force. Provides combat assessment data to the assessment working group.
Primary and Special Staff: Public Affairs, Civil Affairs, Information Warfare, etc.	Provide updated staff estimates.
Assessment Working Group	Provide subject matter expert support for identifying and refining relevant information to support the assessment.

b. Inputs.

(1) The collection step formally starts with an approved assessment plan and its associated data collection plan.

(2) The assessment cell should leverage the intelligence collection process and any other staff system appropriate to the assessment plan. It should set requirements for data input to organize the storage of indicators identified for analysis during the development of the assessment plan.

(3) The assessment cell will influence collection efforts, and may generate independent assessment tools and forms or formats.

Table 6. Data Collection Plan Example					
Line of Effort	**Objective or Effect**	**Indicators**	**Sources**	**Staff Support**	**Assessment Baseline**
Line of Effort 1: Legitimacy of Operations.	1.1. Support from Country A.	1.1.1. Messaging efforts against enemy forces X and Y viewed as legitimate by Country A, coalition, and the United Nations.	- Embassy - Local newspaper, radio, or TV - Coalition - International news	- PAO - POLAD - Coalition LNOs	
		1.1.2. Country A face on successful operations against enemy forces X and Y.	- Embassy - Local news - Survey of population - SOF	- PAO - POLAD - SOFLE - Coalition LNOs	
		1.1.3. Country A forces capable of defeating enemy X elements with minimal coalition support.	- HN - Embassy - SOF	- PAO - POLAD - SOFLE	
Note: The data collection plan would have all applicable indicators included.					
Legend: HN—host nation LNO—liaison officer PAO—public affairs officer POLAD—political advisor SOF—special operations forces SOFLE—special operations forces liaison element					

(4) Assessment information flow can use normal battle rhythm events and routine reporting channels and documents such as the intelligence, operation, and logistics status summaries, and daily updates such as the commander's update brief as well as staff running estimates.

(5) An example of a simplified assessment plan that establishes the rhythm for reporting information requirements established above is shown below in the data collection methodology in table7.

Table 7. Example Data Collection Methodology		
Source	**Information and Intelligence Requirements in support of MOEs and MOPs**	**Frequency and delivery**
Intelligence	• Threat and operational environment update.	Daily at commander's update brief. Daily posted to SharePoint.
Current Operations and Future Operations	• An unbiased and transparent assessment (based on defined levels) with a one-paragraph description per objective, including observed indicators' bullet points.	Daily at commander's update brief.
Fires	• Objective assessment (based on defined levels). • Generate recommendations (adjust fire support coordination line, boundaries, priorities). • Consolidate input and generate description and highlight key indicators.	Daily during targeting working group (attended by assessment cell).
Subordinate Headquarters 1	• Objective assessment (based on defined levels) and one-paragraph description per shaping objective with observed indicators' bullet points.	Daily update to assessments cell.
Subordinate Headquarters 2	• Objective assessment (based on defined levels).	Daily update to assessments cell.

(6) Clearly establishing reporting requirements, delivery methods, and the frequency of delivery greatly increases the efficiency of the assessment process and leaves the assessors more time to conduct analysis.

c. Assessment Cell Data and Information Sources.

(1) JIPOE: The staff continually updates and refines the JIPOE or their respective Service intelligence picture in order to maintain a holistic view of the OE. The process is depicted in figure 1. Assessors seek to leverage this continuous effort to inform the command on the effectiveness of operations and generate recommendations to improve operations.

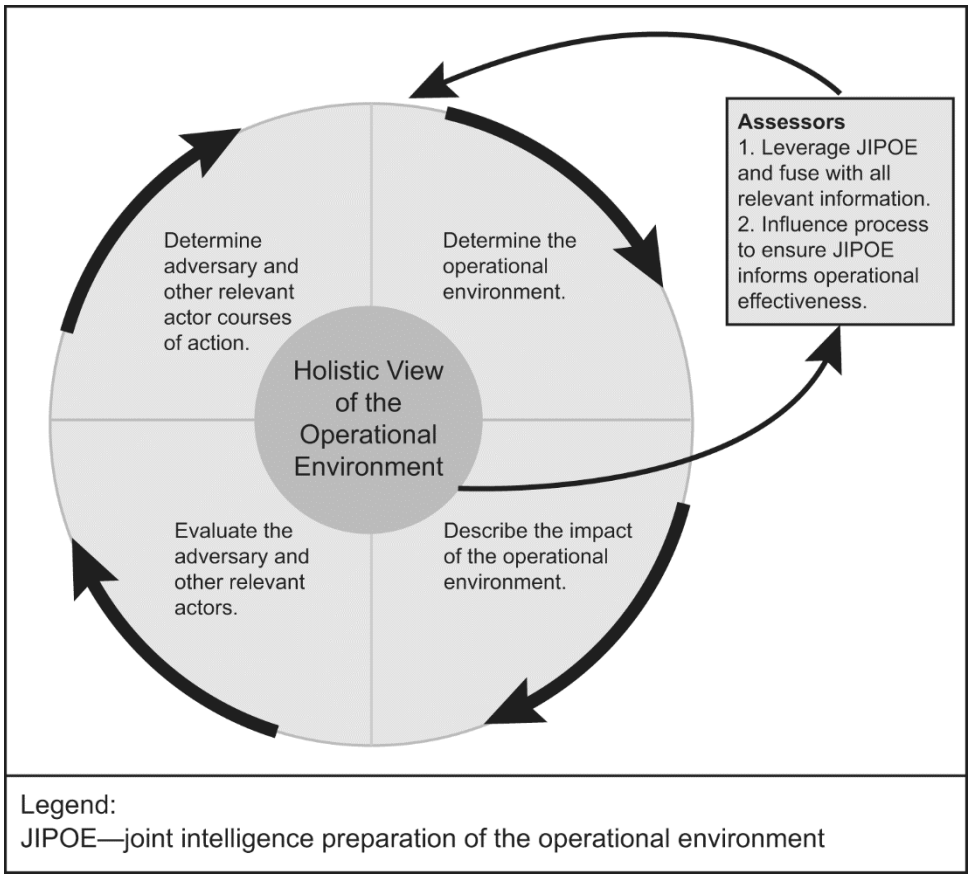


Figure 1. Assessment Integration into JIPOE

(2) Staff external sources. Agencies or entities outside of the staff can provide information crucial to assessing operations. Examples include the Department of State, and other governmental and nongovernmental organizations. Assessment cells may also be able to find funding for analysis from private agencies.

(3) Other assessment data collection methods:

(a) The assessment cell may determine that reporting through existing staff estimates is not sufficient. The cell may ask subordinates or staff sections to provide input through custom manual forms or even automated collection systems.

(b) Assessment cells should carefully consider the necessity of such products before adding reporting requirements to subordinates and other staff sections.

(c) The following vignette portrays an assessment that leverages multiple best practices in assessment; standards-based and written assessments.

International Security Assistance Force (ISAF) Campaign Assessment

In 2012, the ISAF headquarters' assessment effort measured the state of the war and the progress towards achieving strategic and campaign goals. This vignette illustrates the campaign assessment portion of the ISAF assessment effort.

The ISAF commander (COMISAF) guidance for planning the assessment:

- The process must assess all aspects of the war in Afghanistan, rather than just the military aspects.
- The assessment must stimulate discussion among senior leaders, as opposed to just presenting information.
- The results of the assessment must be actionable. COMISAF wanted the process to identify items that could address challenges and opportunities within COMISAF's span of control, and on which the commander could take, direct, or request action as appropriate to make operations more effective.
- Subordinate and supporting commanders must be involved in the assessment's inputs, outputs, and outcomes.
- The ISAF assessment cell will leverage the ISAF staff and ISAF's subordinate and supporting commands for necessary expertise. The ISAF assessment cell will not act as an independent entity.
- The process will adhere to the quarterly cycle of reporting and the battle rhythm requirements levied by North American Treaty Organization and United States chains of command.

The ISAF assessment cell chose to organize data by purpose. ISAF listed eight essential tasks along with the assertion that accomplishment of the eight tasks would equate to mission accomplishment. The assessment cell identified four fundamental domains across which they would measure progress towards or setbacks from achieving ISAF campaign goals for each essential task. Table 8 depicts the adopted organizational method.

Table 8. Generic ISAF Campaign Data Organization Method

	Campaign Goals			
	Campaign Goal 1			
	Campaign Goal 2			
	Campaign Goal 3			
	Command Assessments			
	Security	**Governance**	**Socioeconomic**	**Regional Relations**
Campaign Essential Tasks	Essential Task 1: XXXX			
	Essential Task 2: YYYY			
	Essential Task 3: ZZZZ			
	Essential Task 4: AAA			
	Essential Task 5: BBB			
	Essential Task 6: CCC			
	Essential Task 7: DDD			
	Essential Task 8: EEE			

The ISAF assessment cell developed standards for each fundamental domain for each essential task to provide a common framework for thinking about the campaign and provide necessary space for including nuance and context. COMISAF required subordinate and supporting commands to report progress and setbacks for each essential task against the domain standards depicted in the five-point rating definition scale in table 9.

Table 9. Notional Assessment Standards for an Essential Task

Campaign Essential Task 1: Secure Areas XXXX and YYYY					
Category	**Level 1**	**Level 2**	**Level 3**	**Level 4**	**Level 5**
Security	Stated areas are not secured.	Stated areas are partially secured, but with significant risk of reversion.	Stated areas are partially secured, but with moderate risk of reversion.	Stated areas are partially secured, but with minimal risk of reversion.	Stated areas are fully secured with minimal risk of reversion.
Governance	Key government actors are not present in the stated areas.	Some key government actors are present in the stated areas and/or their actions are significantly undermining security.	A majority of key government actors are present in the stated areas and/or their actions are moderately undermining security.	All key government actors are present in the stated areas and/or their actions are minimally undermining security.	All key government actors are present in the stated areas and they are actively working to enhance security.
Socio-Economic	Security conditions in or around the stated areas are significantly hindering legitimate socioeconomic activity.	Security conditions in or around the stated areas are moderately hindering legitimate socioeconomic activity.	Security conditions in or around the stated areas are having minimal impact on legitimate socioeconomic activity.	Security conditions in/around the stated areas are having no impact on legitimate socioeconomic activity.	Security conditions in/around the stated areas are enhancing legitimate socioeconomic activity.
Regional Relations	Other countries are playing a significantly negative role with respect to security in the stated areas.	Other countries are playing an overall moderately negative role with respect to security in the stated areas.	Other countries are playing an overall minimally positive role with respect to security in the stated areas.	Other countries are playing an overall moderately positive role with respect to security in the stated areas.	Other countries are playing an overall significantly positive role with respect to security in the stated areas.

Line of effort (LOE) managers reported their assessment results using the campaign assessment template depicted in figure 2. COMISAF afforded subordinate and supporting commands the ability to select and rate only those tasks and domains that pertained to their specific mission. Subordinate and supporting commands chose the standard that is most representative of their situation for each selected task in each selected domain, and provided narrative justification for their particular standard choices. Subordinate and supporting commands also provided narratives on the most significant obstacles to future progress for each selected task, the most significant opportunities for ISAF to act on, and any other items of interest. Additionally, subordinate and supporting commanders submitted a less structured, personal assessment directly to COMISAF summarizing the heart and mind of the commander regarding their efforts to execute the ISAF operational plan.

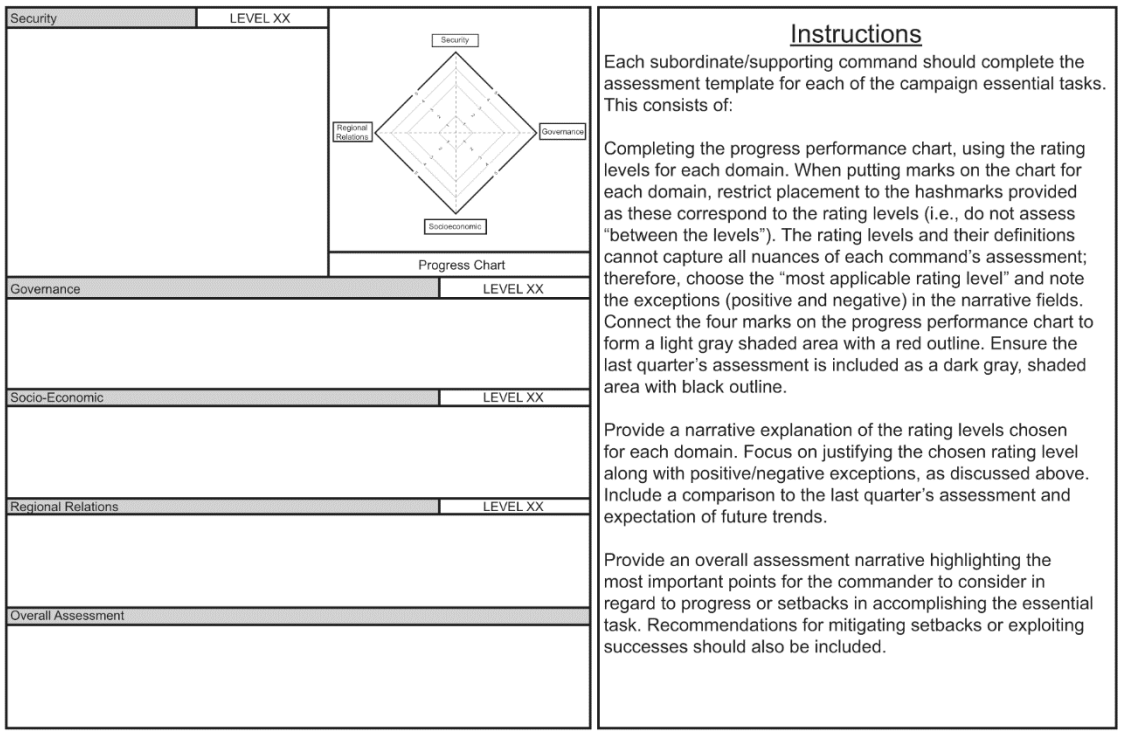


Figure 2. ISAF Campaign Assessment Results Collection Template

Analysis primarily consisted of studying all the commands' responses against the developed standards for each domain of each task. Analysis revealed differences in views among subordinate and supporting commanders as to what was and was not working in the campaign. These differences often served as discussion points among the ISAF staff and for the commanders' quarterly assessment conference. Another key component of analysis was the identification of opportunities and challenges to future effectiveness in each task, and an appraisal of the risk to the overall mission if ISAF failed to overcome the identified

challenges. Appropriate actionable recommendations were developed to make operations more effective.

The ISAF assessment cell used two distinct products to validate the analysis results during a series of working group meetings and, subsequently, to communicate the assessment to the COMISAF. The first assessment product was a set of PowerPoint slides summarizing the commands' inputs for each of the eight essential tasks. Having all of these inputs presented on a single slide for each of the eight essential tasks stimulated significant discussion. The inclusion of the actual standards corresponding to the consolidated response in the chart kept the discussion focused on achieving the stated campaign goals. Presenting subordinate and supporting commands' comments verbatim on the slides preserved and effectively communicated the raw information supporting the assessment. The second output of the campaign assessment was a narrative set of issues identified via the overall assessment portion of the campaign assessment template (shown in figure 3).

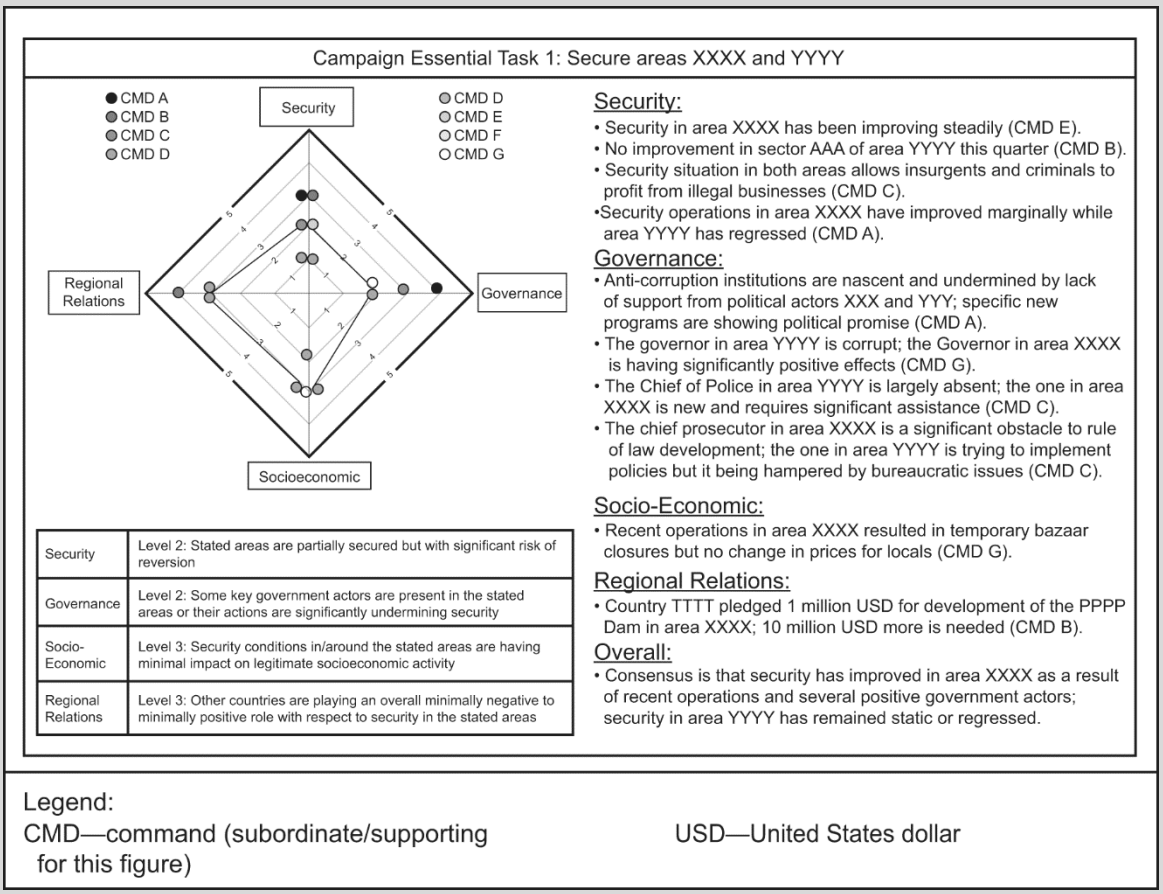


Figure 3. Notional Campaign Assessment Summary Slide

(4) Staff Estimates: Running staff estimates provide information, including indicators, and provide context to assessments.

(a) Army Doctrine Publication 5-0, The Operations Process, provides a template for staff estimates that include: facts, assumptions, friendly force

status, enemy activities and capabilities, civil considerations, conclusions, and recommendations.

(b) Assessors should work with the chief of staff to ensure all staff sections focus on the “so what” in their estimates; this is usually evident in the conclusions and recommendations section.

(c) A technique includes an assessment section within running estimates presented to the commander and available to the assessment cell.

d. Output: The collection process is continuous, but sampled as necessary by the assessment cell to conduct analysis. Assessors organize data to enable effective analysis, ensure its relevancy to understanding operational effectiveness, and vet all information collected to ensure accuracy and valid analysis. Examples of data analysis and visualization tools are described later in this chapter.

e. Characteristics of Effective Collection:

(1) Linkage. Indicators link to effects and objectives.

(2) Accountability. Firmly establish reporting requirements as tasks for subordinate units or staff sections.

(3) Availability. Ensure that data and information are available—note in the assessment product the absence of critical information required.

(4) Purpose. Clearly articulate the purpose of collection tasks.

(5) Relevancy and Focus. Do not over collect, more information is not always better. Only collect data that are necessary for validating analysis. Focusing on fewer measures can often lead to more accurate measurements and greater analytical rigor.

(6) Qualitative versus Quantitative. Not all important aspects of the OE can be counted; do not solely focus on collecting numbers.

3. Analysis

a. Assessors analyze purposefully collected information and intelligence products and reports to inform assessment. The purpose of analysis is to identify trends and changes in the OE over time that signal either operational effectiveness or a need to consider adjusting the plan to be more effective.

b. Analysis is vetted and validated through the staff prior to Step 5, Communicate Feedback and Recommendations. All recommendations, and any major issues unable to be resolved by the assessment cell and functional area experts on the staff, are presented to the commander for approval and implementation guidance.

c. Analysis must be a whole-of-staff effort that leverages functional expertise. The collection and analysis steps blend; functional experts and subordinates provide analysis in their areas of expertise as depicted in figure 4.

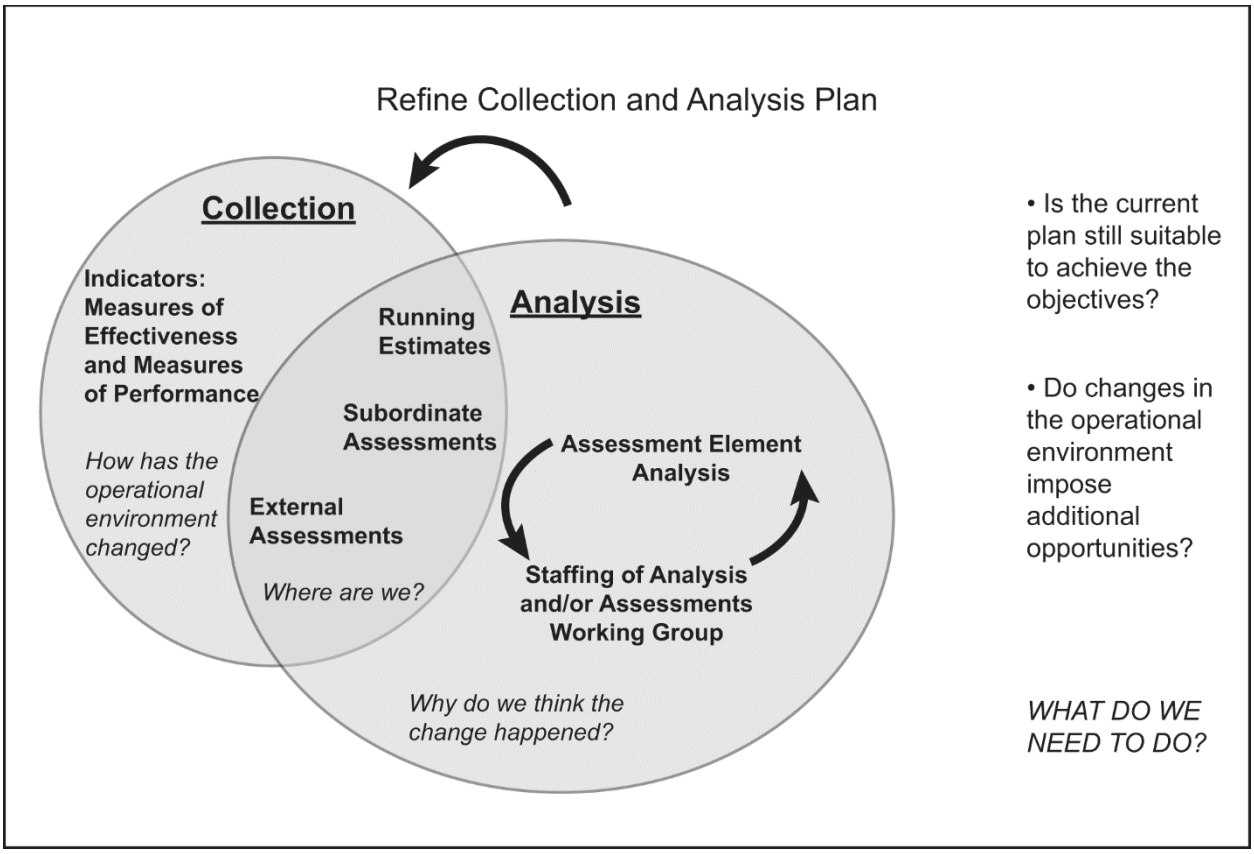


Figure 4. Assessment Collection and Analysis

d. An assessment cell fuses all input into higher-level recommendations for the commander. The cell should staff their analysis to ensure accuracy, and conduct an assessments working group to further refine when time is available.

e. Staff Activities.

(1) AWGs.

(a) The AWG should improve and validate the staff's analysis before it goes before the commander. Time consuming data-mining and analysis should not be conducted during the actual working group.

(b) A best practice is for the assessment cell to send a draft of the assessment product to be communicated to the commander along with supporting analysis to all members prior to the working group. Participants can then prepare appropriately and provide meaningful and efficient input at the meeting.

(c) An AWG should gather members of all major staff sections, key special staff if required, and guests from outside agencies or subordinate units when available.

(d) The assessment cell can guide the working group's discussion, inputs, outputs, and required attendance with a seven-minute drill. Table 10 shows a template for a seven-minute drill. The name "seven-minute drill" refers to the fact that the assessment cell chief has seven minutes, using the sample quad

chart figure 5, to explain to the chief of staff “why” the assessment working group is necessary and “how” it supports the commander’s decision cycle. Reference JP 3-33 for additional information.

<table>
<tr><th colspan="2">Table 10. Seven-minute Drill Template</th></tr>
<tr><td colspan="2">Battle Rhythm Event: Operation Assessment Working Group (OAWG)</td></tr>
<tr><td>Meeting Chair: The staff member or position with the authority to conduct the OAWG.</td><td>Meeting POC: The point of contact for OAWG participants. May serve as the facilitator of the OAWG.</td></tr>
<tr><td colspan="2">Purpose: Provide a clear description of the OAWG including the responsibilities, authorities, and information exchange requirements.</td></tr>
<tr><td colspan="2">Meeting Time and Location: Provide the date time, location and frequency of the OAWG. Include collaboration tools and facility requirements.</td></tr>
<tr><td>Input: Provide a list of inputs and point of contact or organization responsible for the input.

Inputs to the OAWG could include: higher headquarters directives, commander’s intent and planning guidance, operational objectives, effects, tasks, intelligence products, and assessment products. Include inputs form other cross functional working groups.</td><td>Output: Provide a list of outputs from the OAWG.

Outputs from the OAWG could include: Updated assessment framework and plan, collection priorities and requirements, updated assessment briefing products, OAWG recommendations to decision boards. Include outputs that are required by other cross functional working groups.</td></tr>
<tr><td colspan="2">Agenda: Provide an agenda specific to this OAWG to set expectations for the participants. Agenda items could include:

• Roll call
• Review previous OAWG minutes.
• Receive an operations and intelligence update (as required).
• Update/review the assessment framework.
• Brief and discuss the results of effects analysis.
• Brief and discuss the results of task analysis.
• Form conclusions and make recommendations regarding operations.
• Update assessment products for decision boards.
• Identify outputs due to other boards, bureaus, centers, cells, and working groups.
• Discuss future agenda items.</td></tr>
</table>

Table 10. Seven-minute Drill Template (Cont'd)
Membership: List required personnel. OAWG typically include representatives from: Assessment Cell, Intelligence, Plans, and Current Operations. Other functional or special staff representation may include: Information Warfare, Fires, Protection, Sustainment, Public Affairs, Component liaison officers (LNOs), Subordinate LNOs, Political Advisor, Legal Advisor, and others as necessary.

(e) It is critical that assessments are properly integrated within the Boards, Bureaus, Centers, Cells, and Working Groups (B2C2WG) process within an organization. AWGs can be an important working group within the B2C2WG process especially if the AWG processes are linked to planning, resourcing, or other corporate processes. The AWG can also function as a priority driven working group that compliments other command priorities, institutional working groups, organizational processes, and operational planning teams (OPTs). Time constraints may may prevent the staff from conducting an independent AWG, but validation of the assessment cell's analysis can occur in or during other venues. Examples include a combined plans and assessments working group, the targeting board, or potentially an intelligence working group. There are many other options, including not having a formal working group at all, but the assessment lead must find a way to involve all key personnel in the creation and validation of the assessment product. Figure 5 shows an example assessment working group quad chart.

(f) AWGs are used to facilitate the assessment process at various organizational levels, from strategic to operational to tactical. AWGs are an effective means to integrate whole-of-staff engagement in the assessment process and as a method to connect assessments with other corporate processes within the organization. These other processes may include, but are not limited to, funding, strategy and plans, operations, and other staff functions. In particular, utilizing a Planning and Assessment Working Group construct enables a cycle of operationalization from national to local strategy, orders, execution, and assessments.

Assessments Working Group

Proposed Time: 1100–1200; Daily

Physical Location—Executive Conference Room; Virtual Location—Voice (XXX) XXX-XXXX

Purpose and Function:
A cross-functional team of staff and units to collectively assess effectiveness towards end states and objectives defined in the commander's operational approach.

Chair: Division Chief of Staff.
Lead: Chief of Assessments.
Attendees by location:
In person: Intel, Sustainment, Commutations, Civil Affairs, Protection, Air and Missile Defense, Engineer, Provost Marshall, Public Affairs, Electronic Warfare, Aviation, and Liaisons.
Virtual: Subordinate Brigade Representatives.

Inputs:

Product	Time and method of delivery	From whom or what battle rhythm event?
Operational approach slides (with end states and objectives).	Received at plans update for next phase. Assessments downloaded from SharePoint.	(1) Joint planning before start of exercise. (2) Plans update.
Enemy functional-effects assessments.	0600 and 1700 daily, prepared by intelligence, briefed by MAJ Schwartz.	Previous targeting decision brief and intelligence from battle update brief.
Brigade assessment.	0900 daily. Email to assessment cell.	All brigades.
Consolidated assessments slides by line of operation.	1500 the previous day. Posted on SharePoint.	Last assessments working group.
Executive summaries and conclusions from previous working groups.	1000 daily. Posted on SharePoint.	Information operations, intelligence, inter-organizational working groups, intelligence synchronization.

Agenda (simplified as appropriate)
(1) Review operational approach with end states and objectives by line of operation.

(2) Review or brief changes to indicators.

(3) Assess current status of each line of effort, using each staff and brigade assessments input.

Outputs/Decisions/Next Actions:

Product	Time and method of delivery	To what battle rhythm event?
Consolidated effects assessments slides.	1300. Posted on SharePoint. Emailed to chief of operations.	Battle update brief, next targeting working group, next targeting decision board, next assessments working group.

Point of contact: MAJ Smith

Figure 5. Assessment Working Group Quad Chart Example

(2) The assessment cell and staff answers the six general questions based on the assessment plan. They must synthesize answers with information and intelligence collected, which may be qualitative or quantitative. Conclusions must be evidence based to maintain the assessment's credibility. The six questions and some thoughts on why these are important are discussed in table 1 on page 1.

f. Analytical Tools and Techniques.

(1) This section outlines potential analytical tools and techniques that enable assessors to identify trends, patterns, and responses in the OE. The staff can use these to generate answers to the six general questions.

(2) Data Visualization.

(a) Visualizing data provides opportunities to quickly identify trends and patterns within the OE. The following examples guide the use of some of the most common techniques. When time permits, the staff or assessment cell should conduct statistical tests that confirm whether patterns exist or are significant.

(b) Tables.

- Tables are useful analytic tools, but quickly lose their utility as multiple categories and or large amounts of data are accumulated.
- Sorting and filtering of tabular data enables more complete analysis and understanding of trends or identification of outliers.
- See the example table in table 11, and note how it is fairly easy to compare data in the table within one category, but it quickly becomes challenging to make comparisons across categories or to look for potential patterns and trends.
- When using tables, limit the volume of data displayed at the same time to enable effective analysis and eventual communication of analytical results.

Table 11. Example Table

Province	A	B	C	D	E	F	G	H	I	J	K	L
Protests	10	12	13	14	15	8	12	12	8	7	3	2
Improvised explosive device events	3	5	7	10	4	2	9	2	1	2	3	5
Humanitarian aid distributions	3	2	3	2	1	4	7	2	3	4	2	2

(c) Pivot Tables.

- Pivot tables are extremely useful when conducting analysis. They are tables that summarize data, and are generated by applying operations such as sorting, averaging, or summing data, typically including groupings appropriate to answer an analysis question.
- A simple pivot table generated from the data in table 11 might simply contain averages across provinces.
- Microsoft Excel (or similar program) has a dedicated pivot function, and many other applications provide pivot functionality. With the high volume of data often collected, assessors should seek to leverage such tools to rapidly generate analyzable results.

(d) Bar Charts.

- Bar charts are used to compare and display categorical data. Categories can include locations, conditions, groups of persons, or any other relevant factor identified to group measurements and indicators.
- Human visual perception performs length comparisons quickly and with a high level of accuracy, especially when compared to area comparisons.

For this reason, a bar chart may be a better option than an area-based graphic such as a pie chart if the intent is to more fully compare similar values and understand differences.

- The grouped bar chart in figure 6 displays the same data from table 11. This provides the analyst a method for identifying patterns. One can readily discern potential correlations between the categories of information shown by province. The information is much more readily usable for cross comparison than it was in the table format.

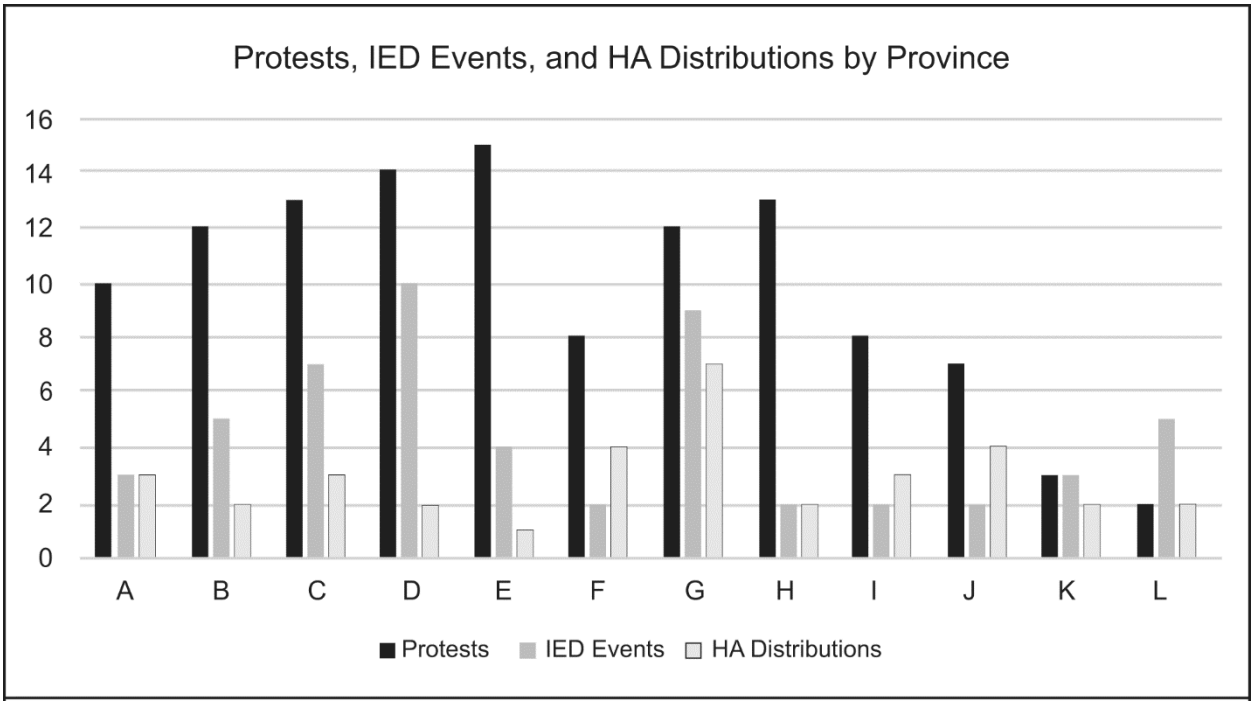


Figure 6. Example Grouped Bar Chart

- Take care to note the scale of the charts to ensure you understand the relative magnitude of the measurements. It is a best practice to at least begin with a y-axis starting at zero. The analyst can then zoom in to identify potential differences as required.

- Often categories of data have different relative magnitudes, so it may be necessary to display data with multiple y-scales together on the same chart to effectively conduct the analysis.

- Stacked bar charts can be useful to display information with subcategories with a meaningful sum. One example comparing total violent events by location or year, might be a stacked bar with subcomponents being types of violent events.

(e) Line Charts.

- Line charts are used to display time-series data. Assessors can identify trends over time with these charts, especially when contextual information is overlaid or included in the analysis.
- Note the example in figure 7, an assessor could assume that there was a reduction in attacks in response to increased patrols, but also a subsequent seasonal variation introduced by the start of the traditional summer fighting season.
- Start the y-axis of line charts at zero when possible to show the relative magnitude of changes.
- Ensure the x-axis or time changes are evenly spaced.
- As shown in figure 7, leveraging smoothing techniques, such as a simple moving average helps to avoid trends being masked by noise.

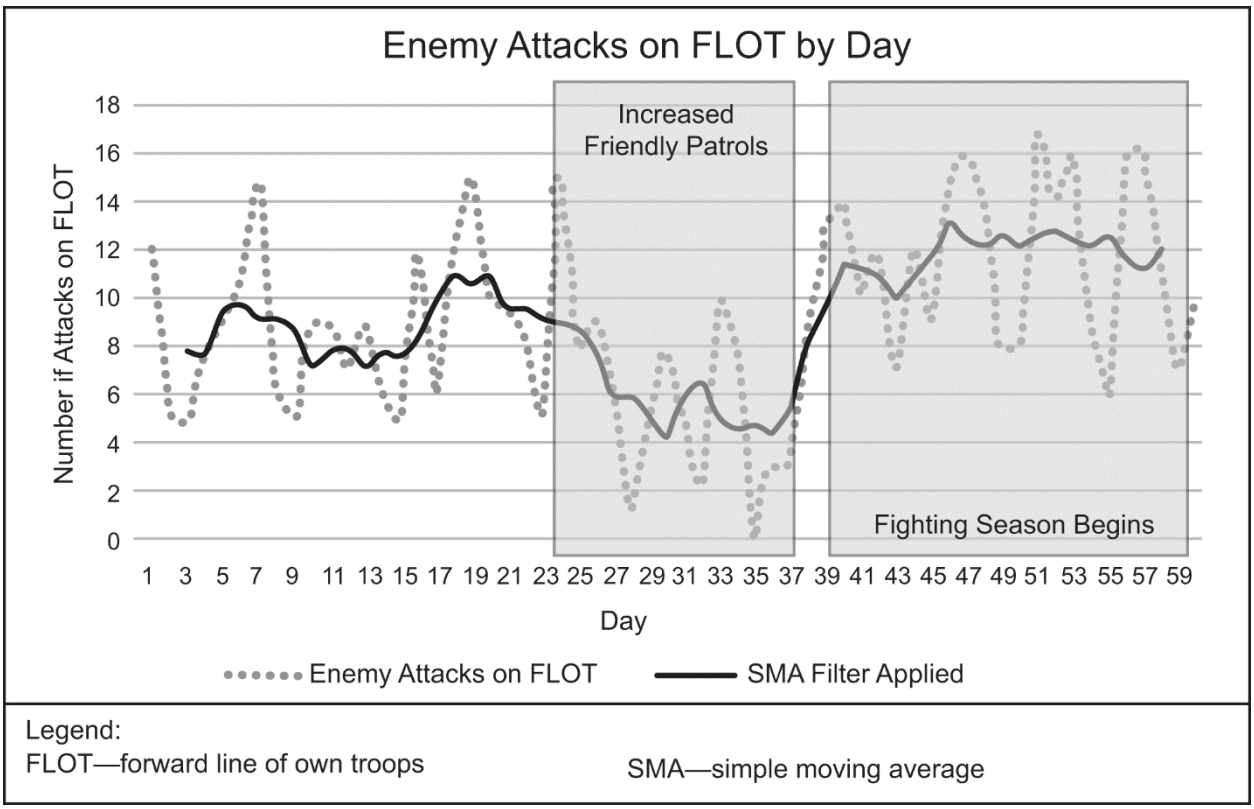


Figure 7. Example Line Chart

(f) Pie Charts.

- Pie charts can be useful for comparing data or proportional data with a few categories, but are generally best reserved as a communication technique. See figure 8 for an example of an effective use of a pie chart for comparison.

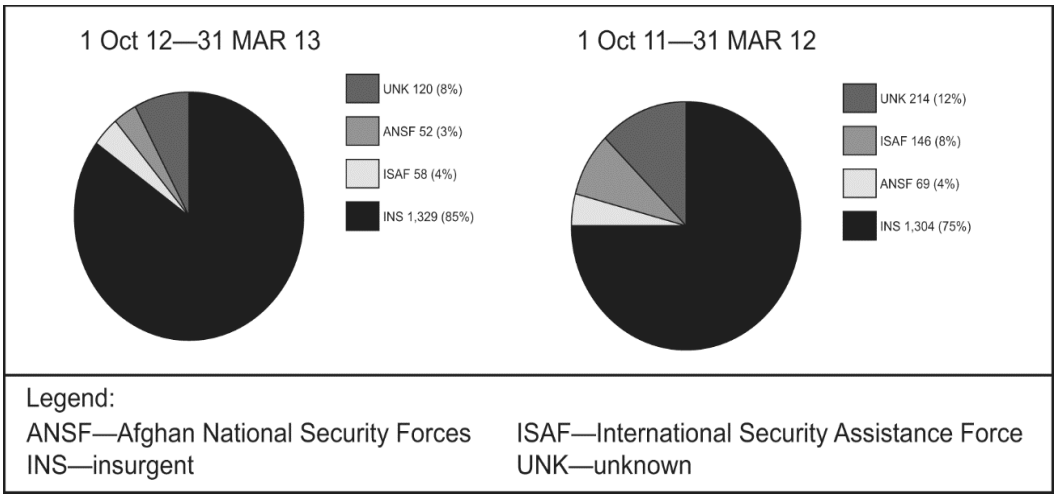


Figure 8. Example Pie Chart

- Figure 9 demonstrates the limitations of pie charts. An analyst could much more effectively discern the difference in magnitude of measurements 1–5 when the information is displayed as a bar chart.

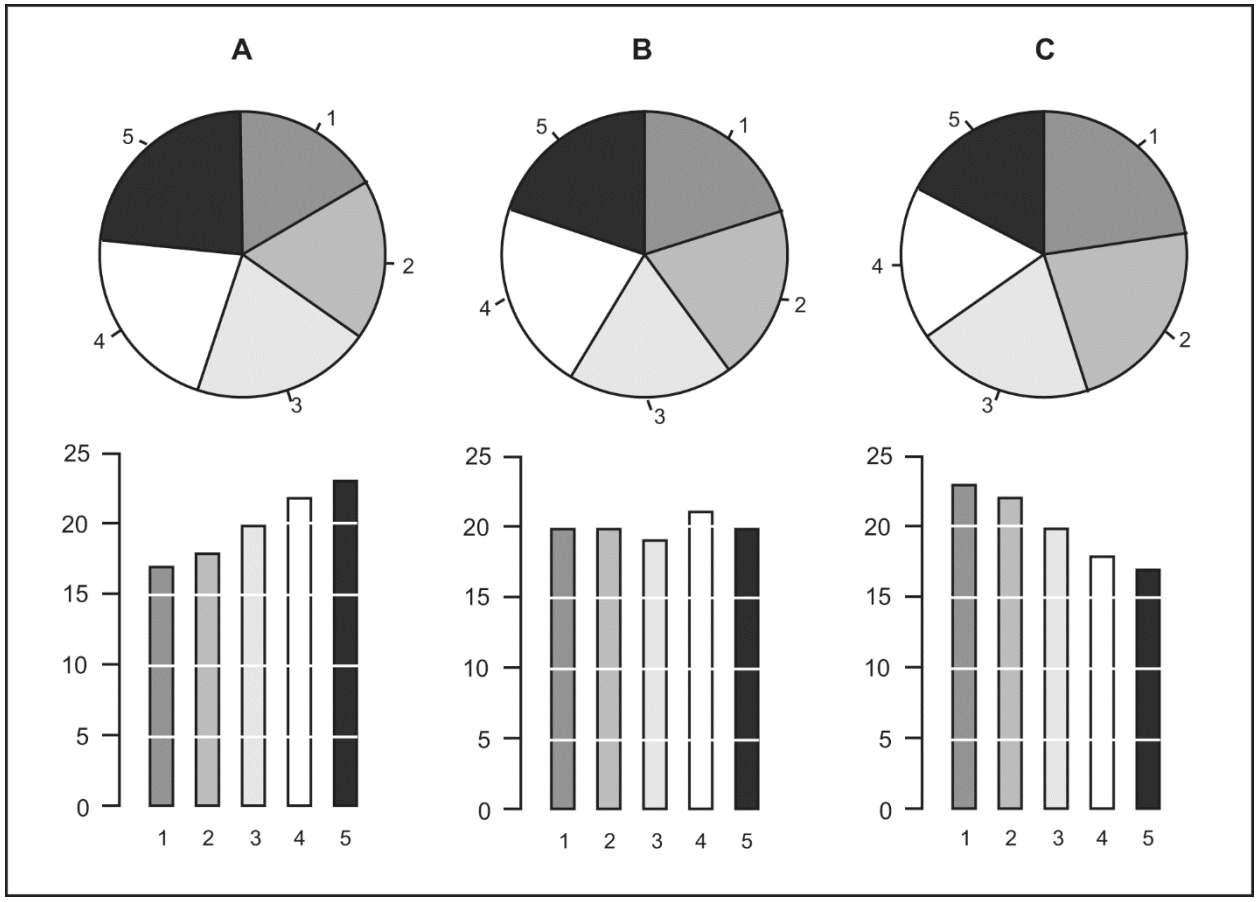
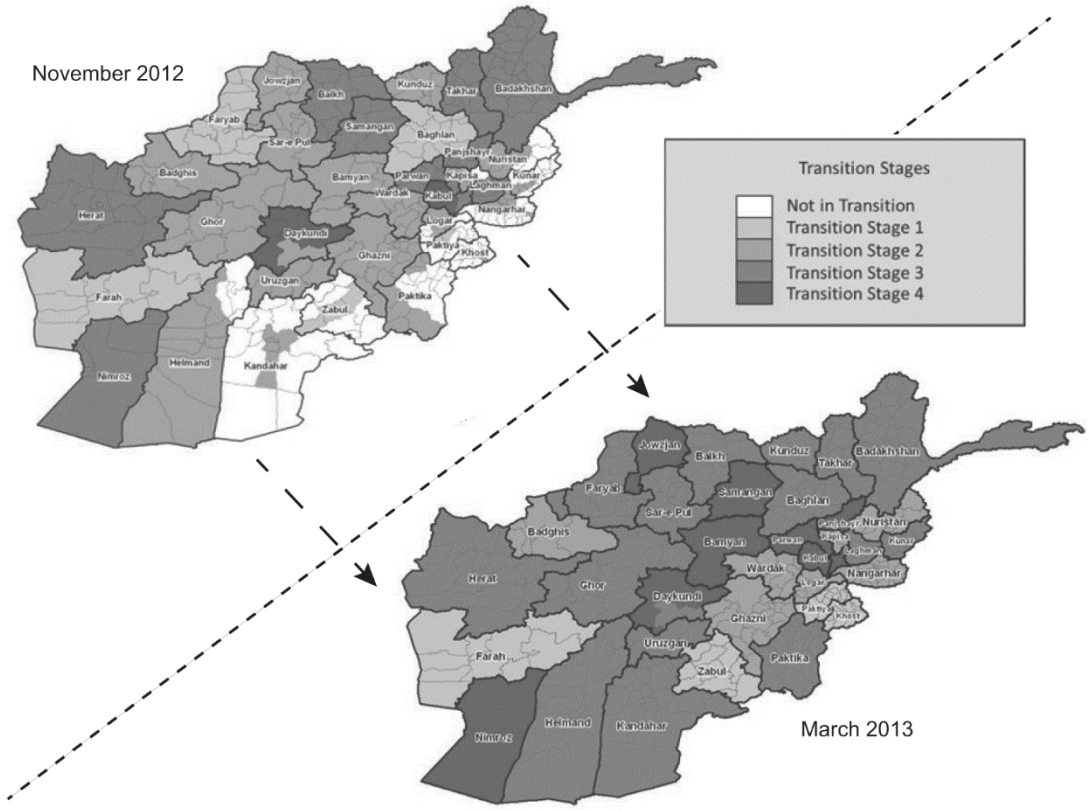


Figure 9. Example Pie Chart vs Bar Chart

(g) Geospatial Chart. A geospatial chart, as shown in figure 10, is a way to analyze geographical or spatial data to search for trends. Geospatial analysis and communication methods can provide nominal information (such as

demographics) or it can use ordinal information on a color scale (such as the status of security at the district level). The use of geospatial analysis techniques can cue an analyst or decision maker to areas on a map that requires additional focus. Geospatial charts also can depict the density of events (such as the locations and number of IED or small arms attacks along a specific route). The main limitation of geospatial methods is that the scale of the map can hide important details. For example, a national-level map may depict an entire province as transition ready, while a provincial-level map may expose important areas within the province where major problems still exist.



Note: This map was current as of March, 2013. On June 18th, GIRoA announced tranche five, which includes all remaining districts and Provinces in Afghanistan. Tranche five districts will enter transition over the summer of 2013.

Legend:
GIRoA—Government of the Independent Republic of Afghanistan

Figure 10. Example Geospatial Chart

(3) Statistical Analysis.

(a) Descriptive statistics can be useful to summarize a data sample. Examples include averages and variance estimators, or potentially higher moments such as skewness and kurtosis.

- Use measures of central tendency (mean, median, and mode) as a starting point, but take care to examine the shape, or distribution of the data.

- Use histograms to assess the shape of data and understand potential implications on the relevancy of measures of central tendency. Note how in figure 11, all data share the same mean but have very different underlying distributions. The dashed line shows the mean, while the dotted line illustrates the median.

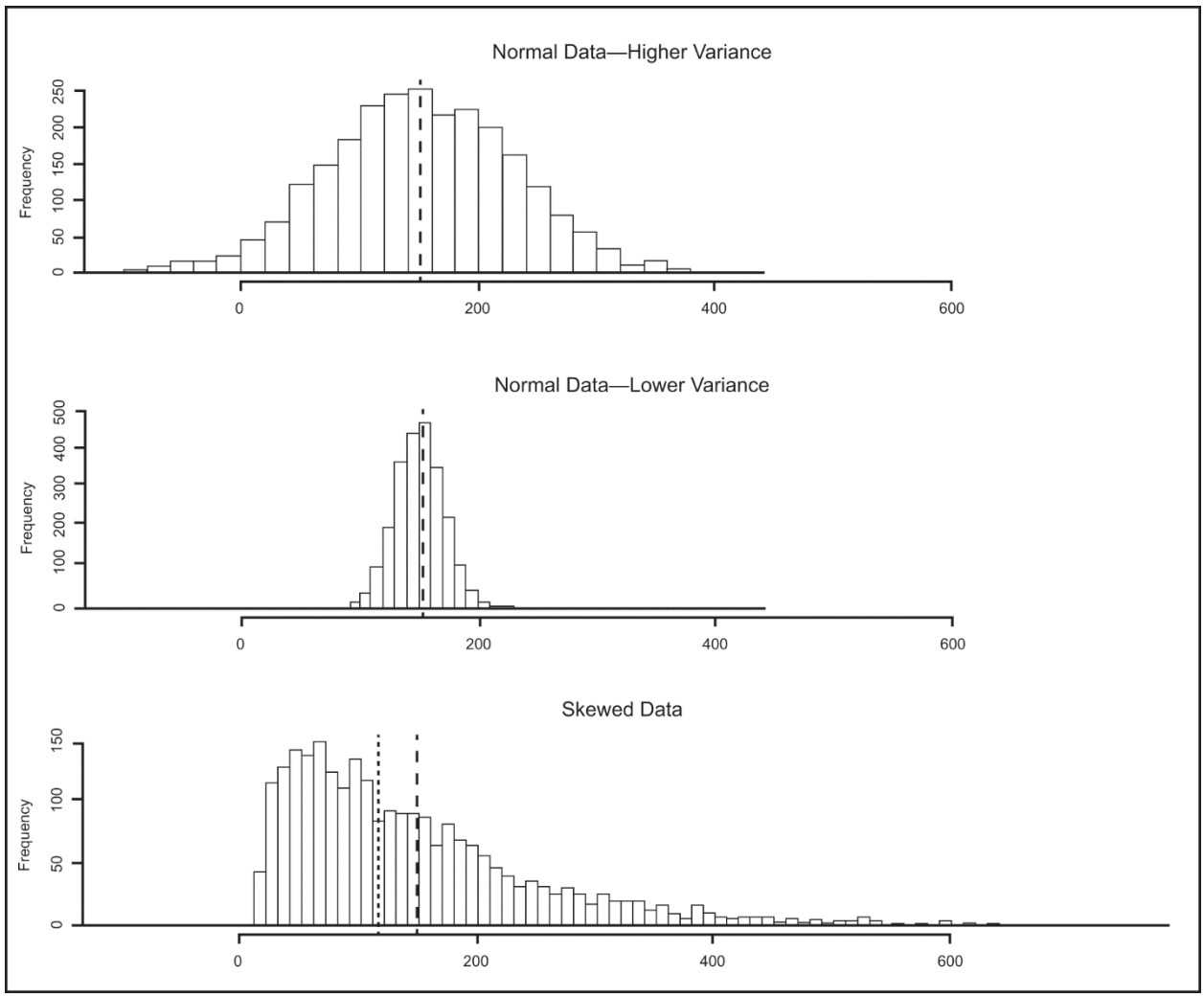


Figure 11. Sample Histograms

- Due to data distributions, the median and mode are considered during analysis. As in the skewed data plot in figure 11, the median better

represents the center of most of the data. In this way it may be more practically useful.

- Always consider variance of the data. A system may perform well on average, but not do so consistently. The option or measure with the highest mean or median then may not be the best where consistency matters more. See the high and low variance examples in figure 11.

- When possible, determine whether there are statistically significant differences between groups. Analysis of variance can offer a method to conduct comparisons of three or more groups.

(b) Regression Analysis. Regression enables an analyst to better understand or estimate the relationships between variables. An example may be assessing how well the density of forces corresponds with violence within a given area. There are computer programs that offer tools for regression analysis. Ensure to use an abundance of caution when implying causation as the result of any statistical analysis.

(c) Advanced Statistical Techniques. When time permits, the analyst may consider using pattern recognition, clustering, multiple regression, or other means to model and/or identify operational effects on the environment.

(4) Correlation of Force and Means (COFMS). COFMS is a calculator used to compare the relative combat power of two forces and estimate the outcome of engagements between them. An example spreadsheet based calculator is shown in figure 12.

Force Ratios

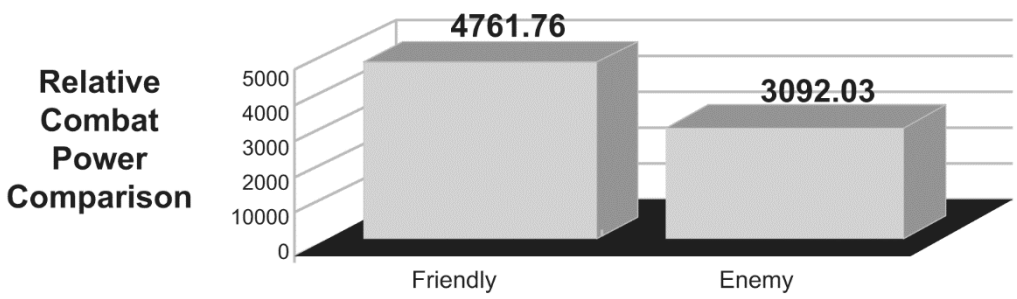
Terrain: Rolling **Unit Type: MTOE (Wargaming)**

Friendly Forces					Enemy Forces				
Number	*Strength*		*FE*	*Total*	*Number*	*Strength*		*FE*	*Total*
1	55%	1 ABCT	2641.28	1452.71	0.5	75%	Mortar BN 2S4 240mm SP)	68.64	25.74
1	100%	2 IBCT	552.71	552.71	2	95%	Motorized Infantry BN (Type A)	118.14	224.47
1	100%	3 CR	2188.96	2188.96	3	95%	Tank BN (31 x T-90)	547.49	1560.36
1	75%	CAB	567.38	567.38	3	75%	Tank BN (40x T-72)	395.99	890.99
					3	75%	FA BN (2A65 152mm TW)	46.92	105.56
					3	95%	Infantry BN (Type A)	99.97	284.91
Friendly Force Equivalent			**4761.76**		**Enemy Force Equivalent**			**3092.03**	

Ratio of Friendly to Enemy	Ratio of Enemy to Friendly
1.54:1	0.65:1

Hasty Defense 25%	←Mission→ ←Estimated Losses→	Hasty Attack 45%

Opposition Factor (use on OPTEMPO sheet)		
	1.54	Minor + Combat Power Advantage



Legend:
ABCT—armor brigade combat team
BN—battalion
CAB—combat aviation brigade
CR—calvary regiment
FA—field artillery
FE—force estimate
IBCT—infantry brigade combat team
MTOE—modified table of organization and equipment
OPTEMPO—operating tempo
SP—self-propelled
TW—towed

Figure 12. COFMS Calculator

(a) An analyst can leverage COFMS calculators to inform operational decisions and improve operational effectiveness. It is often used during planning, but can also be leveraged continuously throughout the execution of a tactical or operational plan.

(b) A system to continually evaluate friendly and enemy combat power and rapidly conduct COFMS analysis informs command decisions on allocation of resources and the timing of operations during execution and can greatly improve operational effectiveness.

(c) A COFMS spreadsheet or tool is a useful model, but must be augmented with professional military judgment and contextualized to account for asymmetries and effects of the OE.

(5) Modeling and Simulation. When time and resources permit, combat and stability models can be leveraged by an assessment team to inform future decisions. Models include advanced combat simulations and war-gaming tools or even social interaction and stability models such as Athena.

(6) Professional Military Judgment. The assessment cell fuses information from disparate staff sections and data sources into cogent recommendations and conclusions for the commander. This distillation of information requires analysts to make assumptions and often requires experience and military judgment.

(a) The assessor or analyst is often not the most experienced and or knowledgeable source of professional military judgment. They can, however, provide an appropriate framework to leverage subject matter experts in and out of the staff.

(b) Analysts must identify where professional military judgment or logic was used to inform assessments and use it carefully, but should also understand that judgment may prove more valuable than any single quantitative or qualitative measurement.

(7) SME Elicitation.

(a) Assessment is inherently a whole-of-staff effort. Assessors may not be qualified to make every judgment throughout each step of the assessment process. Assessors should include the functional area experts on the staff to make best sense of various forms of information.

(b) Assessors seek input from subject matter experts to gain insights in the form of: expert opinion, subjective judgment, expert forecasts, best estimates, educated guesses, and expert knowledge.

(c) Experts can provide estimates on new, rare, complex, or otherwise poorly understood phenomenon.

(d) Analysts must identify and account for any potential biases in expert judgment.

(e) Experts commonly available to an operation assessment team include subordinate commanders or senior enlisted, primary staff members, political or military advisors, interagency staff, and partnered force leadership.

(8) Standards-based Assessment.

(a) In order to gain consistent input from the staff or subordinate elements and to provide an objective basis for analysis in complex situations the staff can define grades of progress, including success using standards-based assessment products.

(b) An example is provided in figure 13 for a targeting assessment. The framework provides both a basis for assessment that can be constructed prior

to mission execution, and a method for incorporating information that may not have a baseline or prior expectations.

(c) Definition-level constructs can also serve to inform SME elicitation and provide a basis for discussion during an AWG if the team is trying to communicate operational effectiveness.

(d) The levels should be constructed with sufficient detail so that they are mutually exclusive and collectively exhaustive, i.e., for a given state of nature, the situation can clearly fit into only one category. If there is a discrepancy in that a condition resides in more than one category, then the definitions are updated to possess sufficient detail. The top level objective is normally reserved for the objective or end state of the LOE or LOO being assessed. The current state is not necessarily the lowest level; the assessor must look historically to see where the lowest possible state could be and use that as the lowest level, as the situation could unexpectedly deteriorate.

Standards-based Assessments

A method to provide a summation of progress is standards-based assessments. There are four reasons for the use of standards-based assessments; it is important to display data at the resolution we can effectively measure, assessments must relate to the objective's progress, standards-based binning facilitates gap analysis, and binning forces evaluators to provide compelling evidence. The process results in a method of clearly rating the progress toward an objective.

In implementing a standard-based bin, a working group may employ the following steps:

1. Determine the goal. The military objective, normally an intermediate military objective (IMO) end state, is defined as the goal condition. If the end state is not clear at any point in the process, it is revised by adding more detail. This becomes the top bin, or goal state of the objective.

2. Determine the worst case. We define worst case as the worst possible state of progress, including states the IMO could retrogress to in the future.

3. Determine the additional bins. Determine what you want to discern between additional levels, and define the terms you wish to use to make this determination. Break the possible states into natural breaks, normally three to seven bins for a single objective.

4. Refine the bins. Each bin is described in at least a paragraph, in sufficient detail so there is no question as to which bin a scenario belongs. Bins are collectively exhaustive (every observation fits somewhere in the bins) and may possess mutual exclusivity (each observation fits in one bin) or build upon each other (each observation fits into a bin and all the bins below or above it).

5. Additional means. If the division of natural states proves problematic, additional observations are used by taking a similar historic situation and placing the observations on a continuum between the best and worst cases, compiling these into similar bins. Using historical examples is helpful because people relate better to conflicts they have experienced.

6. Plan to achieve the end state. Using the developed bins, plot a course from the present state until the stated date of the objective. Then, using planned activities and operations, determine remaining gaps.

Two important disruptions frequently occur; working groups must design bins to prevent constructive credit for task accomplishment rather than effect accomplishment, and accountability for rating the IMO must remain with the working group. Otherwise, narratives diverge into listing activities accomplished rather than effects.

SOURCE: Are We There Yet? Implementing Best Practices in Assessments, Military Review, May-June 2018

COL Lynette Arnhart and LTC Marvin King

Assessment Rating Definition Levels for Shaping Objectives

Combat Power: Reduce enemy combat power to defeat.	**Dominant Combat Power Advantage**	**Friendly Combat Power Advantage**	**Combat Power Parity**	**Enemy Combat Power Advantage**	**Dominant Enemy Combat Power Advantage**
• Friendly and enemy combat power ratios. • Enemy attrition. • Friendly attrition. • Destruction of key enemy assets.	• Enemy ADA destroyed. • Enemy tanks and attack aviation destroyed. • Enemy reserve disrupted. • Friendly divisions report significant combat power adavantage.	• Enemy ADA and neutralized. • Enemy tanks and attack aviation degraded (<40%). • Enemy reserve disrupted—minimal ability to reinforce. • Friendly divisions report combat power adavantage.	• Enemy ADA degraded. • Enemy tanks and attack aviation degraded (<60%). • Enemy reserve disrupted. • Friendly divisions report minimal combat power adavantage.	• Enemy ADA capable. • Enemy tanks and attack aviation minimally disrupted. • Enemy reserve able to reinforce. • Friendly divisions report combat power disadavantage.	• Enemy ADA fully mission capable. • Enemy tanks and attack aviation fully functional. • Enemy reserve able to reinforce. • Friendly divisions report significant disadavantage.
Commmand and Control: Delay enemy decision making.	**Enemy Unable to C2 above BDE**	**Minimal enemy C2 at above BDE level**	**Enemy Division C2 Disrupted**	**Limited Disruption of C2**	**Unknown**
• Decrease in division-level coordinated defense. • Enemy C2 nodes destroyed. • Decrease in SIGINT between division and HHQs. • Decrease in enemy ability to coordinate fires and air support.	• Division and above C2 nodes neutralized. • Negligible SIGINT activity between division and HHQ C2 nodes. • Minimal evidence of ability to coordinate maneuver with air and fires.	• Division and above C2 nodes disrupted by lethal or nonlethal means. • Intermittent SIGINT activity between division and HHQ C2 nodes. • Minimal evidence of ability to coordinate maneuver with air and fires.	• Division and above C2 nodes disrupted by lethal or nonlethal means. • Decreased SIGINT activity between division and HHQ C2 nodes. • Disrupted ability to coordinate maneuver with air and fires.	• Division and above C2 nodes remain functional with continued ability to C2. • Sustained enemy SIGINT activity detected between C2 nodes. • Continued division and HHQ level maneuver, air, and fires.	• Insufficient information available to make a determination.
Will: Reduce enemy will to generate operational advanage.	**Minimal Enemy Will: Mass Force**	**Limited Withdrawals of Surrenders**	**Multi-INT Evidence of Decreased Will**	**No Evidence of Reduced Will**	**Unknown**
• Number of enemy units surrendering. • SIGINT of HUMINT reports of reduced enemy will. • Enemy HVIs killed or influenced through nonlethal means.	• Enemy forces withdrawing en masse from Country A BDE and above-size units surrendering. • Multi-INT reporting of unit lack of morale and will.	• Battalion and below units surrendering. • Multi-INT reporting of potential planned withdrawals. • Multi-INT reporting of unit lack of morale and will.	• Reporting of potential planned withdrawals or surrenders. • Multi-INT reporting of unit lack of morale and will. • Reports of significant enemy reactions to casualties/HVI elimination or suppression.	• No enemy withdraws or surrenders. • Multi-INT reporting of sustained will to fight. • Enemy sustains or fights more aggresively in spite of casualties.	• Insufficient information available to make a determination.
Transition to civil governance:	**Condition Set**	**Stability Threatened**	**Stability Compromised**	**Stability Lost**	**Unknown**
• Number and disposition of IDPs, riots, and protests. • Presence and ability of enemy forces to influence. • Evidence of government legitimacy. • Security of economic infrastructure.	• No riots or major protests. • Government perceived as legitimate. • Critical infrastructure sufficient to support populace. • Government capable of managing asymmetric threat. • No threat to government viability.	• Some protests. • IDPs impacting civil society. • Antigovernment messages have some traction. • Some threat to economy and significant damage to critical infrastructure.	• Significant protests. • IDPs impacting civil society. • Antigovernment messages have significant popular traction. • Temporary damage to economy and infrastructure. • Temporary large-scale organized violence.	• Widespread protests. • IDPs impacting civil society—no ability of government to address. • Antigovernment messages prevailing. • Enduring damage to economic and critical infrastructure. • Large-scale organized violence.	• Insufficient information available to make a determination. • Situation may be changing rapidly.

Legend:
ADA—DE
BDE—brigade
C2—command and control
HHQ—higher headquarters
HUMINT—human intelligence
HVI—high-value individual
IDP—internally displaced person
INT—intelligence
SIGINT—signals intelligence

Figure 13. Sample Assessment Rating Definitions

(9) Analysis Best Practices.

(a) Credibility. Thorough analysis promotes credibility. The commander and staff should know they can leverage analysis produced to make decisions. This requires citation and validation of all facts, assumptions, and opinions used.

(b) Attributing Causality. It is the nature of the staff to attribute change in the OE to friendly operations, as the plan in execution was created to achieve these changes by design. However, assessors must avoid the staff confirmation bias of friendly action causing the intended change in the OE. There will never be perfect understanding of the OE, other actors or natural

occurrences also create effects, and all such activities must be considered when assessing causality for changes within the OE. Therefore, causality between the action and intended effect should be treated like a planning assumption, and must be continually validated. Even if only able to be correlated, the change in the OE toward achieving the objectives creates an opportunity for success and any recommendations should be transparently characterized with the uncertainty of whether it was the result of friendly actions.

(c) Frequency. Take time to consider the OE and an appropriate timeframe for conducting analysis. Understand that variables and measures will respond to operational actions with varying timelines. Gain concurrence with the command on an appropriate timeline for assessment cycles.

(d) Noise. Take care to leverage statistical techniques, judgment, and expert opinion to avoid making conclusions on operational effectiveness based on natural variations in the OE or measurement inaccuracies.

(e) Vetting and Validation. Build an appropriate governance structure for the assessment process and validate all assertions prior to publishing an assessment product.

(f) Leverage Expertise. Do not perform assessment and analysis in a vacuum. Incorporate as much valid information and informed opinion as possible.

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Chapter IV
COMMUNICATE THE ASSESSMENT AND ADAPT THE PLAN

This chapter addresses steps five and six of the operation assessment process: How the staff best communicates its understanding of the OE, subsequent recommendations, and then translates the commander's decision into actionable directives. Table 12 shows steps five and six according to JP 5-0.

Table 12. Operation Assessment Steps Five and Six

Step	Operations Process Activity	Personnel Involved	Input	Staff Activity	Output
Communicate the Assessment and Recommendations	Execution	• Commander • Subordinate commanders (periodically) • Primary staff • Special staff • AWG personnel • Assessment cell (if established)	• Draft assessment reports and recommendations	• Provide a timely recommendation to the appropriate decision maker • Finalize assessment products	• Approved assessment report, decisions, and recommendations to AWG and to higher headquarters
Adapt Plans and Operations	Execution Planning	• Commander • Planners • Primary staff • Special staff • AWG personnel • Assessment cell (if established)	• Approved assessment decisions • Targeting • JPP	• Implement Commander's guidance and feedback	• Changes to the operation and assessment plan

Legend:
AWG—assessment working group
JPP—joint planning process

1. Communicate the Assessment and Recommendations

a. Regardless of quality and effort, the assessment process is futile if the communication of its results is deficient or inconsistent with the methods by which the commander assimilates information and their personal style for making decisions. While the staff will develop assessment products to communicate the assessment, assessment products are not the assessment itself.

b. The degree to which the staff can explain *why* the OE changed provides insight into how well the command understands the problem set, as well as the relevancy of the subsequent COA. The staff's most important role is to explain why the OE is changing. This understanding is the foundation for recommending adjustments to the plan.

c. Any assessment products contained in the organization's assessment plan are the result of the staff's interactions with the commander over time to learn how the commander processes information as well as the demands of the mission and the unique nature of the OE. Examples of assessment products below can help the staff best inform the commander's decision making.

d. Assessment products include recommendations to make operations more effective. Recommendations can range from executing a branch, changing task

organization, or transiting to a new phase of the operations as described on page 8. Assessment products can also inform the commander about current and anticipated conditions within the OE, evaluate the ability of the force to impact the OE, evaluate effectiveness in pursuit of objectives and end states, provide accountability to higher authority, communicate gaps to HHQ, relay risk to the mission from those gaps, and communicate effectiveness to external stakeholders.

e. The commander has numerous avenues for receiving information to support decision making, among them is the communication of the assessment.

(1) Commanders and staff officers must understand that the depiction of the assessment is NOT the assessment itself. Neither is it data for analysis. Well-designed assessment processes evaluate changes in indicators describing the OE and the performance of organizations. They contain a rigor that is not part of the depiction because the commander does not need to see the detail of every indicator. It is the staff's responsibility to organize the data; analyze them (answer the six questions); and concisely communicate the results of their analysis and synthesis, i.e., the assessment results, including recommendations for improving effectiveness to the commander for a decision.

(2) The depiction of the assessment is simply a communication method designed to convey information clearly and concisely to decision makers.

f. Developing the timing and quality of assessment products:

(1) Analyze the operations process and staff battle rhythms to determine the appropriate interval and venue for the staff to communicate various portions of the assessment to best support planning, operations, and decision making. Determine the likely method of communicating the assessment based upon the communicated information and the commander's personal preference. Be prepared to communicate urgent matters outside of the battle rhythm to ensure the information is received in time to be actionable.

(2) Receiving guidance from the commander is a critical step in designing the product that communicates the assessment. Scheduling feedback mechanisms for a time when the commander is normally available is key.

(3) Staffs should strive to sequence products to feed the command's assessment, planning, and decision battle rhythm to ensure appropriate timing, maximally inform, and reduce duplicative efforts. It also serves to convey proper context and ensure a staff-wide dialogue with the commander. Potential attendees that are available during the communication of both formal and informal assessments include.

(a) Assessment Cell Representatives. The staff lead for operation assessment reviews the assessment framework and communicates the overall assessment under consideration.

(b) Intelligence Representation to Communicate JIPOE and Priority Intelligence Requirements (PIRs) Linkages. Since PIRs link directly to decision points, briefing a PIR assessment can add necessary context to the

assessment report. A PIR assessment should relate the ability to collect on the PIR and convey possible decision-point options that the PIR point to.

(c) Fires Representative Armed with Targeting Products. Joint targeting cycle and joint integrated prioritized target list (JIPTL) results provide contextual snapshots of operations conducted for attendees not normally in the headquarters for daily battle rhythm events. Inclusion of a holistic JIPTL review enables clear establishment and shifting of priorities beyond lethal targets.

(d) Operations and Plans Representatives Armed with Commander's Planning Guidance and Operational Approach. The commander's planning guidance is an accessible reference. An operational approach review provides the opportunity for an azimuth check to reconcile previous guidance with the current assessment.

(e) Subordinate Commanders with their Assessments. Attendance can enrich the dialogue and eliminate ambiguity by ensuring key information and messages are not lost while staffs construct the formal assessment report. Consider monthly attendance at the lower tactical level to quarterly attendance at the higher tactical level. Attendance frequency usually depends upon the frequency of assessment cycles and how often the commander desires subordinate commanders' attendance.

(f) Military Information Support Operations (MISO) and Media Representatives. MISO and media operations shape operations. Therefore, winning the battle for the narrative is essential to achieving objectives at all levels of warfare. Winning the narrative requires effective monitoring of the information environment. Inclusion of MISO and media in assessment reporting mechanisms and products enables commanders to proactively consider and direct information action to be the first with the truth, to counter enemy messaging, and focus upcoming media engagements on stories the commander wants to tell.

(g) Other Outside Stakeholders and Key Enablers to Answer Questions. These personnel often are not present in the headquarters on a daily basis. Attendance at an assessment brief provides the opportunity to gain a shared understanding, engage in dialogue, and eliminate ambiguity.

g. The following considerations apply when communicating the assessment.

(1) The assessment process should generate iterative dialogue wherein the commander and staff challenge assumptions, assessments, or recommendations that are not supported by their current understanding of the OE. As a result of this discussion process, understanding of the OE improves and the quality of the assessment is enhanced.

(2) The communication methods the staff selects depend upon the information presented and the preferences of the commander. Regardless of the methods, assessment products must be clear and concise. It is imperative that the communication method answers the general questions.

(3) Assessors fully document any product that leaves the headquarters so it is transparent to readers outside of the organization. When depicting assessment information on a slide, the slide should stand alone with notes, if necessary, to ensure its context.

(4) Assessment products aim to guard against known biases, including those of the commander, the staff, and the assessment cell. Avoid common biases such as silver bullets (panaceas); assumed answers (group think); news that the boss does not want to hear; over optimism; confirmation bias (making data conform to foregone conclusions); and expectation bias (what does green really mean?). The Air Force Handbook (AFH) 33-337, *Air Force Tongue and Quill,* discusses these common biases. Army Techniques Publication (ATP) 5-0.1, *Army Design Methodology*, also identifies common biases and logical fallacies.

(5) Graphic products frequently display a status and a trend of an indicator that represents a fact or judgment. Accurately differentiating between facts and judgments within the assessment enables their accurate communication. An example of a factual indicator would be counting the number of sorties flown in a week in a specified OE against enemy command and control. An example of a judgment-based indicator would be the leader's assessment of the effectiveness of those sorties, enemy command and control is degraded.

h. Assessors can use various ways to communicate assessment information. While not exclusive, the following is a list of common practices for communicating information, the appropriate use of each, and some advantages and disadvantages of each. Assessors must take care not to allow any displayed indicator to supplant the objective. In other words, the force's objective is to change the OE in support of the end state.

(1) Written Narrative.

(a) The narrative adds context and meaning to empirical information that forms the basis of the assessment result. Alone, a well-written narrative answers the general questions. However, when coupled with some form of graphic depiction of empirical information, the narrative still answers the questions, but does so in a manner that is usually more convincing than the narrative alone. A narrative is also the only way to express recommendations and explain risks and opportunities.

(b) A well-written narrative is difficult and time consuming to produce, because it requires logical thinking and clear, concise writing skills. It also requires time and effort on the part of the reader to understand and evaluate the ideas contained in it. Like a table, a poorly written narrative can obscure essential points by providing too much information.

(2) Oral Narrative Supported by Visual Products.

(a) Stoplight Chart (Bubble Chart).

- A stoplight chart, shown in table 13, uses several levels of assessment to depict the status of an indicator. The most common colors used are

red, amber, and green, which give the chart its name. Stoplight charts are useful because, universally, commanders understand them, and stoplight charts effectively draw the commander's attention to items that require it.

Table 13. Stoplight Chart Example (1230 Report to Congress, July 2013)

Line of Operation (LOO)	Current Capability Milestone Rating	1B Date
LOO #1: Support to Operations		
Afghan Ministry of Defense Intelligence Policy	4	Post 2014
Afghan Ministry of Defense Reserve Affairs	2B	3Q,14
Ministry of Defense Chief Constructor and Property Management Division	2B	1Q, 14 Army
General Staff G2 Intelligence	2B	2Q, 14
General Staff G3 Operations	2A	3Q, 13
General Staff G5 Policy and Planning	1B	Achieved
General Staff G6 Communications	2A	4Q, 13
General Staff G7 Force Structure, Training, and Doctrine	2A	3Q, 13
Ground Forces Command	2B	4Q, 13
Afghan National Army Special Operations Command	3	1Q, 14
Afghan Air Force Command	2B	Post 2014
Medical Command	2A	4Q, 2013

Capability Milestone Rating Legend	
1A	Capable of autonomous operations.
1B	Capable of executing functions with coalition oversight only.
2A	Capable of executing functions with minimal coalition assistance; only critical ministerial or institutional functions are covered.
2B	Can accomplish its mission but requires some coalition assistance.
3	Cannot accomplish its mission without significant coalition assistance.
4	Department or institution exists but cannot accomplish its mission.

- Often, stoplight charts are an abbreviated method of providing judgments about the implications of information that may be quantifiable, such as the amount of ammunition on hand or the graduation rate of a partner nation's basic officer course. In this case, the levels need to be clearly defined and generally uniform across subordinate elements. For example, fewer than five rifle magazines per Service member is amber or a graduation rate greater than 90 percent is green. Assessors should work with planners to define required thresholds of each color during assessment framework development to increase objectivity and provide a clear understanding of requirements, rather than develop the color standards during data analysis.

- Sometimes, stoplight charts present simple information that is not easily quantifiable, but has a clear order. For example, a unit leader's judgment of the unit's ability to accomplish a tactical task as untrained, needs practice, or trained or the status of a civil affairs project as stalled, on

track, or complete. Planners must identify and communicate what success looks like and how to define it, not the assessment analyst.

- Stoplights have important limitations. For example, the simplicity of the communication method may be mistaken for simplicity in the described system or may hide a lack of rigor in the assessment. Additionally, stoplights poorly depict a series of items where most have an indeterminate status. In other words, if all items are amber, the commander is not well informed. An expanded version of the stoplight chart using five colors instead of the customary three may help in these cases to provide more fidelity to the assessment.

(b) Spider or Radar Chart.

- A spider chart allows the depiction of several indicators in the same graphic. A spider chart is useful for comparing alternatives based on several criteria when measuring the criteria in the same unit (i.e., dollars or days). If a best alternative exists, it is best in all or most criteria and the best alternative becomes obvious. If one alternative is best in one criterion and another alternative is best in some other criterion, the chart is not as useful.

- Charts of this type can be useful tools in the assessment process, and lend themselves to providing back-up information of the actual assessment. The leader receiving the assessment often lacks the time to immerse themselves in these types of charts and to draw their own conclusions—this is the task of the assessment analyst.

- Spider charts also can compare planned conditions to what actually occurred. Figure 14 compares budgeted expenditures in several categories to actual expenditures in the same period.

- The military use of spider charts to depict several ordinal indicators simultaneously can depict change, as illustrated in figure 15. Therefore, one cannot directly compare across dimensions because depicted indicators are often not of the same units of measure. These ordinal depictions are the equivalent of several stoplights leaned together, like poles in a teepee, and the chart can be replaced by several stoplight charts in the same space on a product. In these situations, the spider chart appears more scientific than it is. However, the inherent uncertainty of the assessment may be better communicated and the commander’s attention better directed with stoplights.

- Assessors must avoid the temptation to calculate and compare the geometric areas within the lines that join the ordinal values, such as the polygons depicted in figure 16. Such calculations are meaningless.

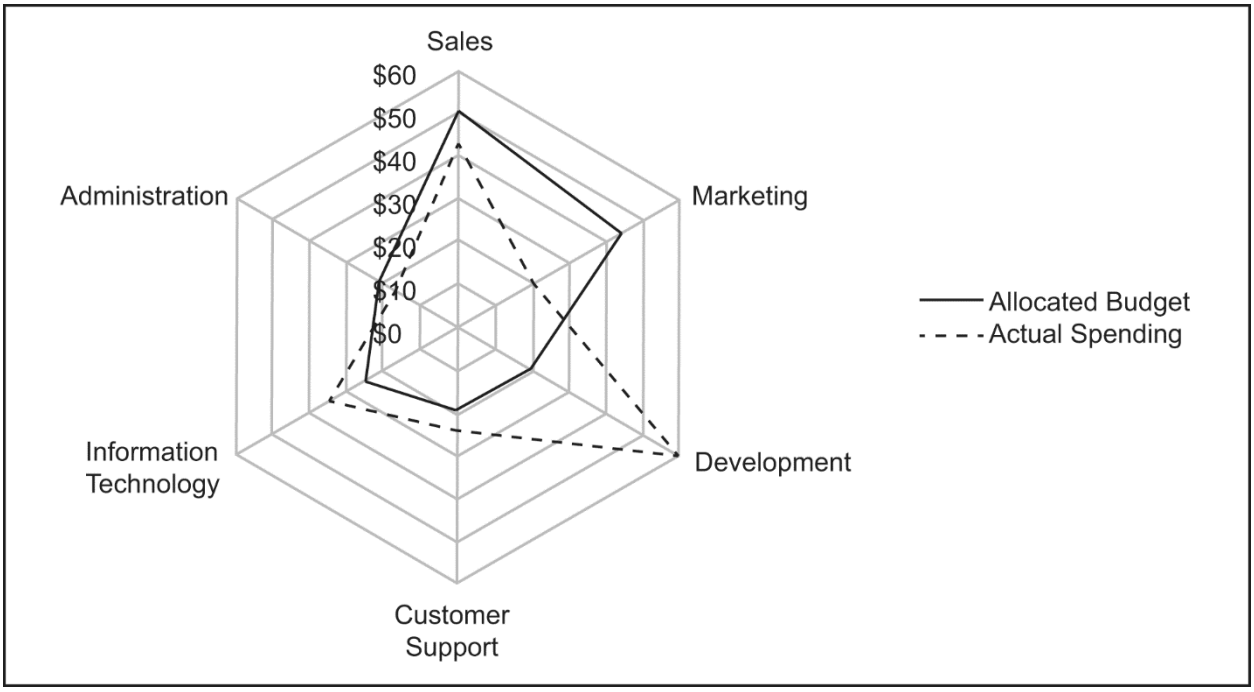

Figure 14. Spider Chart Example

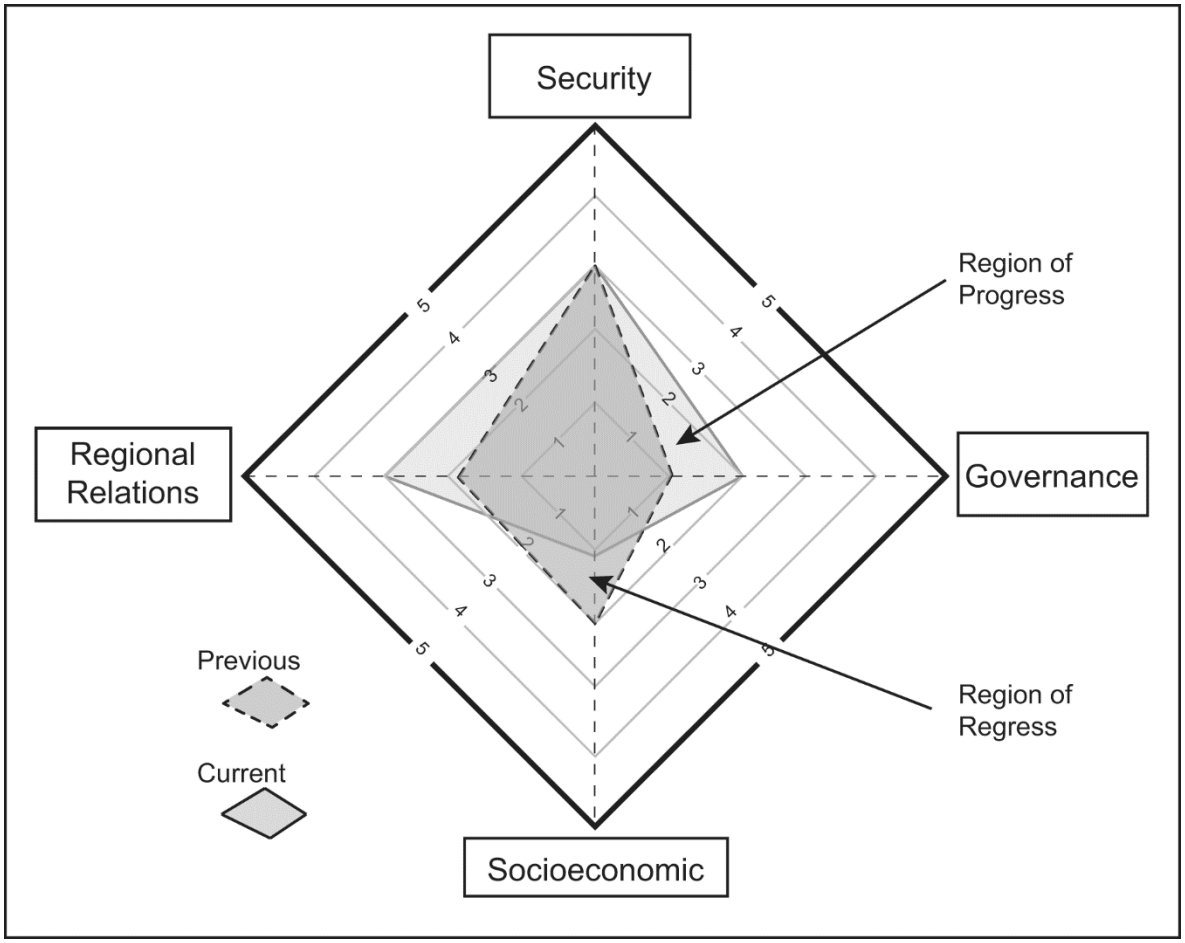

Figure 15. Spider Chart Depicting an Ordinal Assessment

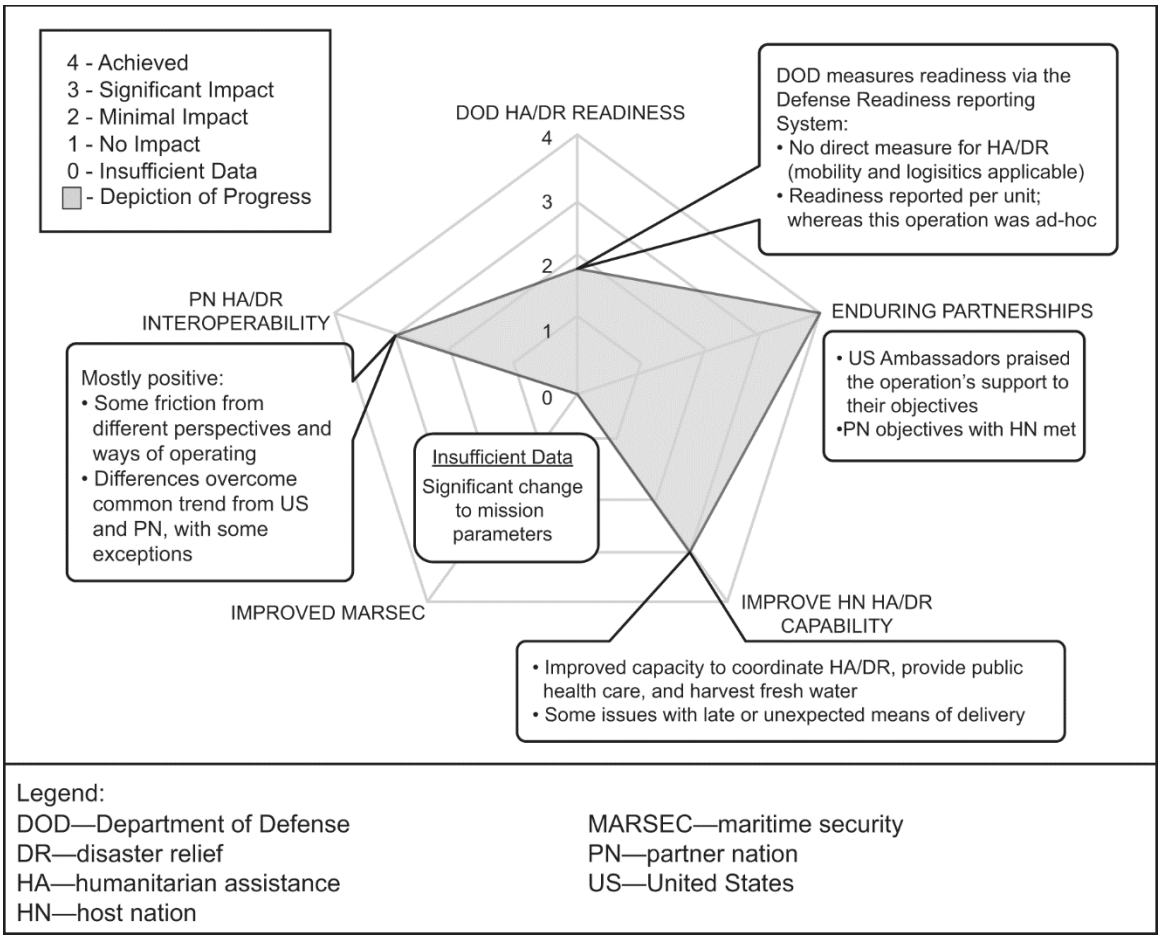

Figure 16. Partner Capability in Building Assessment Communication

i. Operation Assessment Communication Tools.

(1) While the above tools can be used to communicate assessment results, commanders may want to see a composite of the different formats on one communication tool. It is best to discuss with the commander early to determine how they best receive information, specifically assessment results, and agree to a format for any assessment product.

(2) Figure 17 depicts an example of what a division headquarters referred to as the current campaign assessment. It shows the staff's overall assessment in the top left. It defines in a table what is meant by each stoplight color, and actions required for each. The bottom half of the chart depicts the staff's composite assessment for each end state, or LOO, with current objectives for each. Providing a stoplight color for each objective aids in highlighting which objective requires additional attention. This slide drives discussion between the staff and the commander as well as between the division commander and subordinate commanders. The details, including indicators and data, to each LOO were in subsequent hidden slides for examination should the commander ask a question.

D+XX Campaign Assessment

Assessment: Current plan is Off Track. Division offensive operations at risk beyond Phase II. Bases on current situation template, X Brigade is expected to culminate vicinity of Objective DOG. X Brigade will experience significant losses to class VII due to enemy's mobile defense. Current sustainment projections cannot replace battle losses.

Assessment	On Track	Mostly On Track	Somewhat Off Track	Off Track
Staff Action	No Action.	Plan refinement, fragmentary order (FRAGORD).	Significant plan refinement, FRAGORD or branch plan.	Plan infeasible, sequel to plan.
Associated Risk/Likelihood	No change to residual risk.	Shortfall/moderate to high.	Seam/moderate to high.	Gap/high.

Assessment	Military End State	Objectives
Somewhat Off Track	Enable brigade maneuver to phase line RED through division shaping operations.	Render enemy fires ineffective in division area of operations.
		Maintain operational momentum.
		Disrupt enemy decision making.
Off Track	Destroy enemy in zone and isolate enemy forces vicinity Objective LION.	Destroy Xth mechanized division.
		Destroy Yth armor division.
		Destroy Zth mechanized division.
		Destroy corps artillery.
		Neutralize enemy use of population centers.
Off Track	Control ground lines of communication, airfields, and seize Objective BEAR.	Seize division objectives.
		Seize corps objectives.
		Control Route CHEVY.
		Control Route FORD.
Mostly On Track	Enemy population compliant to coalition authority. Shape for phase IV operations.	Mitigation of civilians impeding military operations.
		Minimal civilian casualties due to coalition forces.
		Communicate themes and messages to population.
		Minimize destruction of civilian infrastructure.
On Track	Conserve and sustain combat power.	Limit division attrition/force consumption.
		Protect the force.
		Sustain the force.

Figure 17. Assessment Communication Tool

(3) Another example of a composite assessment communication tool is displayed as figure 18. In this example, the objective to be completed next is on the left, moving to the right is a depiction of the last 24 hours and current assessment via a stoplight chart. Moving further to the right shows what changed in the past 24 hours under the description column followed by the data that supports the staff's judgment.

(4) No matter what form the staff uses to communicate assessments, the communication methods are what the commander needs to see to make their own personal assessment.

(5) A composite assessment tool using standards-based assessments can consist of an overall rating and trend, OKR scores from underpinning objectives, justification, projection, and recommendations for help needed.

Effect	Assessment		Description	Reporting/Indicators
	Last 24	Current		
Combat Power: Reduce enemy combat power to enable defeat.	Y	Y	Division X reports favorable combat power ratio for next 24 hours; currently unfavorable ratio for Division Y upcoming attack.	• 33 air defense targets executed, awaiting battle damage assesment. • 50% attrition of enemy air defense capability overall. • Enemy air defense 95% destroyed in sector X. • #T-90 tanks destroyed.
Command and Control: Delay enemy decision making.	R	O	Enemy command and control (C2) at division level and above degraded for at least the next 24-48 hours.	• Intelligence assess minimal ability to C2 above division level for next 24-48 hours. • Effectiveness of electronic warfare jamming being assessed, but for division and higher headquarters appear unable to coordinate defense. • Reduced signals activity between C2 nodes. • XX division C2 node destroyed.
Will: Reduce enemy will to generate an operational advantage.	O	Y	Enemy will be degraded, increasing evidence of withdrawls and low morale.	• High-value individual killed on 1 October. • Multiple brigades withdrawing to country YY, intention unclear.
Transition to Civil Governance: Establish conditions for Country YY to assume control.	O	O	Country YY government able to manage insurgent threat; economic infrastructure protected.	• Deteriorating conditions at refugee camps and hospitals. • Attacks and threats against infrastructure continue. • Reports of degradation in insurgent leadership, funding, and facilities.

Implications/Recommendations (restrike/priorities)

- Indications that enemy capabilities are being degraded due to loss of personnel, funds, and facilities.
- Adjustment of fire support coordination line recommended to enable increased reaction time for division X fires.
- Recommend increased priority of engineering to counter-mobility on high-value target due to battle damage on enemy air defenses.

Figure 18. Example Stoplight Chart Combined with Staff Assessment

Visualization Methods that Discredit Assessments

There are a number of substandard visualization methods that are well-documented to contribute to poor decisions or discredit the assessment processes when used improperly. These methods include:

Thermographs.

Thermographs contain a continuum of colors, normally red to green with yellow between, and the current status marked by a triangle indicating the rating. This technique fails to provide a standard to show progress, leading a staff to move progress indicators subjectively as measures of performance are achieved, not as objective verifiable effects are achieved.

Stoplights Without Standards.

The standard-less stoplight, consists of a red-amber-green scale with the absence of definitions, absolving the briefer of accountability for evaluating progress against a standard. Stoplights should provide the color definitions on the chart and a written narrative detailing the definitions in reserve.

Color Math.

Color math identifies a color for a single indicator, assigning a number value, using it as part of an index with other indicators, and then translating it back into

a color. This process treats ordinal variables as continuous; the average of ordinal responses is meaningless and misleading.

Arrows without Amplifying Information.

Arrows—up, down, and sideways—only report the change from the last report. Arrows show short-term advances to demonstrate progress but ignore more important trends based on mission accomplishment.

Indices.

Indices comprise a weighted average of normalized data. The purpose of an index is to have a single indicator summarizing an aspect of a problem. Indices are useful when experts agree on the weights applied to the input data and for comparing like items. Most indices are not transparent enough to provide value, such as when multiple indicators contribute to the increase or decrease, hiding key changes.

One-Hundred-Point Scales.

One-hundred-point scales source data through a survey, using a scale of 1 to 100 with the overall score being the average of the votes. This assumes that the voters have the ability to measure the variable with precision, which is not always the case.

Implementation of an Effects-based Assessment.

There are two possible problems with published efforts to implement an effects-based assessment; it assumes a deconstructionist mentality, that is, effects roll up into intermediate military objectives (IMOs), and perceived data requirements bloat staff data collection without corresponding benefit. This sometimes results in the expectation to collect vast amounts of quantitative data; efficient assessment sections use an assessment framework to collect only data required to measure the progress of their IMOs.

SOURCE: Are We There Yet? Implementing Best Practices in Assessments, Military Review, May–June 2018

COL Lynette Arnhart and LTC Marvin King

2. Adapting Plans or Operations

a. Adapting plans and operations is the last step of the assessment process, that initiates a new cycle of the operations and assessment processes. Once feedback and recommendations have been provided, commanders typically direct changes or provide additional guidance that dictate updates or modifications to an operation or campaign plan. The commander's guidance may also induce modifications to the assessment plan. Even without significant changes to the plan or order, changes to the assessment plan may be necessary to reflect changes in the OE or adjustments to the information or intelligence requirements.

b. Commanders continuously visualize, describe, decide, and direct action based upon their personal assessment. Operation assessment can be solely comprised of the commander's personal assessment in a critically time-constrained environment, but the addition of the staff's assessment allows better understanding when time and

circumstances permit. Figure 19 depicts the commander's decision cycle integrated with the operations process.

c. The commander's understanding of the OE, and guidance, will drive staff actions and the actions of the entire force. The staff will disseminate the commander's updated guidance and intent to ensure a shared understanding throughout the force. The staff may convey, normally through fragmentary orders, any changes to the current plan, or an anticipated decision to execute a branch or sequel. Another possible decision by the commander, is to reconvene the OPT and develop a new plan, as the current plan may no longer serve as a basis for effective action.

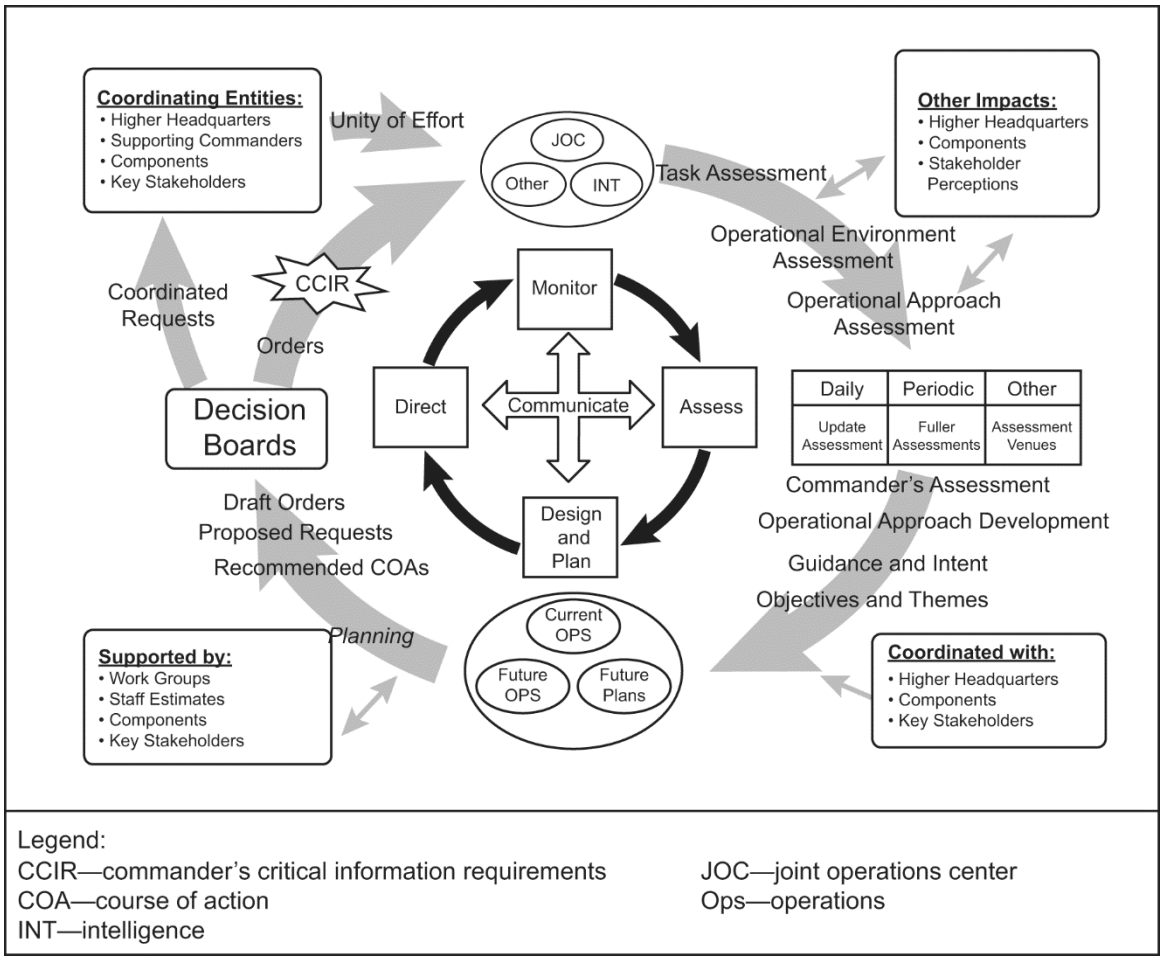

Figure 19. Commander Decision Cycle Integrated with the Operations and Assessment Processes

Appendix A
CONNECTING OUTCOMES TO INDICATORS MODEL

1. Introduction

a. This model is not a rigid step-by-step approach to identifying indicators. It is a breakdown of a holistic thought process—a sort of mental handrail—to help people get started. As assessors develop mastery, they will perceive this process as nonlinear, very elastic, and malleable to meet the demands of the problem, operational environment (OE), and the command. The key to using the model is to use it loosely.

b. The model's purpose is to advance and record the links between an outcome and the indicators used to gauge its achievement. Assessors do this for the purpose of making operations more effective. It might also be useful in operational design as it can suggest the more specific outcomes that planners will break a large problem into, which make its solution easier to execute and more likely to be successful.

c. To use the model, assessors always start with a statement of the desired outcome. Outcomes include: an end state, an objective, an effect, a task and purpose, a condition, a success or termination criterion, or anything else that specifies the change in the operating environment to be achieved. For an outcome to be executable, achievable, and assessable, it must be specific and bounded. Common ways to bound outcomes are by unit size, geography, or time. Another way is to make them specific, measurable, attainable, relevant, and time-bound (SMART). However, assessors or planners should not attach meaningless measures or deadlines simply to comply with SMART criteria. (For example, the objectives on many theater campaign plans will specify that all objectives will be achieved at the same time. This time is the expiration of the plan, and has no relationship to the achievement of each objective in the real world).

2. How to Use the Model

a. Figure 20 shows the complete model. To use it, assessors evaluate an outcome statement with question one (Q1). If the statement is specific, then they begin the process of discovering and recording the links by continuing through the model. If the statement is too vague to guide the effective operations of subordinate organizations, they break it up into a number of more specific outcomes. These more-specific outcomes statements break the original desired outcome into manageable portions for resolution. Starting with an end state, these statements may take the form of, or may suggest, lines of effort (LOEs) or lines of operation (LOOs), success or termination criteria, decision criteria, strategic questions, assessment questions, or any of the outcome statements listed above. The specific questions need to follow the SMART criteria.

b. As each specific outcome is articulated, assessors evaluate each of these with Q1, and repeat the process just described. When each is of sufficient specificity, then they can proceed through the model.

c. To illustrate, if the beginning outcome statement is an end state, one iteration through the design loop in the upper right corner of the model will yield either a set of objectives or several success criteria. A second iteration through the loop may yield effects. When these statements are specific enough, assessors proceed through the remainder of the model.

d. For each specific outcome statement, assessors ask question two (Q2), and make a list of questions that the unit needs to answer to know it is accomplishing that specific outcome. These questions provide context and focus to the subsequent list of indicators.

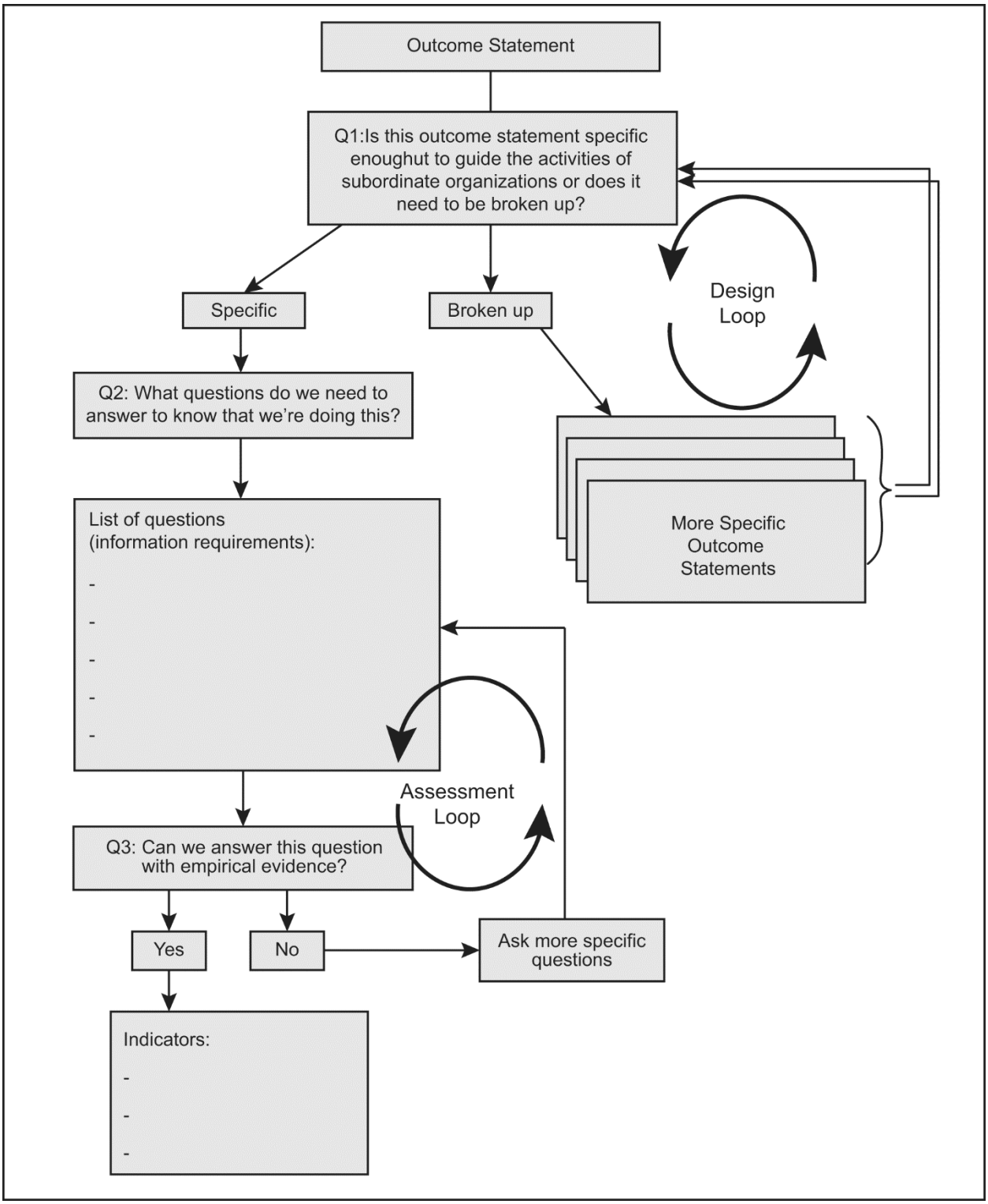

Figure 20. Linking Outcomes to Indicators Model

e. Then assessors evaluate each question on this list with question three (Q3) to determine if it can be answered with empirical information. If the answer is yes, then they record the piece of information needed to answer that question as a potential indicator. If the answer to Q3 is no, then they ask more specific questions until each

more-specific question can be answered with empirical evidence. Formally, these most-specific questions are called information requirements (IRs) and the evidence which answers them are indicators.

3. Tips on the Model's Use

a. Assessors should use a loose outline format to record the linkages between an end state and indicators with a less-specific question or statement close to the margin and layers of specificity indented underneath each. Successive layers can represent LOEs, objectives, effects, IRs, and indicators, respectively (or whatever other names the planners use for outcome statements).

b. Assessors should not try to skip the list of IRs and go straight to the list of indicators. When they do, they develop a set of all possible indicators that have bearing on the desired outcomes. This creates a couple of problems:

(1) The list of indicators is too long, lacks focus, and is hard to prioritize.

(2) Assessors do not understand the indicators' relationship to each other.

c. The formal step of listing IRs (questions) and then identifying indicators which answer them helps assessors understand the relationship between several related indicators that may answer related questions. Also, most people find the list of questions easier to prioritize than an exhaustive list of potential indicators. In essence, the formality of posing the questions focuses the identification of indicators.

d. Questions (IRs) and answers (indicators) need not have a one-to-one correspondence. One indicator may answer several questions, one question may require several indicators, or several related questions may be answered by several related indicators.

e. Assessment is largely about answering questions about the OE; friendly activities; and friendly, adversary, or third-party interaction with it. Once the staff answers the questions, they understand the OE better, and can make intelligent recommendations to increase the unit's effectiveness. Increasing effectiveness is the point of this model.

4. An Example of Using the Model

a. Figures 21-32 show an example of using the model from a blank sheet of paper to a complete example. As the model is worked through, the details are added to the original blank sheet of paper. As per figure 21, assessors start with a blank sheet of paper, and insert the end state at the top of the page to begin.

b. Assessors, especially at lower levels of command, may also start from an outcome statement, other than an end state, that is relevant to their unit. An outcome statement can be any of these: an end state, an objective, a sub-objective, an effect, a task and purpose, a condition, a success or termination criterion, or anything else that specifies the change(s) in the operating environment that they are seeking.

EXAMPLE

(Start with a blank sheet and write the end state at the top.)

End state: Create professional and self-sustaining security institutions for the host nation.

Figure 21. An Example of a Starting Point

(1) Figure 22 shows the beginning portion of the model, the design loop, starting with the end state (or other outcome statement). In this case, a security cooperation headquarters abroad wanted to aid the partner nation in creating professional and self-sustaining security institutions, which is the end state at the top of the page.

(a) The first step is to evaluate the first outcome statement, in this case, the end state, with Q1: Is this outcome statement specific enough to guide the

activities of subordinate organizations or does it need to be broken up? If the statement is specific, assessors can proceed through the model. If not, they need to break the statement into more specific statements.

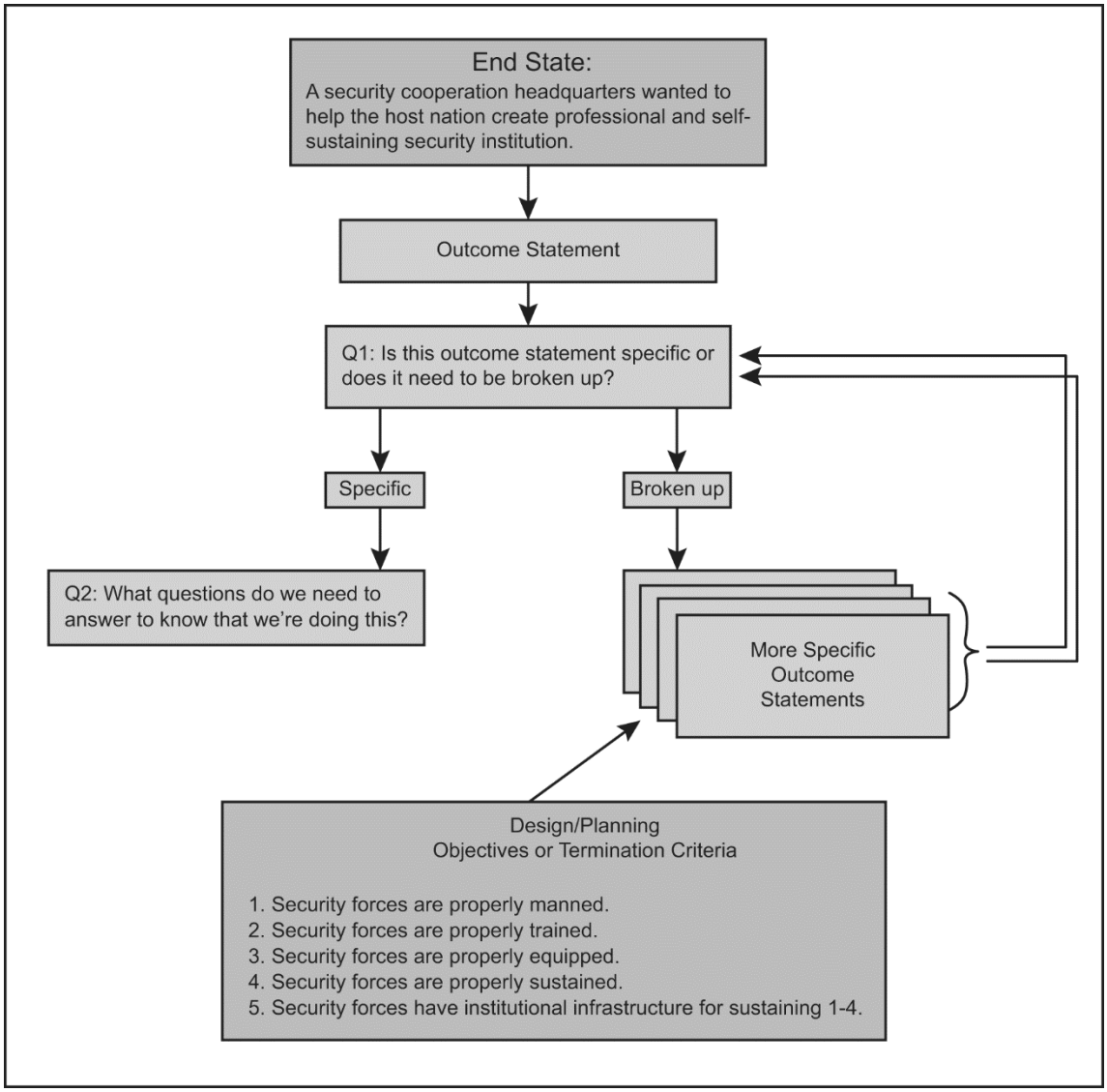

Figure 22. Refining the Outcome Statement

(b) In this case, it is useful to break up the end state into more specific statements. A more specific outcome is any statement that increases the specificity of the outcome desired. At this point, an assessor is helping with design and planning.

(2) In this scenario, assessors conclude that achieving the five things listed in figure 22 are sufficient to accomplish the end state. They update the blank sheet to reflect these objectives as shown in figure 23.

EXAMPLE
(Now the sheet looks like this.)

End state: Create professional and self-sustaining security institutions for the host nation.

Objectives (in support of the end state):

1. Security forces are properly manned.

2. Security forces are properly trained.

3. Security forces are properly equipped.

4. Security forces are properly sustained.

5. Security forces have institutional infrastructure for sustaining 1-4.

Figure 23. Example Recording of Objectives

(3) The next step is to evaluate each new, more-specific outcome statement with Q1. Assessors then iterate through the design loop as many times as is necessary, and proceed through the model once outcome statements are judged to be sufficiently specific. In real life, assessors would follow this procedure for all outcome statements, but for this example, the one in bold typeface is sufficient to illustrate the procedure.

(4) Going back to the model, in figure 24, assessors evaluate the statement with Q1: Security forces are properly trained. They conclude it requires more breakdown, because they are not sure what it means to be properly trained. After some critical thought, they write several more outcomes that, if achieved, are sufficient (in this example) to conclude partner forces are properly trained. Now the sheet of paper looks like figure 25.

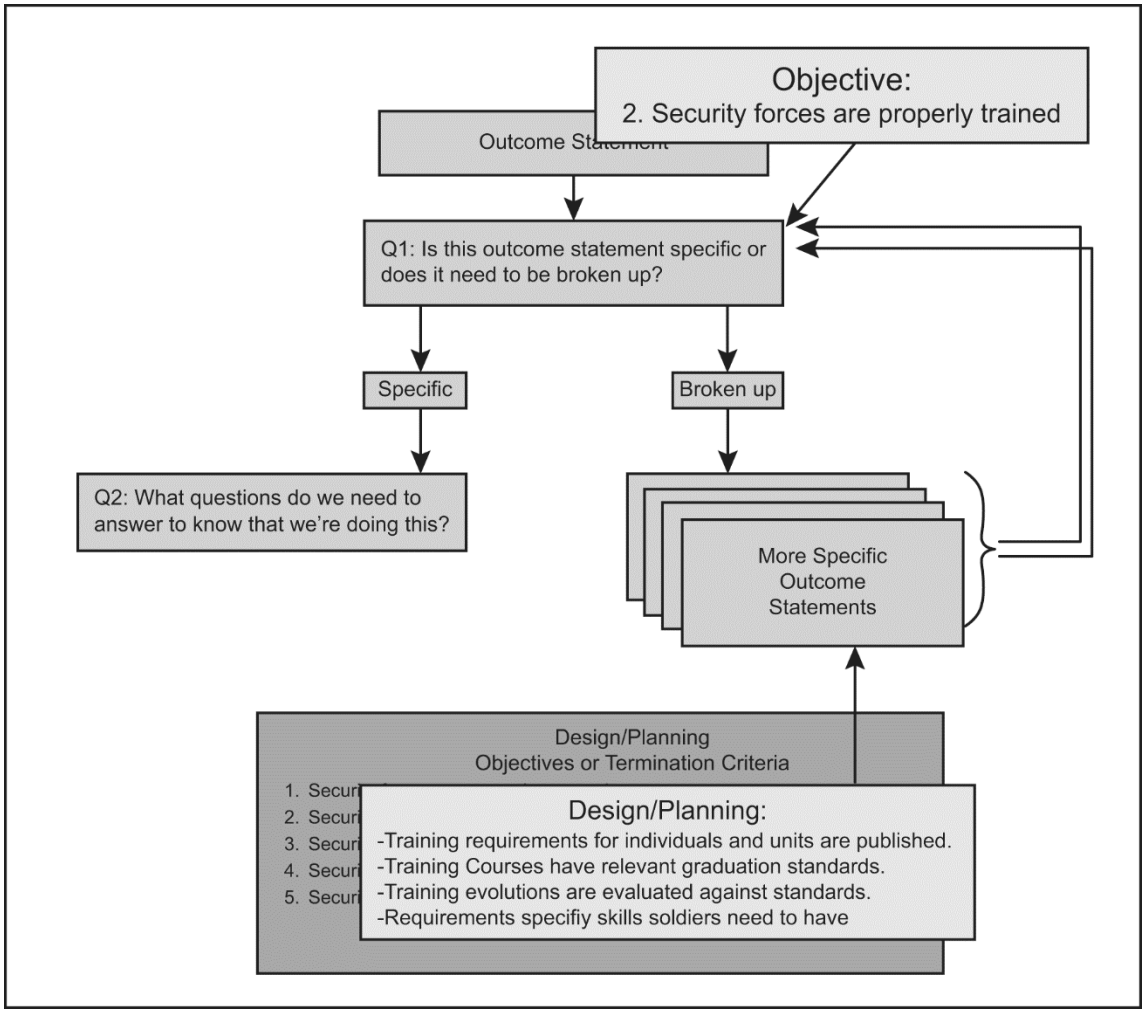

Figure 24. Example Further Refinement

EXAMPLE

End state: Create professional and self-sustaining security institutions for the host nation.

Objectives (in support of the end state):

1. Security forces are properly manned.

2. Security forces are properly trained.
   - Training requirements for individuals and units are published.
   - Training courses have relevant graduation standards.
   - Training evolutions are evaluated against standards.
   - Requirements specify skills soldiers need to have.

3. Security forces are properly equipped.

4. Security forces are properly sustained.

5. Security forces have institutional infrastructure for sustaining 1-4.

Figure 25. Example Second Iteration Through the Design Loop

(5) The assessors then evaluate each of the new outcome statements by Q1. For this example, they will focus on the one in bold typeface. As in figure 26, they conclude one more iteration through the design loop is required. After some critical thought, they conclude that three specific requirements are necessary, and the paper now looks like figure 27.

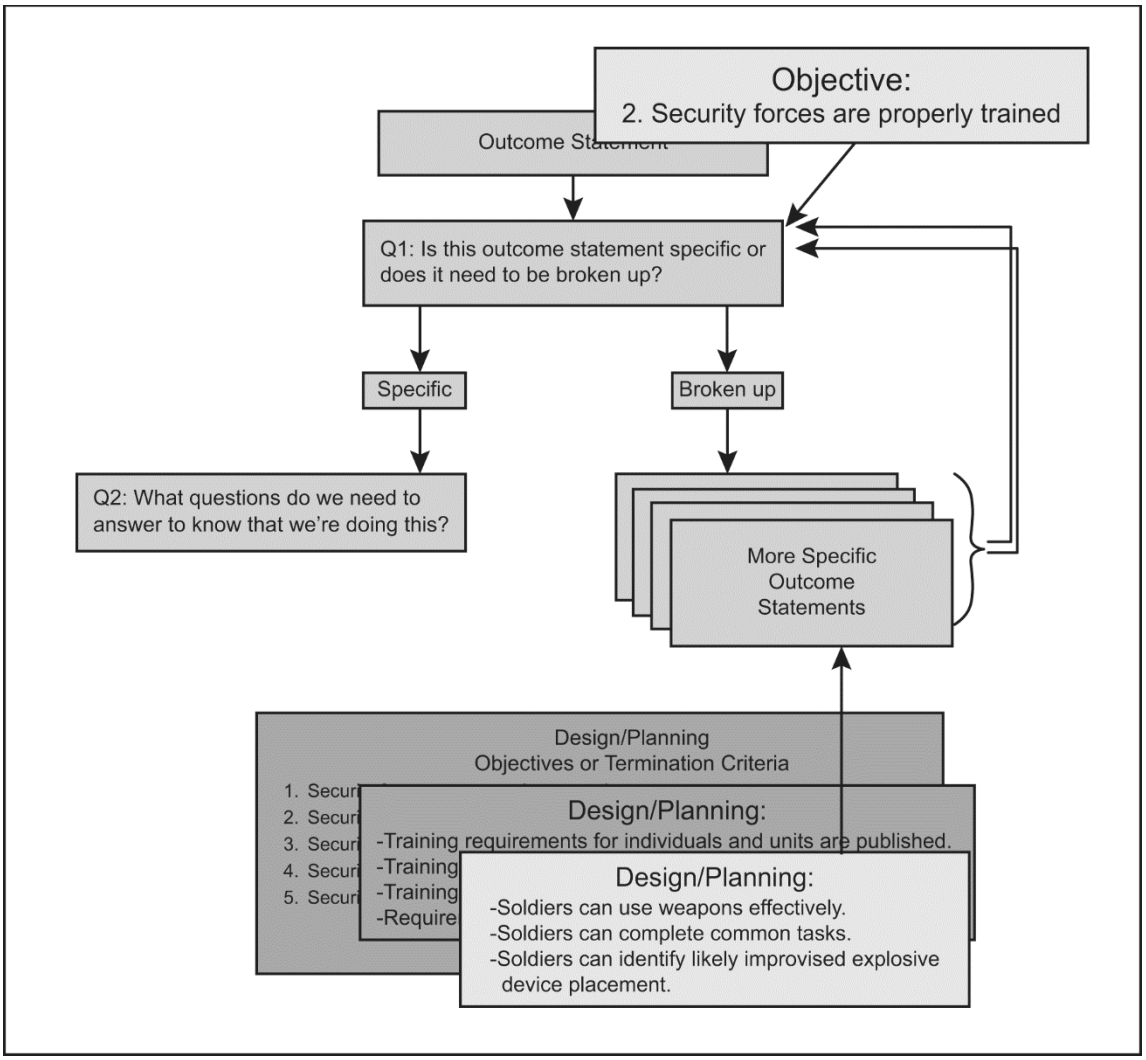

Figure 26. Example Narrowing Objectives Further

EXAMPLE

End state: Create professional and self-sustaining security institutions for the host nation.

Objectives (in support of the end state):

1. Security forces are properly manned.

2. Security forces are properly trained.
   - Training requirements for individuals and units are published.
   - Training courses have relevant graduation standards.
   - Training evolutions are evaluated against standards.
   - Requirements specify skills soldiers need to have.
     - Soldiers can use weapons effectively.
     - Soldiers can complete common tasks.
     - Soldiers can identify likely improvised explosive device emplacement (IED).

3. Security forces are properly equipped.

4. Security forces are properly sustained.

5. Security forces have institutional infrastructure for sustaining 1-4.

Figure 27. Example Three Iterations Through the Design Loop

(6) Now assessors evaluate these three new outcomes with Q1, and they conclude that the outcomes are sufficiently specific, so that they can proceed through the model as in figure 28.

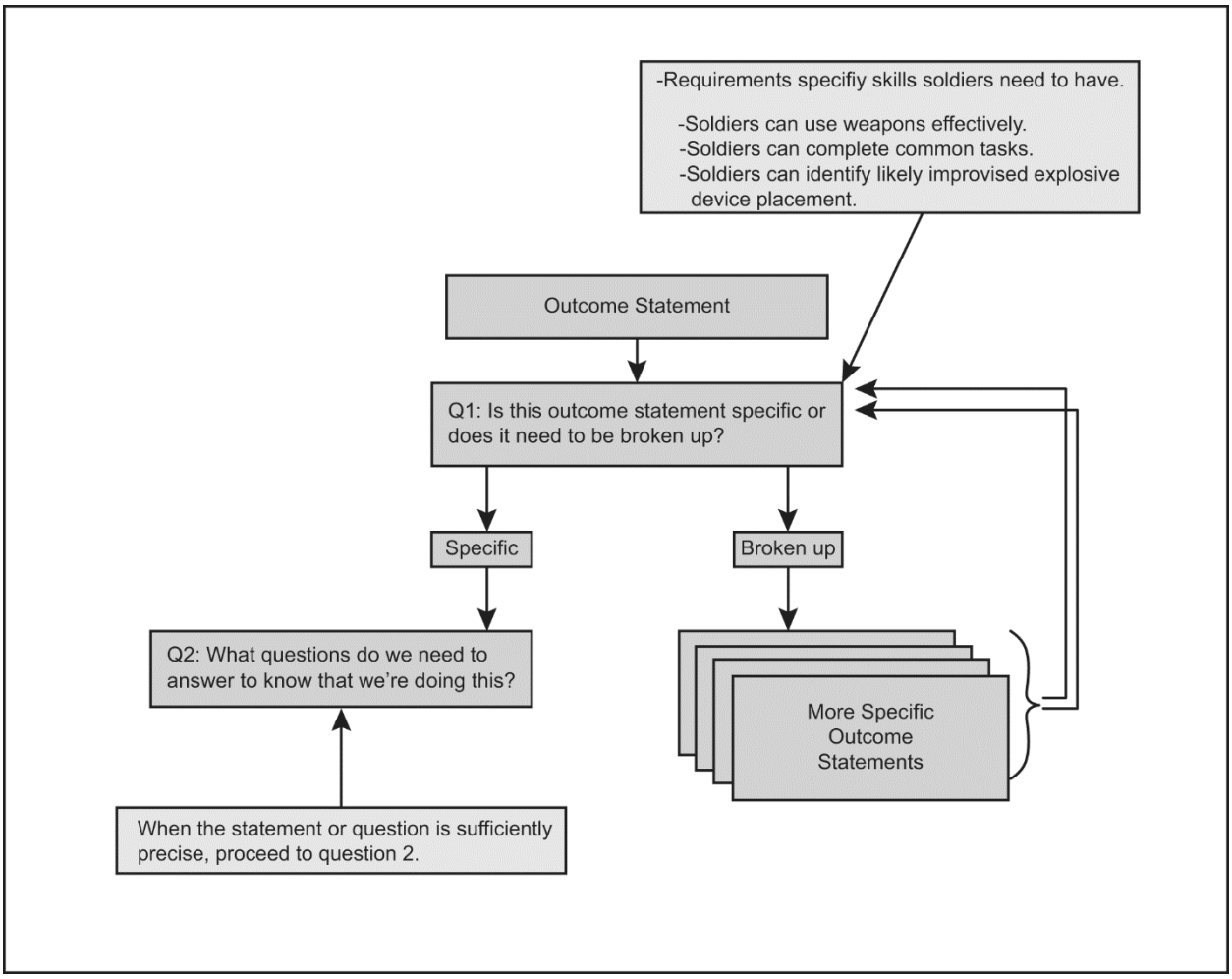

Figure 28. Completing the Design Loop and Moving to Question Two

(7) Assessors begin the assessment loop by posing Q2 for each specific outcome statement. They want to determine the specific questions that need to be answered for them to determine how well the joint force is accomplishing each specific outcome.

(8) In this example, as seen in figure 29, they identify one or more questions that need to be answered for each outcome. The paper now looks like figure 30.

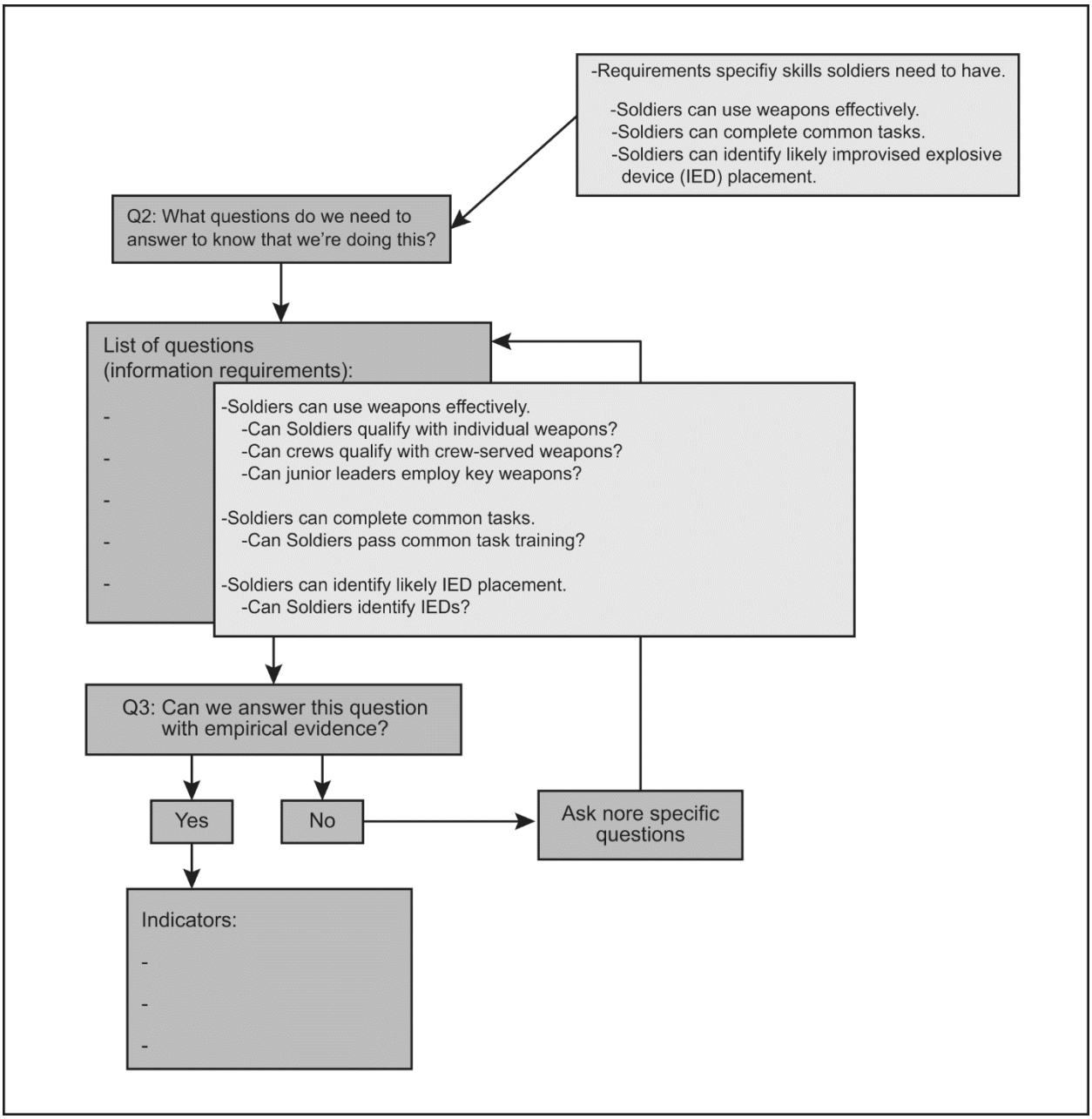

Figure 29. Example Question Two to Determine Information Requirements

EXAMPLE

End state: Create professional and self-sustaining security institutions for the host nation.

Objectives (in support of the end state):

1. Security forces are properly manned.

2. Security forces are properly trained.
   - Training requirements for individuals and units are published.
   - Training courses have relevant graduation standards.
   - Training evolutions are evaluated against standards.
   - Requirements specify skills soldiers need to have.
      - Soldiers can use weapons effectively.
         - Can soldiers qualify with individual weapons?
         - Can crews qualify with crew-served weapons?
         - Can junior leaders employ key weapons?
      - Soldiers can complete common tasks.
         - Can soldiers pass common task training?
      - Soldiers can identify likely improvised explosive device (IED) emplacement.
         - Can soldiers identify IEDs?

3. Security forces are properly equipped.

4. Security forces are properly sustained.

5. Security forces have institutional infrastructure for sustaining 1-4.

Figure 30. Example First Iteration Through the Assessment Loop

(9) Assessors evaluate each of these questions with the model's Q3 as in figure 31. If each question can be answered with empirical observation, assessors designate it an IR, and begin looking for a way to answer it. If it cannot be answered with empirical observation, then they ask more specific questions with the goal of asking questions that can be answered empirically.

(10) Once they have that list of questions, they have their IRs, and the information that answers them empirically are indicators. Now assessors prioritize their IRs and assign collection assets. The paper now looks like figure 31.

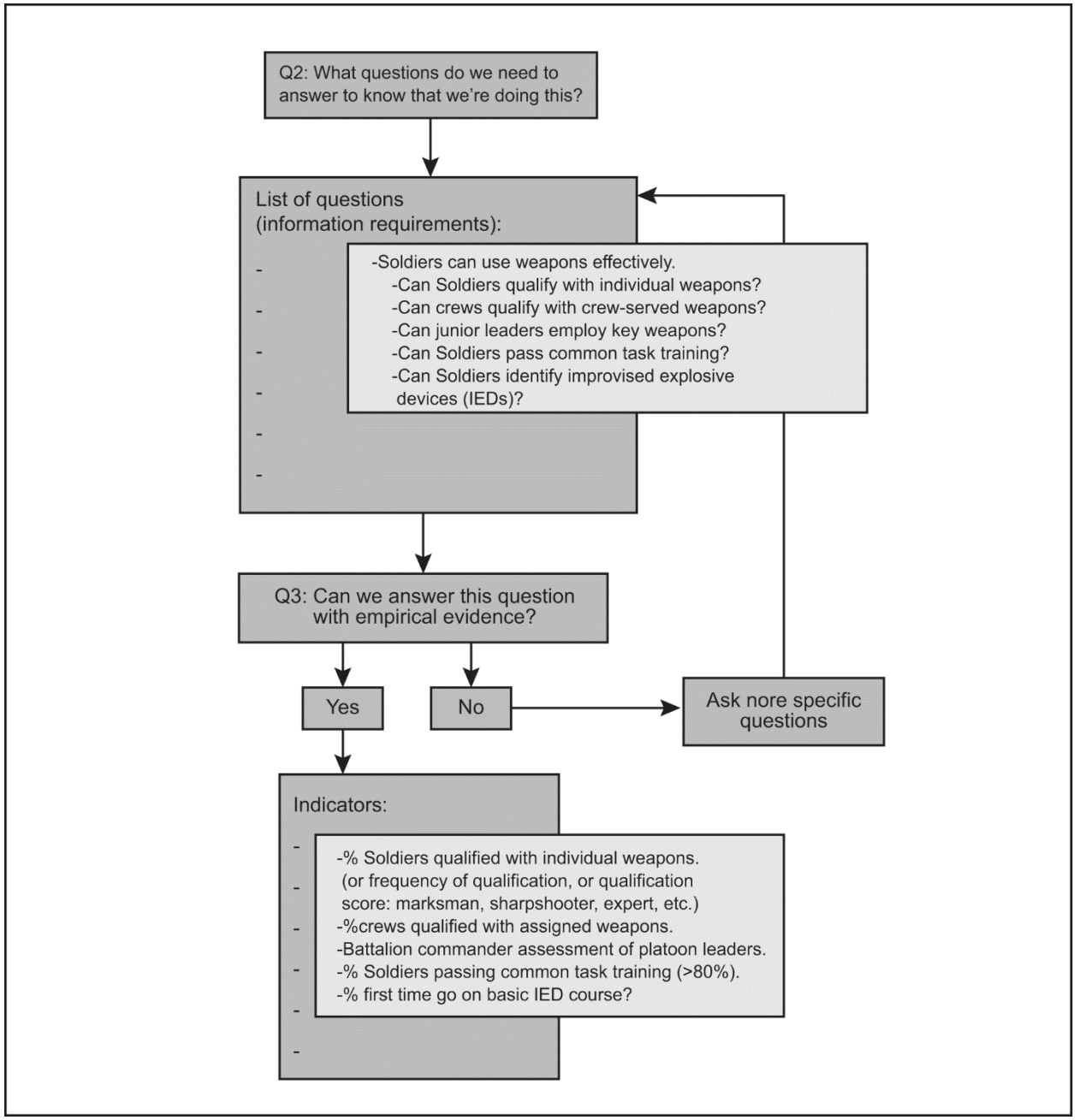

Figure 31. Example IRs and Indicators

EXAMPLE

End state: Create professional and self-sustaining security institutions for the host nation.

Objectives (in support of the end state):

1. Security forces are properly manned.

2. Security forces are properly trained.
   - Training requirements for individuals and units are published.
   - Training courses have relevant graduation standards.
   - Training evolutions are evaluated against standards.
   - Requirements specify skills soldiers need to have.
      - Soldiers can use weapons effectively.
         - Can soldiers qualify with individual weapons?
            - % soldiers qualified with individual weapons.
         - Can crews qualify with crew-served weapons?
            - % crews qualified with assigned weapons.
         - Can junior leaders employ key weapons?
            - Battalion Commander assessment of platoon leaders.
      - Soldiers can complete common tasks.
         - Can soldiers pass common task training?
            - % soldiers passing common task training.
      - Soldiers can identify likely improvised explosive device (IED) emplacement.
         - Can soldiers identify IEDs?
            - % first time go's on basic IED course.

3. Security forces are properly equipped.

4. Security forces are properly sustained.

5. Security forces have institutional infrastructure for sustaining 1-4.

Figure 32. Example Recording of Indicators

5. Conclusion

a. Once assessors flesh out the outline seen in figure 32, they have recorded the logical connections between the desired outcomes and the indicators they collect and use to gauge joint force effectiveness.

b. Using the above model will assist assessors and planners to determine specific objectives, effects, etc., for an end state that will focus units on the things that they need to do to be most effective. It also helps assessors develop appropriate IRs and

indicators for collection. By working through this model, the assessor can determine what information is needed for analysis and assessment.

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Appendix B
Measures of Performance (MOPs) and Measures of Effectiveness (MOEs)

Note: Before the publication of the July 2017 edition of JP 5-0, the terms measure of effectiveness (MOE), measure of performance (MOP), and indicator were defined differently. The assessment community thought the redefinition of these terms simplified the regime of measures and indicators. The terms, MOE and MOP, are useful in that they highlight the difference between performance (performing a task properly) and effectiveness (having the effect on the operational environment (OE) that the commander desires). In short, performing a task is insufficient to conclude operations have been effective because forces may have performed an inappropriate task, have performed an appropriate task poorly, or the adversaries may have countered friendly operations.

1. Introduction.

a. The commander and staff will identify the military end state and objectives that will nest within higher headquarters' objectives (see figure 33). With the objectives identified, the staff will recommend desired effects that are needed to support the objectives. Then the staff may develop tasks that forces must perform to achieve the desired effects or directly lead to accomplishing objectives. With the staff identifying the planning requirements, the assessment cell develops a framework for assessing accomplishment or efficacy of the tasks, desired effects, and objectives. There are multiple ways to conduct operation assessment, one commonly used is through the development of indicators—measures of performance (MOP) and measures of effectiveness (MOE)—used to assess tasks and effects, respectively.

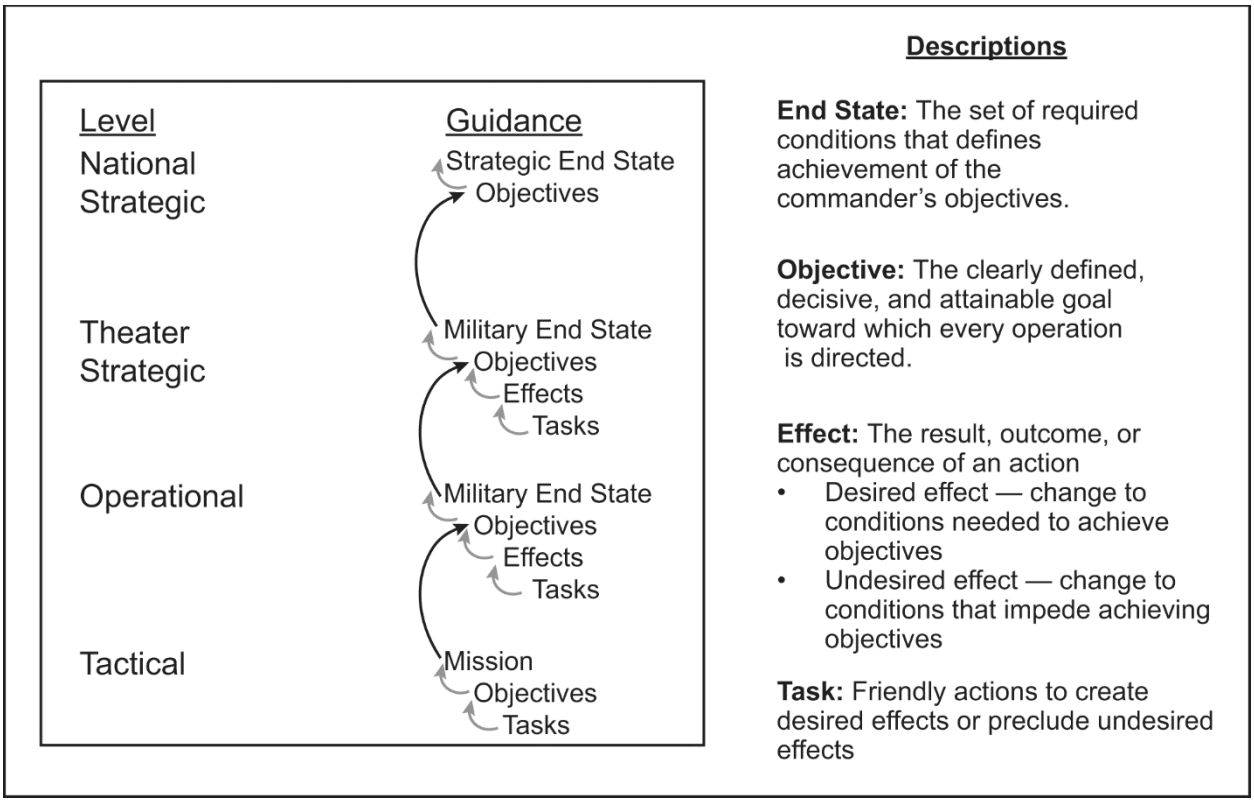

Figure 33. Assessment interaction with guidance.

b. An MOP is an indicator to gauge how well an action is executed. (DoD Dictionary. Source: JP 5-0)

c. An MOE is an indicator used to measure change in a current system state, by comparing multiple observations over time. (DoD Dictionary. Source: JP 5-0)

d. During Step 2 (Develop Assessment Plan) of the operation assessment process, the staff, with commander's guidance, develops a framework for operation assessments. The framework will include developing indicators that will assist the staff in presenting to the commander how the operation is being conducted and if the desired effects are being achieved to support objectives. The creation of MOPs and MOEs provides a simple and intuitive method of achieving this assessment framework that helps outline causal relationships. Table 14 characterizes the development of MOPs and MOEs.

Table 14. Assessment Measures	
Measure of Effectiveness (MOE)	Measure of Performance (MOP)
Answers the question, "*Are we doing the right things?*"	Answers the question, "*Are we doing things right?*
Measures purpose accomplishment	Measures task completion
No hierarchical relationship to MOPs	No hierarchical relationship to MOEs
Often formally tracked in formal assessment plans	Often formally tracked in execution matrices
Typically challenging to choose the correct ones	Typically simple to choose the correct ones

2. Linkage.

MOP and MOE development is only effective when linked to tasks and effects that they support and directly linked back to the military objective. Figure 34 depicts a way to link MOP and MOE under an objective, effect, and task. The linkage allows an assessor to identify the strengths and weaknesses of the assessment framework.

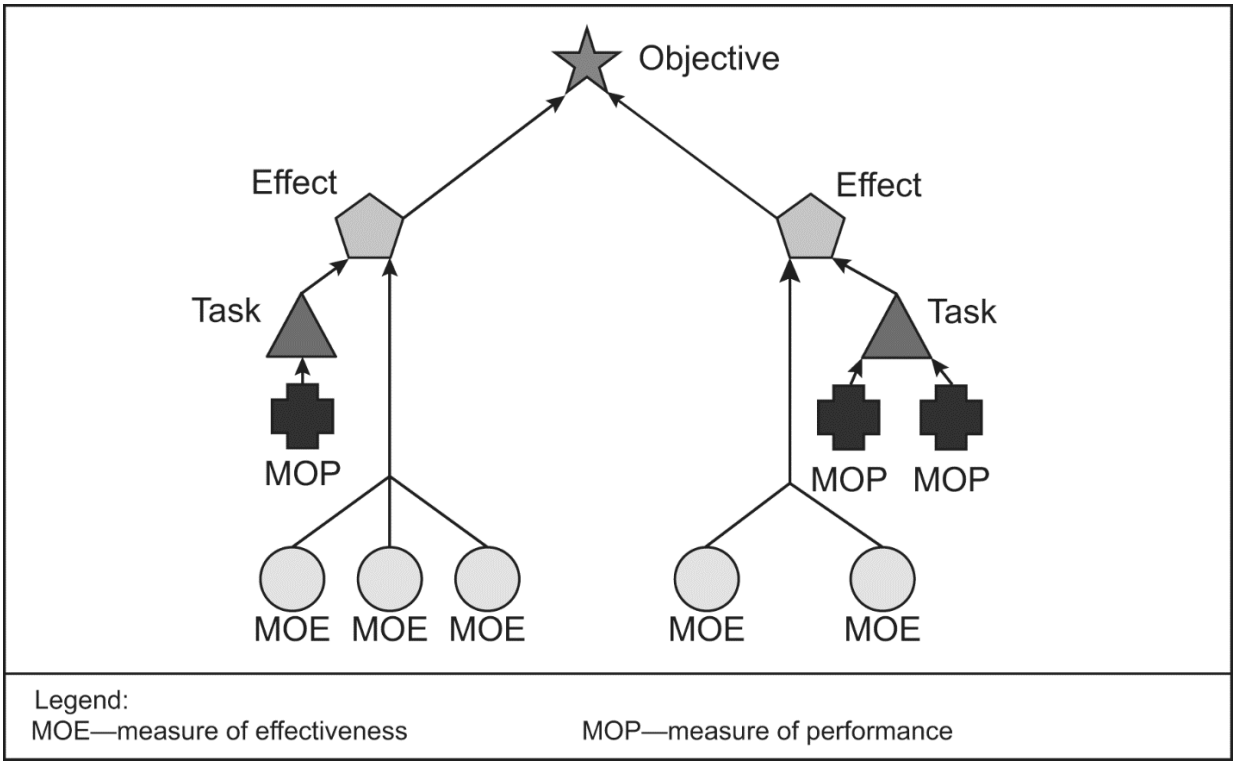

Figure 34. Notional assessment structure.

3. Planning process integration.

a. Assessment development starts during the planning process. MOP and MOE development begins during the mission analysis phase of the Joint Planning Process (which is similar to the Military Decision Making Process but included in the problem framing step of the Marine Corp Planning Process). As shown in figure 35, the staff will develop MOPs and MOEs that support military objectives and then refine them throughout the remainder of the planning process. Once codified in an order, the assessment appendix then becomes a tasking statement to the staff on what to collect, how to collect, and what data are required to conduct assessment. One idea to keep in mind throughout the process is that an assessment is always-changing due to the continuously changing environment and must constantly be reassessed and edited, like joint intelligence preparation of the operational environment (JIPOE) products, to ensure validity and transparency. The following is a way to integrate operation assessment using MOPs and MOEs during the planning process.

Note: The discussion will use the joint planning process (JPP) but this can be aligned to any Services' planning process.

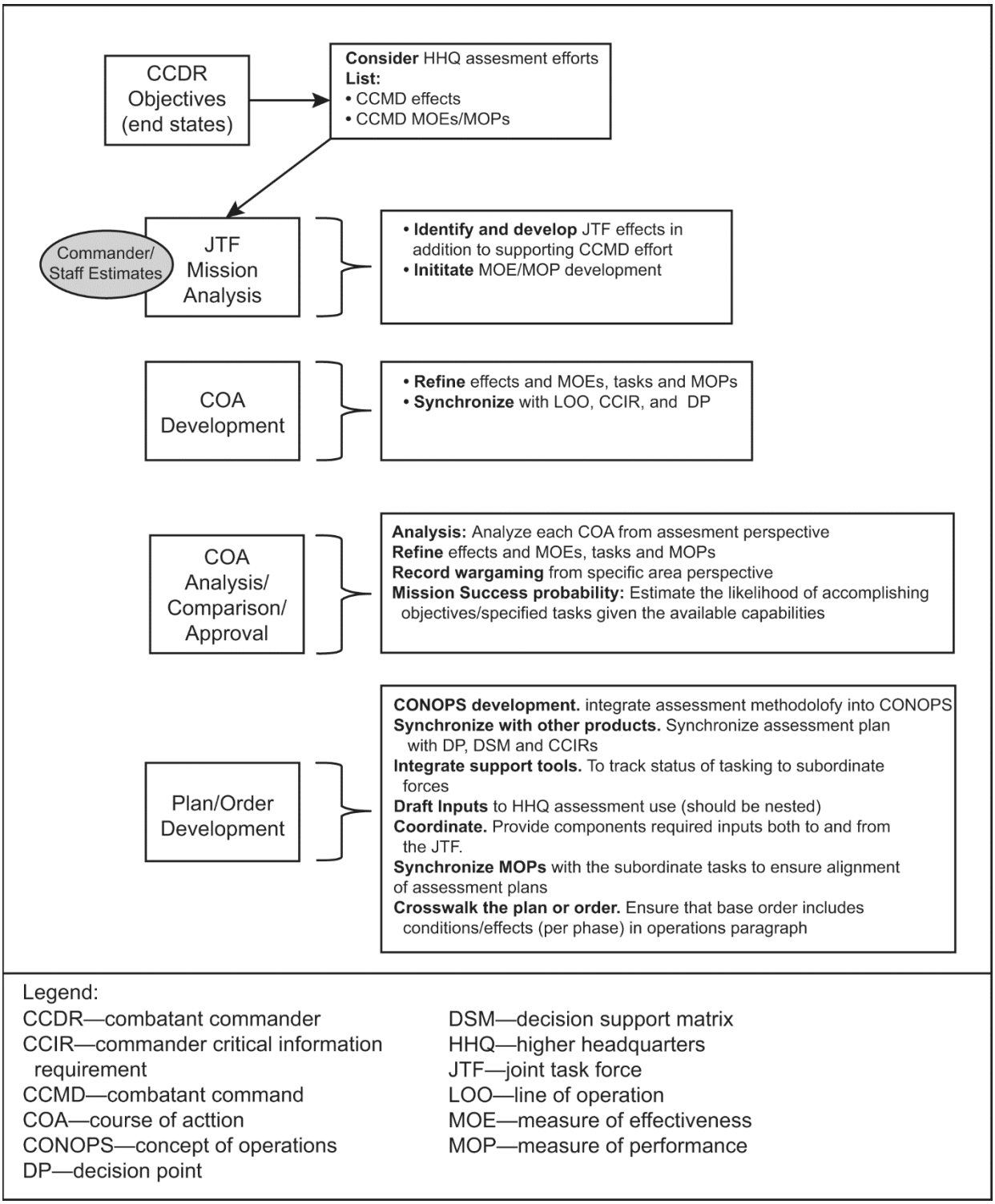

Figure 35. MOP and MOE development steps during planning.

(1) Planning initiation. During this step, the assessment cell starts to develop the assessment approach (operation assessment step 1). With assistance of other members of the staff, the assessment cell seeks to develop an understanding of the current state of the OE. Prior to the development of MOPs and MOEs, the

staff should identify a baseline that describes the current state conditions. A baseline measurement should be established prior to execution to facilitate accurate assessment throughout the operation and effectively measure change. The baseline is an understanding of current environmental conditions at the time assessment begins. The baseline is not limited to the receipt of an order or task but when historical data can be used in a relevant, measurable, responsive, and resourced manner. If there is no historical data, the staff may start from receipt of mission to initiate assessments. Sources for the baseline include, but are not limited to, JIPOE, country studies, political/military assessments, target system analysis, open-source information, different intelligence sources, etc. The intelligence and information sections will be able to provide most, if not all, of these products for review. An example of a baseline is a unit is tasked to secure the borders of a country that has been attacked by proxy forces for two years. The data from those past two years provides a baseline to measure changes as military forces are conducting operations.

(2) Mission Analysis. Once the staff develops a list of effects that are initially reviewed by the commander, the assessment cell initiates framework development, MOP and MOE development, and attempts to identify collection requirements for each indicator (operation assessment step 2). The assessment cell works with operations section to identify the commander's priorities and how to best integrate assessment into the planning process. Additionally, the assessment cell develops MOPs and MOEs in concert with the intelligence and information sections of the staff. The integration here is to ensure that collection resource requirements are properly identified.

b. MOP and MOE development. MOPs and MOEs can either be quantitative or qualitative.

(1) Quantitative indicators.

(a) In assessment, a quantitative indicator is numerical information relating to the quantity or amount of something that provides insight into an effect or task. For example, the individual tally of the monthly gallons of diesel provided to host-nation security forces by a unit (MOP) or the monthly number of tips provided to a tips hotline (MOE). Then the commander or staff collects that number to assess whether friendly forces have made changes to their pattern of providing this resource. The change in data will identify to the commander if resources are still required to support desired effects later in the assessment process.

(b) Some human judgment may be a factor even when dealing with quantitative indicators. Choosing which quantitative indicators to collect requires significant human judgment prior to collection. Prior to collection, the staff will identify collection requirements, resource requirements, and information requirements. During collection, the choice of sources, methods, and standards for observing and reporting the events also require judgment.

(2) Qualitative indicators.

(a) In assessment, a qualitative indicator is information that provides insight into an effect or task reflecting an observation of, relating to, or involving quality or kind, that is typically expressed as a word, a sentence, a description, or a code that represents a category. A high degree of human judgment is involved when collecting qualitative indicators. Qualitative indicators can often be subjective or opinions, not just observed opinions of others such as polls. For example, the division commander estimates the effectiveness of the host-nation forces on a scale of 1 to 5. Sources of qualitative indicators include subject matter experts' opinions and judgments as well as subordinate commanders' summaries of the situation.

(b) Qualitative indicators can account for real-world complexities that cannot be feasibly measured using quantitative indicators. Qualitative indicators are also more readily available; commanders often have access to staff principals, key leaders, and other subject matter experts from whom to garner opinions. In some cases, the only available indicator is an expert opinion. For example, determining changes in the size and number of enemy sanctuaries may prove impossible without asking local commanders, partners, and stakeholders. Without large amounts of objective data, subjective indicators can be used to give a relatively informed picture. However, subjective measures have a higher risk of bias. Human opinion is capable of spectacular insight but also vulnerable to hidden assumptions that may prove false. Through a quality assurance/quality control process, observers use training and experience to provide such assessments.

(c) MOP and MOE statements may require a change in direction: who are we measuring, what state of a system are we measuring, where are we measuring data (i.e., town or internet protocol range), and time measured from. These statements attempt to answer where are we, how did we get here, and what's next. The format used: Change direction, subject of indicator, action of the indicator, location (logical, physical, etc.), and baseline in time when assessment starts. Examples include:

- MOP 1: Change in the number of friendly sorties flown against approved targets in vicinity of (IVO City A since D-Day, compared to previous reports.
- MOP 2: Change in military information support operations messages delivered to approved target audiences IVO City A since D-Day, compared to previous reports..
- MOP 3: Change in the number of missions conducted against approved targets IVO City A since D-Day, compared to previous reports.
- MOE 1: Measured change in amount of adversarial contacts IVO city A since D-Day.
- MOE 2: Measured change in the adversary momentum through combat action IVO city A since D-Day.

- MOE 3: Measured change in the number of pessimistic signals from one adversary to another IVO City A since D-Day.
- MOE 4: Measured change in the number of enemy combat patrols IVO City A since D-Day.
- MOE 5: Measured change in the number of adversarial contacts with platoon or larger forces IVO City A since D-Day.
- MOE 6: Measured change in amount of adversarial improvised explosive devices (IEDs) on main supply route IVO City A since D-Day.

(d) As written, the MOPs will all describe the successful completion of some sort of task that will assist in achieving the desired effect. One difference between the MOP and MOE examples is the use of both qualitative and quantitative MOEs to assess the effect. Qualitative statements may require more focused quantitative indicators.

(e) Nesting. As previously discussed, MOPs support assessing task accomplishment while MOEs support assessing effect creation. Table 15 depicts how to associate MOP and MOE nesting with the discussion from table 14. As table 15 depicts, the nesting of MOP and MOE with tasks and effects shows an efficient and effective way to develop an assessment plan. Each subordinate item after the objective is linked numerically back to the senior element (i.e., MOE 1.1.1 is linked back to Effect 1.1 or MOP 1.1.1.1 is linked to Task 1.1.1 then to Effect 1.1 then to Objective 1) by using a number scheme. Another way of accomplishing this is by using an alphanumeric scheme (i.e., MOE 1.a.1 nests under Effect 1.a).

Table 15. Measure of Performance (MOP) and Measure of Effectiveness (MOE) Nesting
Objective 1. Combined forces achieve air superiority in vicinity of (IVO) the capital city by Phase 4.
Effect 1.1. Enemy air forces are degraded to less than 30% IVO the capital city by Phase 3.2.
MOE 1.1.1: Measured change in amount of adversarial contacts IVO capital city since end of phase 2.
MOE 1.1.2: Measured change in the adversary momentum through combat action IVO capital city since end of phase 2.
MOE 1.1.3: Measured change in the number of pessimistic signals from one adversary to another IVO capital city since end of phase 2.
MOE 1.1.4: Measured change in the number of enemy combat patrols IVO capital city since end of phase 2.
MOE 1.1.5: Measured change in the number of adversarial contacts with platoon or larger forces IVO capital city since end of phase 2.
Task 1.1.1. Combined forces conduct air interdiction missions on enemy airfields IVO the capital city through phase 3.
MOP 1.1.1.1: Measured change in friendly air interdiction sorties on enemy airfields IVO capital city since end of phase 2.
MOP 1.1.1.2: Measured change in friendly ISR tracks of enemy air IVO capital city end of phase 2.

(3) Course of Action (COA) development. As the staff is initiating the development of the COA, the assessment cell works with the staff to refine MOP and MOEs to align to the creation of staff and subordinate unit objectives, effects, and tasks.

(4) COA analysis and wargaming. During this step of the planning process, the assessment cell is refining the assessment plan as the staff refines the developed COA. The assessment cell must look at each COA differently as the staff does. There may be similarities but the approach to assessing operations and collecting intelligence to support assessments will be different.

(5) COA comparison. The staff is looking at each COA and weighting different attributes that the commander provided at the end of COA analysis and wargaming. The assessment cell is providing input to the staff's comparison process and analyzing their own assessment plan.

(6) COA approval. The assessment cell should provide feedback to the commander on whether the assessment plan will support the commander's decision making process and where the commander may assume risk.

(7) Plan or order development. The assessment cell develops the assessment appendix. As the environment is changed, the assessment cell reviews the assessment plan to identify if there are any changes required to better assist the commander's decision making process. If changes are required as the operating environment changes, the assessment cell will work with the staff to identify any needed changes to the assessment plan.

4. Considerations.

a. Bias.

(1) Assessments try to identify change whether it's positive, neutral, or negative. If specific words are used in the development of MOPs and MOEs, these words have the potential to sway the assessment in one direction or another. Numbers can become subjective because the data that they are derived from or data that are excluded will influence the value in one way or another. For these reasons, assessment professionals should attempt to remove bias by:

(a) Ask disconfirming questions. After the assessment cell identifies MOPs and MOEs, the assessment cell should look to ask the opposite before and during the analysis of data. For example: The running intelligence estimate supports stealth aircraft being shot at by enemy air defenses at an increased rate. The original analysis might indicate that enemy integrated air defense radars are better at tracking stealth aircraft. The assessment cell should ask itself a disconfirming question of "is the source of enemy tracking their radars?".

(b) Develop and test multiple hypothesis. Systems are not black and white. When attempting to identify the source of a change in a system (or no change), an analyst must attempt to reduce errors when drawing conclusions between cause and effect. Therefore, an analyst should develop hypothesis even when they are implausible.

(c) Engage in contrary analysis. The human dimension naturally will favor one hypothesis or COA. The assessment cell or staff should identify ways that their favored hypothesis may be wrong. For example, the running intelligence estimate seems to show that the enemy will initiate attacks against the eastern front. The contrary analysis must look to identify why the enemy would not attack the eastern front and attack a different front.

(d) Assess other people's metaknowledge. Within working groups, the most "confident" person usually runs the working group. However, the other people in the working group may have the knowledge and experience to assist. Therefore, you must ensure that decisions are supported by evidence. Do not rely on face value information but ask the hard questions on why they are so confident in their assessment.

(2) The human dimension is constantly evolving and changing. Avoid anchoring on an initial assessment. Stay open to new information. John Boyd's Observe, Orient, Decide, Act loop concept perfectly depicts that everything that an actor does within the environment changes the environment. The changes will then

force an analyst to reassess. The reassessment, if done in an objective manner without introducing anchoring bias, will identify the true cause and effect of a changing system.

b. Transparency. During the development and conduct of operation assessment, transparency to the commander is vital to the commander's decision making process. Bad news does not get better over time. The commander needs to be informed of activities within the OE whether they are positive, neutral, or negative to the COA. The information then allows the commander to make a risk decision on dedicating resources to improving a situation, sustaining current operations, reducing resources allotted to task, or stopping effort towards a task (due to either task accomplishment or lack of cost benefit). These decisions are made throughout the commander's battle rhythm, most likely at the assessment working group or targeting boards.

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Appendix C
ASSESSMENT PLAN EXAMPLES

1. Introduction

This appendix provides two examples of how an assessment cell can take an operational approach and develop an assessment plan and data collection plan. These documents should then be incorporated in the operation order (OPORD) annex or appendix. The first example has been adapted from II Marine expeditionary force's (MEF's) assessment cell while the second example is from the Naval War College's (NWC's) College of Maritime Operational Warfare.

2. II MEF Example

a. This example was used by the II MEF during Large Scale Exercise 2017. II MEF established an assessment cell within the staff comprised of three full-time assessors while each staff and functional section provided representation. The deputy commander chaired the working groups to provide command oversight. This method was effective during the exercise, and chronologically in paragraphs 3-7.

b. Figure 36 is an example of an operational approach. The operational approach is developed throughout planning and is finalized during order production. The assessment cell is a key contributor, as it is developed throughout planning, providing input on the ability to properly assess the lines of effort (LOEs), lines of operation (LOOs), decision points, and ensure that the framework supports the commander's end state. If a higher headquarters (HHQ) does not provide an operational approach, one can be developed from the OPORD to assist planners and assessors. For this example, LOE 1: Legitimacy of Operations is used.

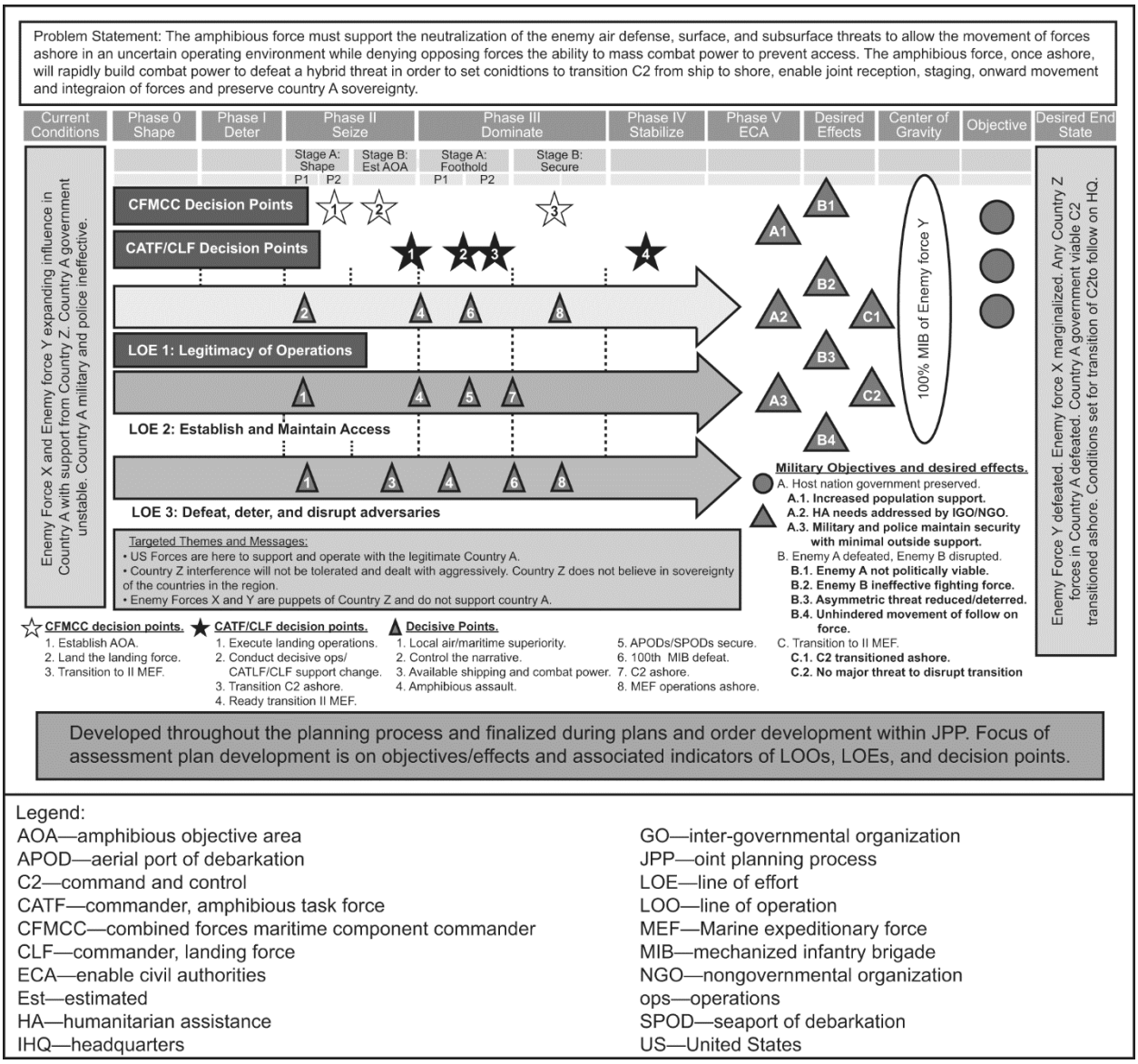

Figure 36. Example Operational Approach

3. Developing the Assessment Plan from the Operational Approach

As the operational approach is being developed, the assessors are providing input as how potential LOEs, LOOs, and decision points can be assessed. Assessors will also determine if the LOEs, LOOs, and decision points are feasible in addressing the center of gravity and getting to the commander's end state. As the LOEs, LOOs, and decision points are adapted, the assessment cell, with the assistance of the assessment working group, will develop the assessment plan. Figure 37 is an example of objectives and effects developed in support of LOE 1; Legitimacy of Operations.

Objectives and Effects, Line of Effort 1: Legitimacy of Operations.

- 1.1. Support from Country A.
- 1.2. Control the narrative.
- 1.3. Support from international community.
- 1.4. Coalition maintained.

During the development of objectives and effects for a line of effort or line of operation, and their associated decision points, the assessment cell can provide an initial list, and then have the assessment working group review and revise, or it can all be done in an assessment working group. Time will drive if all the lines of effort, lines of operation, and decision points are developed together or individually.

Figure 37. Example Objectives and Effects for LOE 1

4. Indicators

a. Once the objectives or effects are finalized and approved, the next step is to identify the indicators that need to be collected for the assessment of the objectives or effects and decision points that are part of the operational approach. After reviewing and revising the indicators, the indicators are finalized and incorporated into the assessment plan. Figure 38 is an example of indicators developed in support of a single objective or effect in support of LOE 1; Legitimacy of Operations.

Note: The more specific the indicators are written, the more detailed information is returned from the collectors. Another way to phrase the statements in figure 38 is to ask specific questions for each indicator (e.g., Is there evidence that messaging efforts against enemy forces X and Y are viewed as legitimate by country A's government, or the coalition?) so that they can be answered with either a binary, ordinal, or short description answer. This is particularly true if assessors are not clear yet what evidence of success or failure looks like. If an ordinal scale is used, assessors should develop definitions for the scale that are used by all collectors. Each indicator may require a different definition to measure success on an ordinal scale. See figure 13 for an example of rating definitions.

1.1. Indicators—Support from Country A Government.

Indicators
1.1.1. Messaging coalition efforts against enemy forces X and Y viewed as legitimate by Country A government, coalition, and United Nations.
1.1.2. Country A face on successful operations against enemy forces X and Y.
1.1.3. Country A forces capable of defeating enemy X elements with minimal support.
1.1.4. Key Country A clans support Country A government and coalition actions.
1.1.5. Local Country A population will not significantly affect coalition operations.
1.1.6. Country A government maintains support of military and police.
1.1.7. Country A able to support nongovernmental organization access with minimal coalition support to address humanitarian assistance needs.
Numerous indicators will be developed in support of the objectives and effects. The assessment team will need to review them, as some may not be measurable, collectable, or feasible, while some may be merged with others. There is no set number of indicators. Be aware of the effort and capability of the assessment team to track them all when viewed in context of the whole assessment plan.

Figure 38. Example Indicators in Support of LOE 1

b. The assessment plan can be developed within a series of PowerPoint slides as provided above, or within a Word document. A technique is to develop within a PowerPoint construct so that it can be incorporated as back up information to support the commander's assessment brief. If the assessment cell is required to write an assessment annex or appendix, a PowerPoint product can be incorporated in the document, along with the data collection plan.

5. Data Collection Plan

As the assessment plan is developed, the data collection plan may also be developed to incorporate requirements to support assessment. The data collection plan identifies the sources, and staff support, to collect the indicators that are identified to support the objectives or effects. Table 16 is an example of a data collection plan template. This example includes a column to track the assessments as conducted over time. Bullets of major assessment points can be incorporated and as the next assessment is done, the assessment cell can refer back to the data collection plan to see the history. The data collection plan should be tailored for the particular assessment, leveraging quantitative data, or narrative assessments where required.

Table 16. Data Collection Plan Template					
Line of Effort	**Objective or Effect**	**Indicators**	**Sources**	**Staff Support**	**Assessment Baseline**
Line of Effort 1: Legitimacy of Operations.	1.1. Support from Country A.	1.1.1. Messaging efforts against enemy forces X and Y viewed as legitimate by Country A, coalition, and the United Nations.	- Embassy - Local newspaper, radio, or TV - Coalition - International news	- PAO - POLAD - Coalition LNOs - Legal Advisors	
		1.1.2. Country A face on successful operations against enemy forces X and Y.	- Embassy - Local news - Survey of population - SOF	- PAO - POLAD - SOFLE - Coalition LNOs - Legal Advisors	
		1.1.3. Country A forces capable of defeating enemy X elements with minimal coalition support.	- HN - Embassy - SOF	- PAO - POLAD - SOFLE - Legal Advisors	
Note: The data collection plan would have all applicable indicators included.					
Legend: HN—host nation LNO—liaison officer PAO—public affairs officer POLAD—political advisor SOF—special operations forces SOFLE—special operations forces liaison element					

Note: Additional information may be added to the data collection plan in table 16. Some organizations add columns titled Metrics or Details in between Indicators and Sources to fully understand and specify the information required. Other organizations omit the Assessment Baseline column and add a column for Tasked Unit or Asset to indicate the collection plan has been formally tasked in a mission type order.

6. Decision Points

For decision points, the focus would be on the indicators to support that decision point. figure 39 is a snapshot of decision-point indicators that would be tracked by the assessment cell to support the commander's decision to conduct an amphibious landing.

Decision Point 1—Conduct Amphibious Landing.

Indicators
1.1. No mines or obstacles at designated landing beaches.
1.2. No significant enemy combat power capable of affecting landing within 8 hours of landing.
1.3. Designated landing zones identified are free of enemy and obstacles.
1.4. No significant casualties to landing craft or amphibious assault vehicles.
1.5. Aircraft available to support the insertion of forces.
1.6. No significant degradation to command and control.
1.7. No significant destruction of key bridges to hinder movement of forces off beachhead.

Figure 39. Example Decision Point Template

Note: Each of the indicators in figure 39 would have specific details required to define each indicator. An example is defining significant enemy combat power from indicator 1.2. Another example is defining minimum required aircraft required to support the landing, greater specifying the details to indicator 1.5.

7. Commander's Decision Brief

a. There is no right or wrong technique, as long as it provides the commander the information needed. Each commander receives information and analyzes information differently. If the assessment cell gets good guidance and requirements from the commander on what they want in the assessment brief, it will ensure that these items are included in the assessment plan and data collection plan.

b. For this example, the commander has decided on a single slide for the assessment brief. It can be incorporated into the normal operation and intelligence brief on an as-needed basis, or provided as part of the planners' update, or as a separate assessment board battle rhythm event. In this example, the assessment cell has decided to build the brief to take the commander to specific indicators using hyperlinks. This allows the commander the ability to drill down into the assessment if there are questions.

c. Figure 40 takes the brief down to the indicators for each of the objectives or effects. In this template, the focus is on a trending construct with more narrative. This template can also be used for the commander's baseline slide. The slide provides each LOE or LOO, and then an assessment.

1.1. Indicators—Support from Country A Government.

Indicator	Assessment
1.1.1. Messaging coalition efforts against enemy forces X and Y viewed as legitimate by Country A government, coalition, and United Nations.	Current Situation: 96 hours out:
1.1.2. Country A face on successful operations against enemy forces X and Y.	Current Situation: 96 hours out:
1.1.3. Country A forces capable of defeating enemy X elements with minimal support.	Current Situation: *(Insert narrative assessment of the current situation and the assessment working group prediction of 96 hours out)* 96 hours out:
1.1.4. Key Country A clans support country A government and coalition actions.	Current Situation: 96 hours out:
1.1.5. Local Country A population will not significantly affect coalition operations.	Current Situation: 96 hours out:
1.1.6. Country A government maintains support of military and police.	Current Situation: 96 hours out:
1.1.7. Country A able to support nongovernmental organization access with minimal coalition support to address humanitarian assistance needs.	Current Situation: 96 hours out:
From here, hyperlink goes back to the objective or effect slide.	

Figure 40. Example Indicators to a Specific Objective or Effect

8. Operation Assessment in Naval Warfare Publication (NWP) 5-01 Navy Planning

Purpose. The following information provides an overview of assessment planning as presented in NWP 5-01, Navy Planning. It has been abridged for inclusion in this publication. The examples are based on a notional maritime scenario that is used throughout NWP 5-01.

a. Assessment Planning. Assessment planning is a continuous effort that is informed by commander's intent and planning guidance and aligned with the operational plan. Assessment planning coincides with navy planning. Figure 41 depicts how assessment planning could correspond with navy planning.

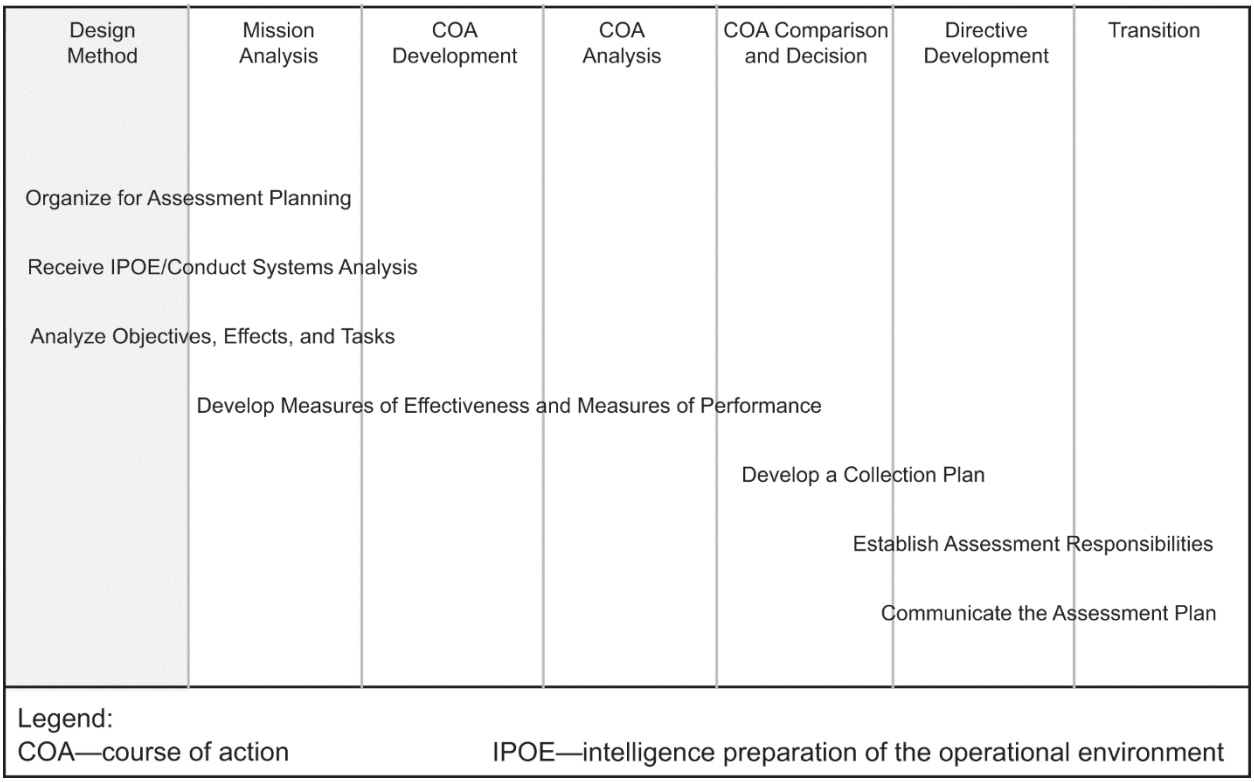

Figure 41. Developing an Assessment Plan within Navy Planning

b. Organize for Assessment Planning. Operation assessment begins at the initiation of planning. Assessment leadership must organize the assessment planning effort. This includes establishing a battle rhythm for the assessment working group, gathering the necessary information, guidance and developing a planning timeline. Inputs to assessment planning include: HHQ directives, HHQ assessment plan (if available), maritime commander's intent and planning guidance, operational approach and detailed maritime planning products (as available). In addition, the assessment lead should ensure that assessment touch points are included as part of the commander's battle rhythm.

c. Receive IPOE / Conduct Systems Analysis. The assessment organization leverages the intelligence preparation of the operational environment (IPOE) products, staff estimates, and operational planning team products (e.g., center of gravity analysis) to gain insight into the operational environment. In addition, the assessment organization may conduct their own systems analysis in anticipation of indicator development. This sub-step provides insight into potential information sources.

d. Analyze Objectives, Effects, and Tasks.

(1) An assessment plan is unique to the operation or campaign. The assessment working group must understand the linkages between operational objectives, effects, and tasks. In particular the assessment cell should critically review effects for measurability, relevance to the objective(s), and distinguishability from the objective. Figure 42 depicts a conceptual framework of an assessment plan.

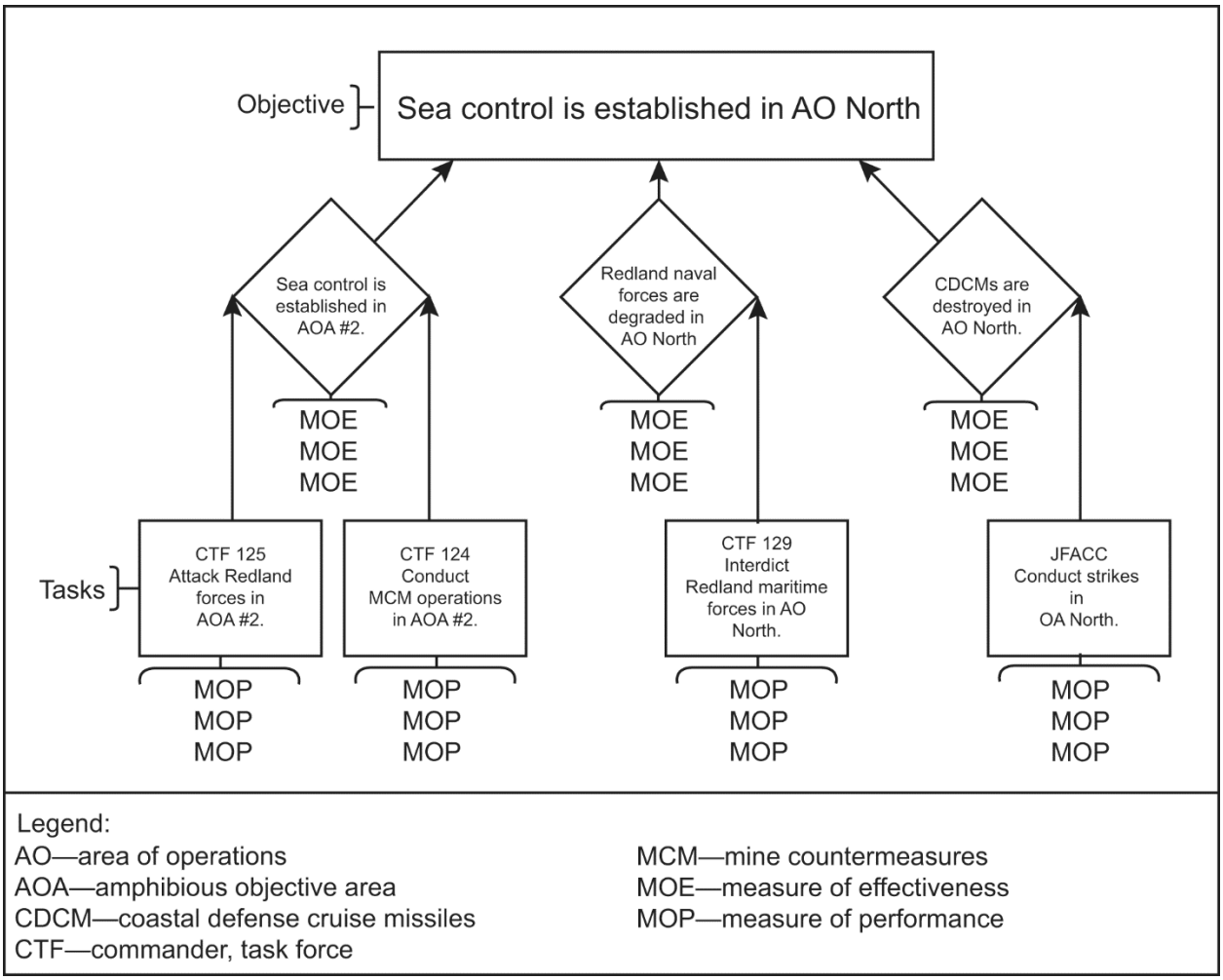

Figure 42. Assessment Plan Concept Overview

(2) The operational approach provides the foundation for the assessment plan. Figure 43 illustrates how the JFMCC assessment cell organized the assessment plan for Phase II of Operation FREEDOM ASSURANCE.

Figure 43. Example Organization of an Assessment Plan

e. Develop Measures of Effectiveness (MOEs) and Measures of Performance (MOPs). There are multiple techniques used to develop MOEs and MOPs. One technique is to use a series of assessment questions to link MOEs to effects and MOPs to tasks. This approach is described in detail in the JP 5-0. MOE development may be informed by the intelligence estimate, commander's critical information requirements, center of gravity analysis, and risk assessment. MOP development is informed by task analysis, task force LNOs, and subject matter experts. In addition, the Universal Joint Task List (UJTL) and Universal Naval Task List (UNTL) can provide insight into the development of MOEs and MOPs.

(1) Figure 44 depicts an example of using assessment questions to develop MOEs for an effect of the Phase II JFMCC assessment plan.

Objective: Sea control is established in AO North.

- **Effect:** Sea control is established in AOA#2.
- **Assessment Question:** How do we recognize that sea control is established in AOA#2?
  Intelligence Requirements:
  - Are Redland surface combatants patrolling in AOA#2?
    - ***MOE:*** Number of Redland surface combatants located within AOA#2.
    - ***MOE:*** Type of surface combatants located within AOA#2.
    - ***MOE:*** Amount of time Redland surface combatants remain within AOA#2.
  - Are Redland submarines patrolling in AOA#2?
    - ***MOE:*** Number of Redland submarines within AOA#2.
    - ***MOE:*** Description of Redland submarine operations with within AOA#2 (Combat, Surveillance and Reconnaissance, surfaced, submerged).
  - Has Redland conducted offensive mining in AOA#2?
    - ***MOE:*** Minefield location within AOA#2.
    - ***MOE:*** Size and type of minefield located within AOA#2.

Legend:
AOA – Amphibious Objective Area
JFMCC – Joint Force maritime Component Commander
MOE – Measure of Effectiveness
AO – Area of Operations

Figure 44. Phase II JFMCC MOE Example

(2) Figure 45 depicts an example of MOP development for the Phase II JFMCC assessment plan.

Objective: Sea control is established in AO North.

- **Effect**: Sea control is established in AOA#2.
- **Assessment Question**: What friendly force information is required to ensure JFMCC forces have completed tasks to standard?
  - **Task**: CTF 225 attack Redland forces in AOA#2.
    - **MOP**: 75% or more of CTF 225 combat power located within AOA#2.
    - **MOP**: Average on-station time for CTF 225 units within AOA#2.
    - **MOP**: CTF 225 is positioned to interdict Redland naval forces attempting to enter AOA#2.
  - **Task**: CTF 224 conduct mine countermeasure (MCM) operations within AOA#2.
    - **MOP**: Q-route is established within AOA#2.
    - **MOP**: % probability of detection attained within AOA#2, goal is 80%.
    - **MOP**: Time to establish Q-route to 80% POD in AOA#2.
  - **Task**: CTF 227 Conduct airborne surveillance and reconnaissance in AO North and AO West.
    - **MOP**: CTF 227 on-station time over AO North.
    - **MOP**: CTF 227 on-station time over AOA#2.
    - **MOP**: Number of CTF 227 sorties dedicated to AO North.
    - **MOP**: Number of CTF 227 sorties dedicated to AOA#2.

Legend:
AOA – Amphibious Objective Area
CTF – Commander, Task Force
JFMCC – Joint Force maritime Component Commander
MOP – Measure of Performance
AO – Area of Operations
POD – Probability of Detection

Figure 45. Phase II JFMCC MOP Example

(3) Once an MOE or MOP has been identified, baseline information in the way of normal patterns of life, typical operational tempo, etc., can be established IPOE and systems analysis will provide information and intelligence for selected MOEs. Task analysis and warfare area subject matter experts can provide information for MOPs. Measures must be evaluated to determine the acceptable condition or desired rate of change (DROC), collection source, frequency of collection, and information format (number, location, physical description). Figure 46 provides an example of a completed assessment framework.

Phase II	*Operation FREEDOM ASSURANCE*					
Objective: Sea control is established in AO North						
			Baseline	**Acceptable Condition, Desired Rate of Change**	**Data Requirements (Source, Periodicity, Format)**	**Remarks**
Effect	**Sea control is established in AOA#2**					**DECSION POINT: Sea Control in PH II is transition criteria for PH III.**
	MOE:	**Number of Redland surface combatants within AOA#2**	2x Redland surface combatants patrol IVO AOA#2 daily.	No Redland surface combatants within AOA#2	Mult sources, MIOC; reported daily during phase II; via number, type, and geolocation.	Redland surface combatants include all types and classes.
	MOE:	**Time Redland surface combatants remain within AOA#2.**	Daily patrol IVO AOA#2 normally 8 hours.	Zero hours is the goal. Initial a DROC indicating an observed reduction from 8 hours daily.	Mult sources, MIOC; reported daily during phase II; in hours.	Redland surface patrols last between 4-8 hours depending on vessel type and patrol orders.
	MOE:	**Redland submarines within AOA#2**	1x submarine patrols IVO AOA#2 as part of weekly patrol.	No Redland submarines within in AOA#2	Mult sources; reported daily during phase II; geolocation.	Redland submarine patrols occur sporaticly and are often less than one week in duration.
	MOE:	**Minefield location IVO AOA#2.**	Minefield located IVO AOA#2. Quantity and type unknown.	Redland mines do not impede follow on amphibious operations.	Source CTF 124, MIOC, report daily, clearance time remaining and POD%.	This MOE links to tasking for CTF 124.
Task	**CTF 125 attack Redland forces in AOA #2**					
	MOP:	**% of CTF 125 combat power located within AOA#2**	100%	75% of CTF 225 combat power is available to interdict Redland forces within AOA#2.	Position reported in GCCS.	This requirment was determined by CTF 125 and takes into account logistical requirements outside of AOA#2.
	MOP:	**CTF 125 positioned to interdict Redland naval forces attempting to enter AOA#2**	NA	All Redland forces attempting to enter AOA#2 are interdicted.	CTF 125 daily Sitreps.	At the discretion of CTF 125. Interdiction may include non-lethal and lethal fires.
Task	**CTF 124 conduct MCM operations in**					
	MOP:	**Q-route is established in AOA#2**	NA	Q route complete to 80% POD within 72-96 hours.	Source CTF 124, report daily, clearance time remaining and POD%.	Q-route determination is at the discretion of CTF 124.
	MOP:	**Time to achieve an 80% POD.**	72 Hours to clear an area the size of AOA#2 to 80% POD.	Q route complete to 80% POD within 72-96 hours.	Source CTF 124, report daily, clearance time remaining and POD%.	**DECISION POINT: If 80% POD not achieved, within 96 hours the decision to conduct the amphibious landing in PH III will be reconsidered by the Commander.**

Figure 46. Example JFMCC Assessment Framework

f. Develop a Collection Plan. The completed assessment framework forms the basis of the assessment collection plan. The assessment collection plan must be

coordinated through the collection management working group. The format for the assessment collection plan will vary by command.

g. Establish Assessment Responsibilities. Operation assessment requires a cross functional approach to data collection and analysis. Clearly delineating responsibilities for data collection, analysis and product development is essential when moving an assessment plan from planning to execution. MOEs are typically collected within the MOC by the maritime intelligence operations center (MIOC). MOPs are typically tracked within the MOC by current operations (COPS). Understanding where the information and intelligence will be processed and distributed highlights the importance of MIOC and COPS representation within the assessment working group.

h. Communicate the Assessment Plan. An assessment plan must be communicated to internal and external stakeholders prior to execution. The commander's battle rhythm should include opportunities to brief the assessment plan to the staff. Written reports and an assessment appendix to the operational directive offer ways to communicate the assessment plan across all assessment stakeholders.

i. Adapt Plans and Operations. Upon receiving the feedback and recommendations from the staff, the commander will provide direction and guidance for follow-on operations. This may result in changes to current operations, and/or new planning efforts. In both cases the assessment organization may be required to refine the assessment plan to correspond with the commander's direction as seen in figure 47.

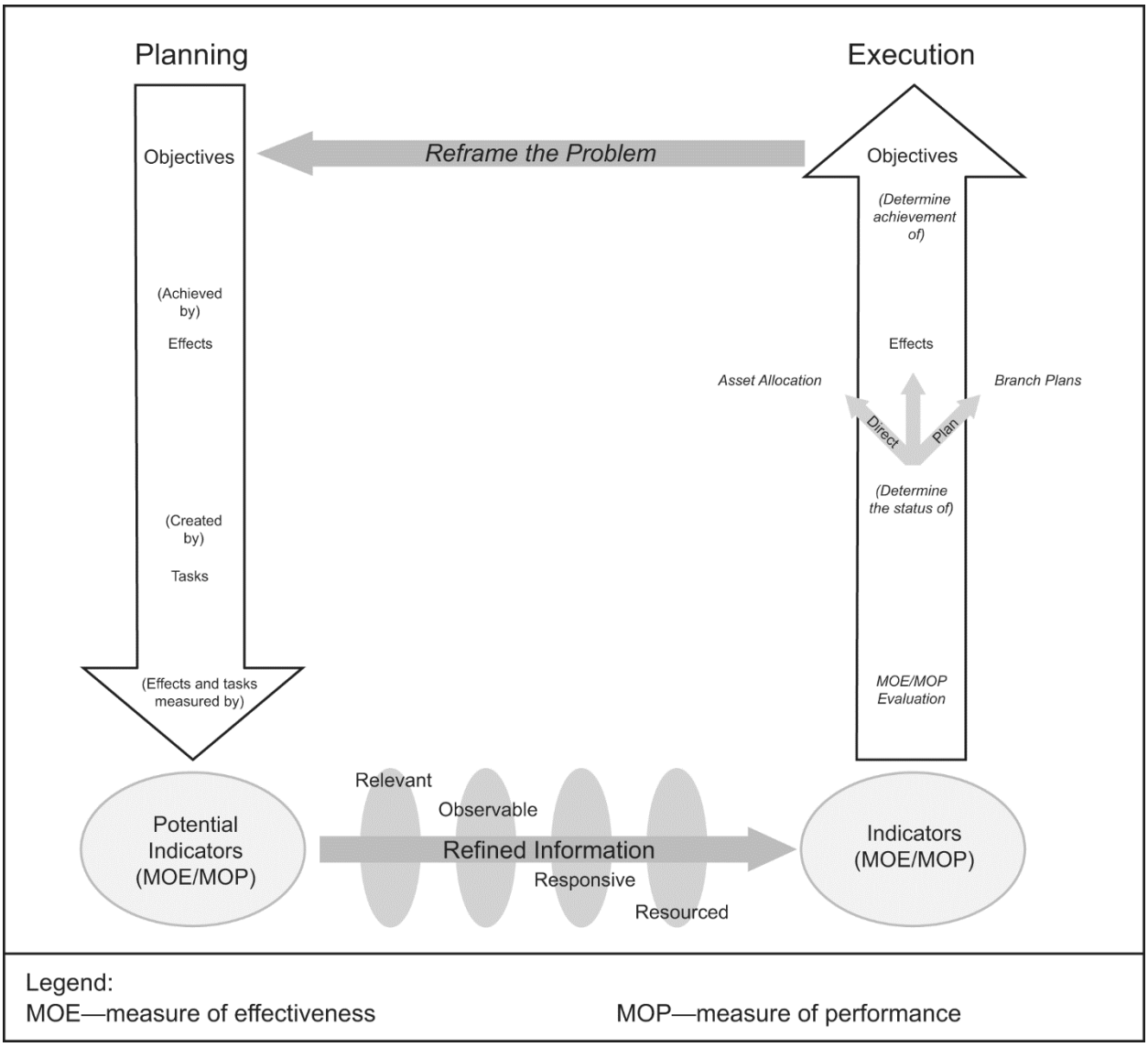

Figure 47. Assessment in Planning and Execution

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Appendix D
EXAMPLE ANNEXES AND APPENDICES

This appendix will provide examples from each Service planning and orders formats for assessments.

1. United States Army

a. Army Doctrine Publication 5-0, *The Operations Process*, provides the fundamentals of the operations process to include chapters on planning, preparing, execution, and assessment.

b. Field Manual (FM) 5-0, Planning and Orders Production, is the Army's principal manual on planning that includes a chapter on assessment and assessment planning.

c. FM 6-0, Commander and Staff Organization and Operations, provides a doctrinal operation order (OPORD) format and provides fundamental considerations, formats, and instructions for developing Annex M, (Assessment) Format and Instructions. Commanders and staffs use Annex M as a means to quantify and qualify mission success or task accomplishment. This annex describes the assessment concept of support objectives. For more information refer to FM 6-0.

2. United States Marine Corps

The Marine Corps Planning Process (MCPP) does not specify a format to articulate assessments, but does recognize the need to accomplish assessments. The MCPP defines design as the fundamental responsibility of the commander during planning, but also throughout the planning-execution-assessment continuum. It stresses the importance of understanding the problem, the environment, the enemy, and the purpose of the operation. The stress on the continuum states the importance of assessments from the planning process through execution, managing information on the environment, the enemy, and friendly forces in terms of the purpose of the operations. For more information see Marine Corps Warfighting Publication 5-10, *Marine Corps Planning Process.*

3. United States Navy

a. The method of communicating the assessment framework to the staff, higher headquarters, other components, and subordinates may vary. One proposal includes an annex to appendix C of the base operation order. It may also include the assessment organization, offices of primary responsibility, and concept for assessment. This example includes objectives, effects, measures of effectiveness, and collection responsibilities. See Navy Warfare Publication 5-01, *Navy Planning* for more information.

b. Another example of a Navy assessment appendix example, in table 17 is taught at the Naval War College at the maritime operational planner's course.

Table 17. Navy War College Assessment Appendix Example
(COMBINED / JOINT) FORCE MARITIME COMPONENT COMMANDER OPERATION XXXXXXXXXXXXXXXXX
APPENDIX X, ASSESSMENT TO ANNEX C, OPERATIONS, OPLAN (or CONPLAN)
(U) Ref: (a) (U) Ref: (b) (U) Ref: (c)
(U) Warning Order XXXX (U) Decision Directive XXXX (U) Memorandum XXXXXX (U) Message XXXXXX
1.A. (U) General. (Insert a short statement paragraph describing the situation or record this statement.) “REFER TO BASE OPERATION ORDER, SITUATION PARAGRAPH.” 1.B. (U) Area of Operations. (Insert a short statement paragraph describing the area of operations or record this statement or record this statement.) “REFER TO ANNEX B, INTELLIGENCE.” 1.C. (U) Enemy Forces. (Insert a general statement paragraph describing enemy forces or record this statement.) “REFER TO ANNEX B, INTELLIGENCE.” 1.D. (U) Friendly Forces. (Insert a general statement paragraph describing friendly forces or record this statement.) “REFER TO BASE ORDER, SITUATION PARAGRAPH.” 1E. (U) Civil Considerations. (Insert a general statement paragraph describing civil consideration applicable to the force or record this statement.) “REFER TO ANNEX G CIVIL AFFAIRS.” 1.F. (U) Attachments and Detachments. (Insert a statement paragraph describing forces attached or detached for the operation or record this statement.) “REFER TO ANNEX A TASK ORGANIZATION.”
2. (U) MISSION. (Record this statement.) “REFER TO BASE ORDER, MISSION PARAGRAPH.”

Table 17. Navy War College Assessment Appendix Example (Cont'd)

3. (U) EXECUTION.

3.A. (U) Concept of Operations Assessment. Describe the approach for assessment to this operation. This can describe the operational approach by line of operation or effort, by objectives and operational effects, by phase, geographically, critical event or any combination of these.

EXAMPLE: "The CFMCC approach to assessment for this operation is by objective and associated operational level effects that help realize objective achievement during this phased operation. CFMCC assesses the efficiency and effectiveness of the force to conduct actions to achieve intended purposes; this, in turn creates the desired conditions over time that should assist in recognizing objective achievement. This assessment effort provides a sense of whether the force is "on or off" plan. If off plan, a decision point may emerge (either anticipated or unanticipated) to adapt operations to a changing operational environment to pursue established objectives. Constant scrutiny of assumptions made during planning and execution may point to a review of the operational approach and its future end states and associated objectives."

3.B. (U) Phase (Stage or Step) X: Describe the objective for the phase (stage or step). Describe the effects ascribed to the objective. Describe notable indicators that inform force effectiveness to create desired operational level effects consistent with objective achievement. These indicators are measures of effectiveness.

EXAMPLE. "The objective for this phase is to deter forces from conducting offensive operations into XXX areas of operations. An associated effect with this objective is that enemy forces do not dispute control of XXX territory. Success is informed by collecting and measuring the frequency, amount and location of incidents the force encounters with enemy subsurface, surface and air assets in the maritime area of operation, most notably in XXX waters prior to declared hostilities. Subordinate task force narrative assessments contribute to recognizing the degree of success."

"A second effect associated with this objective…"

Secondly, describe decisive tasks (associated with the main or supporting efforts of the force) in the phase (stage or step) that accomplish the objective. Describe notable indicators associated with these tasks. These indicators are measures of performance.

EXAMPLE: "Decisive tasks associated with this phase are the building of maritime combat power in the JOA, conducting air and missile defense, protecting the sea and air approaches to Intermediate Staging Bases (ISBs) and conducting maritime security operations in XXX waters. Force actions are measured by monitoring and collecting the percentage of maritime combat power in the JOA versus expectations, the amount of forces providing air and missile defense versus resources tasked, the amount of forces protecting approaches to ISBs versus forces tasked and the amount of forces conducting MSO in XXX waters versus those resources tasked."

Table 17. Navy War College Assessment Appendix Example (Cont'd)
3.C. (U) Phase X: Repeat the framework as described above. 3.D. (U) Phase X: Repeat the framework as described above. 3.E. (U) Phase X: Repeat the framework as described above. 3.F. (U) Phase X: Repeat the framework as described above. (This narrative portion of the collection plan conveys the focus and direction of the assessment.) 3.G. (U) Data Collection and Analysis Process. Describe expectations of data from identified sources in the collection plan. The nature of the sources in the collection plan lends perspective. This section can describe how data is to be collected, analyzed, concluded, and conveyed to the commander. Explain which areas of assessment various staff sections are responsible for. 3.H. (U) Coordinating Instructions. Add information from an assessment perspective that benefits the staff, subordinate task forces or higher or adjacent components.
4. (U) ADMIN AND LOG <OMIT SECTIONS BELOW WHERE YOU DO NOT NEED TO PROVIDE ADDITIONAL INFORMATION FOR ASSESSMENTS> 4.A (U) Administrative. (Record this statement.) "REFER TO ANNEX D (LOGISTICS)." 4. B. (U) Logistics. (Record this statement.) "REFER TO ANNEX D (LOGISTICS)."
5. (U) COMMAND AND CONTROL <OMIT SECTIONS BELOW WHERE YOU DO NOT NEED TO PROVIDE ADDITIONAL INFORMATION FOR ASSESSMENTS> 5.A. (U) Command. 5.B. (U) Liaison Requirements. (Record any liaison requirements internally to the assessment cell or externally to other maritime operations center cross-functional teams.) 5.C. (U) Control. Tab 1—Collection Plan. (See figure 48 for an example of the collection plan.)

OBJECTIVE	EFFECT	MOE INDICATOR	ACCEPTABLE CONDITION	TIME INFORMATION OF VALUE	NOTES AND EXPLANATIONS	DATA FORMAT	SOURCE AND COLLECTED BY	FREQUENCY OF COLLECTION

Figure 48. Example Tab 1, Collection Plan

4. United States Air Force (USAF)

The USAF does not specify a doctrinal assessment product. The USAF allows commanders and their staffs to develop a product that works for the commander.

5. North Atlantic Treaty Organization (NATO)

NATO established annex OO in table 18 as part of their standard six-paragraph operation order format. For more information see the *NATO Operations Assessment Handbook, version 3.0.*

Table 18. North Atlantic Treaty Organization Annex OO Example
1. SITUATION a. General. Introduction to operations assessment, its purpose within the headquarters (HQ), relationship to the plan, and key references used in the design of the assessment plan. b. Purpose. The purpose of the annex.
2. MISSION A clear, concise statement which states the operations assessment mission with a clear purpose in support of the commander's decision making.
3. CONCEPT OF OPERATIONS a. General Concept for Operations Assessment. The general overview of the assessment to be conducted including the measures of effectiveness (MOEs) and measures of performance (MOPs), data collection, how the data is analyzed to develop outputs, where the assessments are used, and what decisions the assessments are likely to support. Include reference to how lessons learned are captured and the assessment refined. b. Operation Assessment Model or Process. A schematic drawing representing an overview of the process of operations assessment within the command. c. Operations Assessment Results. How will the assessment products be presented? Where and who will use the output from the assessments? d. Data Collection Plan. Reference to how data is collected using the data collection plan detailed in appendix I.
4. EXECUTION a. Operations Assessment Battle Rhythm. How the operations assessment is executed with a battle rhythm and its relationship with the wider HQ battle rhythm. b. Coordinating Instructions. i. Subordinate Command Actions. Actions or responsibilities for subordinate commands. ii. Supporting Command Actions. Actions or responsibilities for supporting commands. iii. Host-nation Requests. Requests to host nation for support. Identify overlaps with host-nation assessment capabilities. iv. Civilian-organization Requests. Requests to civilian organizations for support. Identify overlaps with civilian-organization assessment capabilities.

Table 18. North Atlantic Treaty Organization Annex OO Example (Cont'd)
c. Use of Tools for Operations Planning Functional Area Services (TOPFAS) or other operations assessment related software. How the assessment is executed using software applications, including databases and tools such as the campaign assessment tool within TOPFAS.
5. SERVICE SUPPORT Financial Management Support. All Service contracts are to be established conducting an operations assessment, cost-based analysis, and using the fiscal triad, composed of resource management, contracting services, and finance operations assets through the lens of the legal office.
6. COMMAND AND SIGNAL a. Command and Control. Describe the relationship with other assessment cells. b. Liaison and Coordination. Describe how to deal with issues and who the key points of contacts are within the command. c. Reporting. Detail key reports and timings for submission. SIGNATURE BLOCK APPENDIX LIST APPENDIX I—DATA COLLECTION PLAN Annex OO write very specific MOEs and MOPs. As the plan reviews, the annex may become obsolete in some essential aspects, requiring adjustment through mechanisms other than the plan review. Bearing this in mind, a plan which includes the following information for the purposes of data collection: MOE or MOP with associated planning elements such as operational objective, decisive condition, supporting effect, task, etc. Include all reference numbers. Detailed description of MOE or MOP including definitions. Goals of the MOE or MOP. Type of data being collected (including units of measurement). Data source. Office of primary responsibility for data collection. Data format to be reported in. Frequency data to be reported.

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GLOSSARY

PART I—ABBREVIATIONS AND ACRONYMS

	A
ABCT	armored brigade combat team
ADA	air defense artillery
ANSF	Afghan National Security Forces
AOA	amphibious objective area
APOD	aerial port of debarkation
AWG	assessment working group
	B
BDA	battle damage assessment
BDE	brigade
BN	battalion
	C
C2	command and control
CA	civil affairs
CAB	combat aviation brigade
CATF	commander, amphibious task force
CFMCC	combined forces maritime component commander
CLF	commander, landing force
CMD	command
COA	course of action
COFMS	correlation of force and means
COMISAF	Commander, International Security Assistance Force
CR	cavalry regiment
	D
DoD	Department of Defense
DR	disaster relief
	E
ECA	enable civil authorities
	F
FA	field artillery
FLOT	forward line of own troops

FM	field manual
FRAGORD	fragmentary order
	G
GIRoA	Government of the Islamic Republic of Afghanistan
	H
HA	humanitarian assistance
HHQ	higher headquarters
HN	host nation
HQ	headquarters
HUMINT	human intelligence
HVI	high value individual
	I
IBCT	infantry brigade combat team
IDP	internally displaced person
IED	improvised explosive device
IMO	intermediate military objective
INT	intelligence
IPOE	intelligence preparation of the operational environment
IR	information requirement
ISAF	International Security Assistance Force
ISR	intelligence, surveillance, and reconnaissance
	J,K
JIPOE	joint intelligence preparation of the operational environment
JIPTL	joint integrated prioritized target list
JOC	joint operations center
JP	joint publication
JPP	joint planning process
	L
LNO	liaison officer
LOE	line of effort
LOO	line of operation
	M
MARSEC	maritime security
MCPP	Marine Corps Planning Process

MEF	Marine expeditionary force
MIB	mechanized infantry brigade
MISO	military information support operations
MOE	measure of effectiveness
MOP	measure of performance
MTOE	modified table of organization and equipment
	N
NATO	North Atlantic Treaty Organization
NGO	nongovernmental organization
NWC	Naval War College
NWP	Navy warfare publication
	O
OE	operational environment
OPORD	operation order
OPR	office of primary responsibility
OPS	operations
OPT	operational planning team
OPTEMPO	operating tempo
	P,Q
PAO	public affairs officer
PIR	priority intelligence requirement
PMESII	political, military, economic, social, information, and infrastructure
PN	partner nation
POLAD	political advisor
PUB	Plans Update Board
	R
RAND	Research and Development
RMRR	relevant, measurable, responsive, and resourced
RPG	rocket propelled grenade
	S
SIGACT	significant activity
SIGINT	signals intelligence
SMA	simple moving average

SMART	specific, measurable, achievable, relevant, and time bound
SME	subject matter expert
SOF	special operations forces
SOFLE	special operations forces liaison element
SOP	standard operating procedure
SP	self-propelled
SPOD	seaport of debarkation

T

TOPFAS	Tools for Operations Planning Functional Area Services
TW	towed

U,V,W,X,Y,Z

US	United States
USAF	United States Air Force
USD	United States dollar

PART II—TERMS AND DEFINITIONS

assessment—1. A continuous process that measures the overall effectiveness of employing capabilities during military operations. (DoD Dictionary. Source: JP 3-0) 2. Determination of the progress toward accomplishing a task, creating a condition, or achieving an objective. (DoD Dictionary. Source: JP 3-0)

assumption—A specific supposition of the operational environment that is assumed to be true, in the absence of positive proof, essential for the continuation of planning. (DoD Dictionary. Source: JP 5-0)

commander's intent—A clear and concise expression of the purpose of the operation and the desired military end state that supports mission command, provides focus to the staff, and helps subordinate and supporting commanders act to achieve the commander's desired results without further orders, even when the operation does not unfold as planned. (DoD Dictionary. Source: JP 3-0)

condition—1. Those variables of an operational environment or situation in which a unit, system, or individual is expected to operate and may affect performance. (DoD Dictionary. Source: JP 3-0) 2. A physical or behavioral state of a system that is required for the achievement of an objective. (DoD Dictionary. Source: JP 3-0)

decision point—A point in space and time when the commander or staff anticipates making a key decision concerning a specific course of action. (DoD Dictionary. Source: JP 5-0)

effect—1. The physical or behavioral state of a system that results from an action, a set of actions, or another effect. (DoD Dictionary. Source: JP 3-0) 2. The result,

outcome, or consequence of an action. (DoD Dictionary. Source: JP 3-0) 3. A change to a condition, behavior, or degree of freedom. (DoD Dictionary. Source: JP 3-0)

end state—The set of required conditions that defines achievement of the commander's objectives. (DoD Dictionary. Source: JP 3-0)

evaluate—Using indicators to judge progress toward desired conditions and determining why the current degree of progress exists. (Source: ADP 5-0)

indicator—1. In intelligence usage, an item of information which reflects the intention or capability of an adversary to adopt or reject a course of action. (DoD Dictionary. Source: JP 2-0) 2. In operations security usage, data derived from friendly detectable actions and open-source information that an adversary can interpret and piece together to reach conclusions or estimates of friendly intentions, capabilities, or activities. (DoD Dictionary. Source: JP 3-13.3) 3. In the context of assessment, a specific piece of information that infers the condition, state, or existence of something, and provides a reliable means to ascertain performance or effectiveness. (DoD Dictionary. Source: JP 5-0)

measure of effectiveness—An indicator used to measure change in a current system state, by comparing multiple observations over time. Also called MOE. (DoD Dictionary. Source: JP 5-0)

measure of performance—An indicator to gauge how well an action is executed. Also called MOP. (DoD Dictionary. Source: JP 5-0)

mission—1. The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. (DoD Dictionary. Source: JP 3-0)

objective—1. The clearly defined, decisive, and attainable goal toward which an operation is directed. (DoD Dictionary. Source: JP 5-0) 2. The specific goal of the action taken which is essential to the commander's plan (DoD Dictionary. Source: JP 5-0)

operation—1. A sequence of tactical actions with a common purpose or unifying theme. (DoD Dictionary. Source: JP 1) 2. A military action or the carrying out of a strategic, operational, tactical, service, training, or administrative military mission. (DoD Dictionary. Source: JP 3-0).

operation assessment—1. A continuous process that measures the overall effectiveness of employing capabilities during military operations in achieving stated objectives. (DoD Dictionary. Source: JP 5-0) 2. Determination of the progress toward accomplishing a task, creating a condition, or achieving an objective. (DoD Dictionary. Source: JP 5-0)

operational approach—A broad description of the mission, operational concepts, tasks, and actions required to accomplish the mission. (DoD Dictionary. Source: JP 5-0)

operational design—The conception and construction of the framework that underpins a campaign or operation plan or order. (DoD Dictionary. Source: JP 5-0)

operational environment—A composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. (DoD Dictionary. Source: JP 3-0)

staff estimate—A continual evaluation of how factors in a staff section's functional area support and impact the planning and execution of the mission. (DoD Dictionary. Source: JP 5-0)

system—A functionally, physically, and/or behaviorally related group of regularly interacting or interdependent elements; that group of elements forming a unified whole. (DoD Dictionary. Source: JP 3-0)

task—A clearly defined action or activity specifically assigned to an individual or organization that must be done as it is imposed by an appropriate authority. (DoD Dictionary. Source: JP 1)

threshold of success—A level, point, or target desired for an indicator. Attainment of the target indicates success for the associated task, objective, or end state and signals the opportunity to reallocate resources. (Source: Navy Dictionary)

variance—The difference between the desired situation and actual situation at a specified time. Based on the impact of the variance on the mission, the staff makes recommendations to the commander on how to adjust operations to accomplish the mission more effectively. (Source: NATO Operations Assessment Handbook)

***ATP 5-0.3**
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