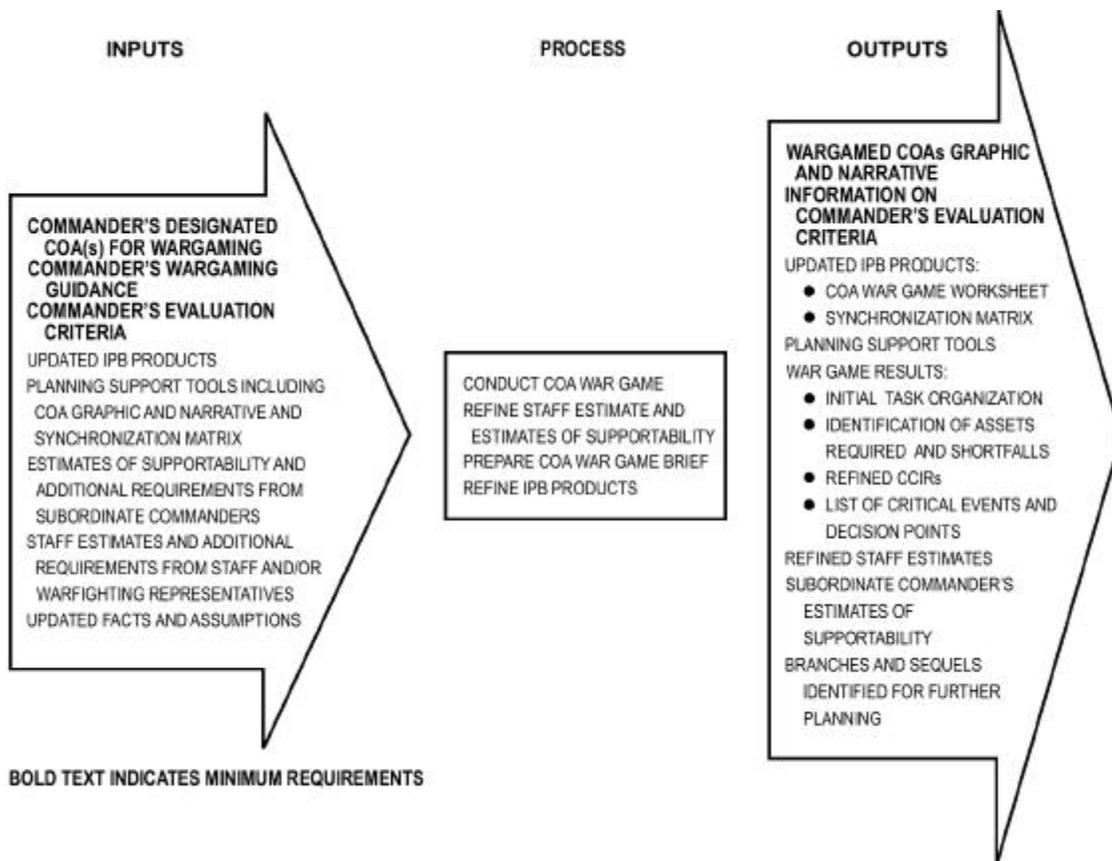


Chapter 4

Course of Action War Game

“Know the enemy and know yourself; in a hundred battles you will never be in peril. When you are ignorant of the enemy but know yourself, your chances of winning or losing are equal. If ignorant both of your enemy and of yourself, you are certain in every battle to be in peril.”⁴

—Sun Tzu



Course of action wargaming allows the staff and subordinate commanders to gain a common understanding of friendly—and possible enemy—courses of action. This common understanding allows them to determine the advantages and disadvantages of each course of action and forms the basis for the commander's course of action comparison and decision. It is based on wargaming and estimates prepared by the staff and subordi-

nate commanders. Course of action wargaming involves a detailed assessment of each course of action as it pertains to the enemy and the battlespace. Each friendly course of action is wargamed against selected threat courses of action. Course of action wargaming assists planners in identifying strengths and weaknesses, associated risks, and asset shortfalls for each friendly course of action. Course of action wargaming may

identify branches and potential sequels that require additional planning. Short of actually executing the course of action, COA wargaming provides the most reliable basis for understanding and improving each course of action.

4001. Inputs

Course of action wargaming requires the commander's designated courses of action for wargaming, wargaming guidance, and evaluation criteria. Other inputs useful in COA wargaming include—

- Updated IPB products.
- Planning support tools including the COA graphic and narrative and synchronization matrix.
- Estimates of supportability and additional requirements from subordinate commanders.
- Staff estimates and additional requirements from staff and/or warfighting representatives, including an updated intelligence estimate with an event template and threat courses of action.
- Updated facts and assumptions.

4002. Process

During COA wargaming, the staff evaluates the effectiveness of friendly courses of action against both the enemy's courses of action and the commander's evaluation criteria. The staff makes adjustments to identified problems and weaknesses of the friendly courses of action and identify branches and sequels. Each friendly course of action is wargamed independently against selected enemy courses of action. Course of action wargaming helps the commander determine how best to apply his strength against the enemy's critical vulnerabilities while protecting his critical vulnerabilities. Wargaming pits friendly courses of ac-

tion against enemy courses of action, it does not compare friendly courses of action against each other. Friendly courses of action are compared against each other in the next step, COA comparison and decision. Estimates provide the staff and subordinate commanders views on the courses of action. These views assist the commander during COA comparison and decision.

a. Conduct COA War Game

The staff may conduct wargaming using the enemy's most likely, most dangerous, and most advantageous (to friendly forces) courses of action. The commander approves the enemy courses of action that will be used during wargaming. If possible, enemy courses of action are played by a "thinking enemy" in the form of a red cell. See appendix E for additional discussion on wargaming and the red cell.

When conducted formally, wargaming is a disciplined, interactive process that examines the execution of the friendly courses of action in relation to the enemy. When conducted informally, it may be as simple as a "What if?" conversation between the commander and staff. Wargaming relies heavily on the operational judgment and experience of the participants. Whether formal or informal, wargaming attempts to foresee the action, reaction, and counteraction dynamics of friendly versus enemy courses of action. During wargaming—

- Evaluate each course of action independently. Do not compare one course of action with another during the war game.
- Remain unbiased and avoid making premature conclusions.
- Continually assess the suitability, feasibility, acceptability, distinguishability, and completeness of each course of action.
- Record the advantages and disadvantages of each course of action.
- Record data based on commander's evaluation criteria for each course of action.

- Keep to the established timeline of the war game.
- Identify possible branches and potential sequels for further planning.

b. Refine Staff Estimates and Estimates of Supportability

The commander's staff and subordinate commands continue to develop their staff estimates and estimates of supportability. These estimates are used during the next step, COA comparison and decision. Criteria used in the development of estimates may include—

- Risk assessment.
- Casualty projections and/or limitations.
- Personnel replacement requirements.
- Projected enemy losses.
- Enemy prisoners of war procedures.
- Intelligence collection requirements and limitations.
- Rules of engagement.
- High-value targets.
- High-payoff targets.
- Support (fires, logistics, aviation) strengths and limitations.
- Projected assets and resource requirements.
- Operational reach.
- Projected allocation of mobility assets, lift, and sorties versus availability.
- Requirement for prepositioning equipment and supplies.
- Projected location of units and supplies for future operations.
- Projected location of the combat operations center and command post echelons (rear, main, tactical).
- Command and control system's requirements.

c. Prepare Course of Action War Game Brief

The COA war game brief presents the commander with the results of the staff's evaluation and

war game. The brief includes the advantages and disadvantages of each course of action and suggested modifications. It may also include—

- Enemy COA situation templates:
 - Updated intelligence estimate (terrain, weather, enemy).
 - Wargamed enemy courses of action.
- Mission analysis and COA development products:
 - Higher, supporting, supported, and adjacent commander's mission statements (two levels up).
 - Tasks and intent provided by higher headquarters.
 - Commander's intent for subordinate units.
 - Overview of courses of action.
 - Wargame technique used.
 - Wargamed critical events.
- COA war game products and results (see app. D for more information on Marine Corps Planning Process tools)—
 - COA war game worksheet.
 - Identification of any additional tasks.
 - Revised COA graphic and narrative.
 - List of critical events and decision points.
 - Branches and potential sequels.
 - Assets required and shortfalls.
 - New requests for information.
 - Estimated time required for the operation.
 - Any accepted risk.
- Recommended changes to the commander's evaluation criteria.

d. Refine Intelligence Preparation of the Battlespace Products

The staff refines and prepares IPB products as necessary to support the next step, COA comparison and decision.

4003. Outputs

COA war game activities produce outputs that drive subsequent steps in the Marine Corps Planning Process. Required outputs of COA wargaming are the wargamed COA graphic and narrative and information on the commander's evaluation criteria. Additional outputs may include—

- Updated IPB products.
- Planning support tools:
 - COA war game worksheet.
- Synchronization matrix.
- War game results:
 - Initial task organization.
 - Identification of assets required and shortfalls.
 - Refined CCIRs.
 - List of critical events and decision points.
- Refined staff estimates.
- Subordinate commander's estimates of supportability.
- Branches and sequels identified for further planning.

Appendix E

Wargaming

Wargaming evaluates friendly COAs against enemy COAs to identify weaknesses of the friendly COAs and opportunities that can be exploited in future operations. During wargaming, each friendly COA is individually wargamed against selected enemy COAs—most likely, most advantageous, most dangerous—to determine how best to attack enemy critical vulnerabilities while protecting friendly critical vulnerabilities.

The red cell plays the enemy during wargaming. The red cell is a task-organized element under the staff cognizance of the G-2/S-2. It presents a “thinking” enemy that uses threat doctrine and operational experience to react to friendly threats and dispositions in order to test friendly COAs during wargaming. The red cell ensures that assessed threat capabilities and vulnerabilities are realistically evaluated against each friendly COA. At the MEF or MSC level, the red cell may include four to six personnel; while at the battalion or squadron level, the red cell may be the S-2 or a representative designated by the commander.

Generally, wargaming includes the commander’s wargaming guidance and evaluation criteria, war game preparation, and the conduct of the war game. The results of the war game are used during COA comparison and decision. The following general guidelines may assist in conducting the COA war game step in the Marine Corps Planning Process.

1. Commander’s Wargaming Guidance and Evaluation Criteria

The commander assesses the time available at the conclusion of the COA development brief before providing guidance for the war game. The degree to which a COA achieves the essential tasks allows the commander to determine which COA is optimum with respect to suitability, feasibility, acceptability, distinguishability, and completeness based on the available time, space, and resources. His evaluation criteria addresses specific issues and/or questions that he wants the staff to determine on each validated COA during the conduct of the war game. At this point in the planning process, the commander has begun to think about various options and capabilities available to the enemy commander. He is also mindful of his own command’s vulnerabilities. He will evaluate the major concerns, select the most important concerns, and incorporate them into his wargaming guidance.

a. Wargaming Guidance

The commander's wargaming guidance may include, but is not limited to, the following items:

- Friendly COAs that will be wargamed against specific threat COAs (e.g., COA against the threat's most likely, most dangerous, or most advantageous COA).
- A determination, within each COA, of the number of essential tasks that can be successfully executed concurrently in order to generate more simultaneous attacks throughout the area of operations.
- A requirement to execute the war game assuming the threat does not react to a deception being conducted by the higher headquarters and targeted on the threat operational level commander in the command's zone.
- Critical events that must be wargamed in specific detail, such as critical decision points identified during COA development.
- The level of war game detail.
- Validation that the command can achieve the commander's intent (i.e., subordinate commands in prescribed positions, each at a prescribed level of readiness, and the enemy force also in the posture specified).
- A requirement to determine whether specific timelines are attainable.
- Reinforcement of the importance and role of the main effort so that priority of support can be delineated.
- Specification of the weather conditions to be assumed by the wargamers (e.g., rainy conditions, although the norm for the time of year is dry weather).
- Timeline for the phase or stage of the operation.

b. Commander's Evaluation Criteria

To be adopted as the plan, a COA has to survive two sets of evaluation criteria. The first broad set, discussed in COA development in chapter 3, requires that a COA must be suitable, feasible, acceptable, distinguishable, and complete. The second set is intended to identify which COA—among those that did prove to be suitable, feasible, acceptable, distinguishable, and complete—is the best COA. The commander's evaluation criteria may include, but are not limited to, the following items:

- Principles of war.
- Commander's intent and guidance.
- Limitation on casualties.
- Exploitation of enemy weaknesses and/or friendly strengths.

- Defeat of the threat centers of gravity.
- Degree of asymmetrical operations.
- Opportunity for maneuver.
- Concentration of combat power.
- Speed.
- Balance between mass and dispersion.
- Success despite terrain or weather restrictions.
- Risk.
- Phasing.
- Weighting the main effort.
- Logistical supportability.
- Political considerations.
- Force protection.
- Time available and timing of the operation.

c. Staff Evaluation Criteria

The staff should also develop their own evaluation criteria to support their staff estimates. This provides the basis for their effort in preparing staff estimates to be presented during the COA comparison and decision step. The staff criteria may include, but are not limited to, the following items:

- Risk assessment.
- Casualty projections and/or limitations.
- Personnel replacement requirements.
- Projected enemy losses.
- Enemy prisoner of war handling procedures.
- Intelligence collection requirements and limitations.
- High-value target acquisition.
- High-payoff target identification.
- Supporting arms limitations.
- Support limitations or opportunities.
- Projected assets and resource requirements.
- Projected reach of capabilities against distance or time required.
- Projected allocation of assets, lift, and sorties against availability.
- Requirement for prepositioning equipment and supplies.
- Projected location of units and/or supplies for future operations.
- Projected location of combat operations centers or command posts (rear, main, tactical).
- Command and control systems shortfalls and limitations.

2. War Game Preparations

Before beginning wargaming, the planners should post the following information or have it readily accessible in workbooks:

- Approved mission statement.
- Commander's intent and planning guidance.
- Assumptions.
- Constraints and restraints.
- Commander's critical information requirements.
- Maps covering the entire area of operations and area of interest.
- Friendly force list.
- Enemy order of battle.
- Modified combined obstacle overlay with terrain and weather analysis.
- Current and projected enemy situation overlay.
- Current and projected friendly situation overlay.
- Enemy situation templates for each enemy COA.
- Enemy event template and matrix.

Planners should also have the following additional tools that were completed during the COA development:

- Assessment of relative combat power.
- Courses of action as selected and amended by the commander. This includes COA graphic and narrative, event template, decision support template and matrix.

Planners will also need to have the following items at the beginning of the COA analysis:

- War game rules.
- Recording tools (synchronization and COA war game matrices).

a. Review the Friendly Force List

The planning group reviews the friendly force list to consider all available units that can be committed to the battle, paying special attention to command relationships and task organization. They ensure that the force list reflects all units that may be employed by the wargamers. Ideally, the wargamers employ units two levels down from their level of command. For instance, MEF wargamers will represent the wing and division commanders and will therefore include all aircraft groups and infantry regiments on their force list—as well as all Marine expeditionary units and separate battalions (e.g., light armored reconnaissance

battalion, tank battalion). Because commanders frequently task-organize forces, wargamers should also list the number of subordinate units in each element; e.g., one regiment is currently operating with two battalions, another with three. Similarly, the wargamer employing the MAW would be expected to know the number of squadrons in each group (by type) and the number of aircraft in each squadron. Although task organizations may vary by COA, the friendly force list remains constant for all analyzed COAs.

b. Analyze Assumptions

The planners review previous assumptions to determine whether they are still valid. Most assumptions will impact the war game. It is important that the wargamers analyze each assumption as they proceed. This enables them to accurately brief the commander regarding the consequences of the assumptions.

c. List and Graphically Display Known Critical Events and Decision Points

Critical events are events that influence mission accomplishment. They include—

- Events that accomplish essential tasks listed during mission analysis.
- All major events from current locations to mission accomplishment.
- Enemy initiated events that trigger significant friendly actions or decisions.
- Complex activities initiated by the friendly force that, even without direct pressure from the enemy, must be completed by a set time; e.g., a passage of lines or opening a main supply route.

A decision point is an event or a location in the battlespace where a tactical decision is required during mission execution. Decision points do not dictate the substance of the decision, only that a decision must be made because the event is expected to affect friendly COAs. Geographical decision points are almost always related to a specific type of enemy unit appearing at a specific location in the battlespace. Event-related decision points can relate to either the friendly force or the enemy. Examples of decision points are as follows:

- The friendly commander specifies that the main attack will not begin until the supporting attack has reached phase line red.
- The friendly force is in defensive positions waiting for additional follow-on forces. The commander determines that if the enemy does not begin an attack on the friendly vital area within 48 hours, he will conduct a limited objective attack to harass the enemy and continue to keep the enemy's timetable in turmoil.

Decision points relate to critical events and are linked to named areas of interest and tactical areas of interest. A decision point may have an associated CCIR. When the commander receives the information he requires, it becomes the trigger to make a decision. Critical events and decision points come from several planning documents that at this point in the planning process have been completed by the G-2/S-2. The G-2/S-2 will already have completed situation templates for each enemy COA, as well as a consolidated situation template superimposing all enemy COAs onto one graphic. From that graphic, the G-2/S-2 will have developed an event template to identify named areas of interest. The G-2/S-2 has also identified the enemy's high-value targets and the times that these targets may move through the named areas of interest. The planners, in preparing the friendly COAs, will have assessed which of the high-value targets should be considered high-payoff targets.

d. Select the War Game Method

Four wargaming techniques—sequence of essential tasks, avenue in depth, belt, and box—are available. Each technique is suited to a particular situation or type of command.

(1) Sequence of Essential Tasks. The sequence of essential tasks highlights the initial shaping actions necessary to establish a sustainment capability and to engage enemy units in the deep battle area. At the same time, it enables the planners to adapt if the red cell commander executes a reaction that necessitates the reordering of the essential tasks. This technique also allows wargamers to concurrently analyze the essential tasks required to execute the concept of operations.

(2) Avenue in Depth. Avenue in depth focuses on one avenue of approach at a time, beginning with the main effort. This technique is good for offensive COAs or for defensive situations when canalizing terrain inhibits mutual support.

(3) Belts. Belts divide the terrain into belts that span the width of the sector (defense), zone (offense), or area of operation. This technique is most effective when the terrain is divided into well-defined cross compartments during phased operations (e.g., a river crossing or helicopterborne assault), or when the enemy is deployed in clearly defined echelons. This technique is based on the sequential analysis of events in each belt; that is, events are expected to occur more or less simultaneously. This type of analysis is preferred because it focuses on essentially all forces affecting particular events in one timeframe. A belt will normally include more than one event. When time is short, the commander may use a modified belt technique; i.e., belts are separated and selected on the basis of

the locations of critical events, which, again, are expected to occur in the same timeframe. At a minimum, belts should include the area of—

- Initial contact along the forward line of own troops, the line of departure and/or the line of contact, or in the covering force area.
- Initial penetration or initial contact along the forward edge of the battle area.
- Passage of the reserve or commitment of a counterattack.
- The objective (offense) or defeat of the enemy (defense), such as the limit of advance for the counterattack.

(4) Box. The box technique is a detailed analysis of a critical area, such as a colored landing beach, an infiltration route, or a raid objective. It is most useful when time is limited. This technique applies to all types of units. When using it, the staff isolates the area and focuses on the critical events within that area. The assumption is that the friendly units not engaged in the action can handle the situations in their region of the battlespace and the essential tasks assigned to them.

e. Select a Method to Record and Display Results

Recording the war game results gives the planners a record from which to—

- Confirm and refine event templates.
- Integrate all warfighting functions.
- Develop decision support templates.
- Analyze the COA by using the evaluation criteria outlined earlier.
- Build the task organization.
- Prepare the order.

One method for recording the results of the war game is the synchronization matrix. It allows the staff to synchronize a COA across time and space in relation to the enemy COA. As shown in table D-5, on pages D-12 through D-14, the first entry is the time period or phase of the operation. The second entry is the enemy action as determined by the red cell. The third entry records friendly decision points identified for that time interval based on the enemy's actions. Recorded on the remainder of the matrix are the activities during the game turn that the friendly force wargamers decide need to be performed to support the COA. The result is that the planners have evaluated their COA for a specific period of time, they have recorded the activities necessary to support the COA, and they have prepared a comprehensive snapshot of what the entire command should be executing during that period. As wargamers work across the remaining time periods or phases, they obtain a clear understanding of what the command and its subordinate commands must do to accomplish the mission.

The completed matrix facilitates the writing of two portions of the order if this COA is selected as the basis for the plan. By working horizontally across the matrix for each warfighting function, planners are able to describe in writing a clear concept for each warfighting function. By working across the matrix for each subordinate command, planners are able to prepare the tasks to subordinate commands portion of the OPORD.

3. Conduct the War Game

a. General Rules of Wargaming

Time is a critical resource during wargaming, and rules are key to accomplishing the objectives of the war game in the least amount of time possible. Rules structure the discussions and keep the process objective and focused. The following rules may be used during wargaming:

- Use approved enemy COAs as developed by the G-2/S-2. The goal is to evaluate the friendly COA, not for the red cell to win the war game.
- Remain objective and unbiased.
- Assess feasibility continually. If a COA becomes infeasible during the war game, the commander rejects the COA.
- Analyze each COA independently.
- Avoid comparing one COA with another.
- Record advantages and disadvantages of each COA.
- Ensure that the established timeline is not violated.
- Avoid premature conclusions.
- Record counteractions.
- Record data.
- Use COA war game worksheets.

b. Game Turns

A game turn covers all friendly and threat actions that are planned to occur during a specified time interval and are focused on a specific task or event. Each game turn usually consists of three moves—two by the friendly force, one by the threat force. The friendly force has two moves because the activity is intended to validate and refine the friendly forces' COA, not the threat's. If necessary, additional moves may be required to achieve desired effects.

c. War Game Preparations

The facilitator has already determined the H-hour being replicated at the war game's starting point. The red cell commander and the friendly force commanders will have drawn their situation overlays at war game H-hour on the war

game map. The red cell commander apprises the facilitator of the starting point locations of his key forces and their missions. The facilitator will use the event template and matrix provided by the G-2 to address friendly intelligence collection activities (reconnaissance and surveillance).

d. Game Turn Objective

The objective for each game turn is to answer one or a combination of the following questions:

- Does the friendly forces' planned action achieve all purposes intended?
- What additional actions (and resources) would be necessary to achieve the purpose if the original actions fall short?
- Has the threat force executed any actions that were not anticipated and that would require the friendly force to change their COA or prepare a branch plan?

e. Sequence of Moves

Although direct contact between forces normally will not occur at the starting point, the red cell has the first move by virtue of positioning its forces and apprising the facilitator of its activities at H-hour. From this point, each game turn proceeds as described in the following paragraphs.

(1) Friendly Force Action. Friendly force commanders describe the operations of all forces involved during this event. They describe the force, its mission, and the desired outcome. They annotate the force list to account for all forces employed in the event.

(2) Threat Reaction. The red cell commander describes the operations that all of his forces are currently executing. He includes the forces outside the immediate area of operations but within the area of interest that he intends to employ during this event. This allows friendly wargamers to validate the portion of their plan that addresses these additional threat forces. The red cell commander and friendly commanders determine where they would have had contact.

The red cell commander describes the locations and activities of his assets identified as high-value targets. He highlights points during the operation where these assets are important to the threat's COA. If these points affect the friendly COA, friendly wargamers identify the high-value targets as high-payoff targets, thereby making their engagement an integral part of the friendly COA. With this information, the operational planning team updates the situation and event templates to reflect tactical areas of interest that support the engagement of those high-payoff targets.

The operational planning team discusses the probable outcome of the contact on both friendly and threat forces. Recording tools are used to annotate the

discussion. If they can agree on the outcome, the game turn proceeds. If they do not agree, the facilitator determines the outcome, and the war game proceeds. If one of the participants disagrees with the facilitator's ruling, and if the matter will bear on the feasibility, suitability, or acceptability of the COA, the point is referred to an arbiter (chief of staff, G-3, G-5) for final resolution.

Each unanticipated event in the red cell commander's reactions may become a potential decision point for the commander when executing the approved plan. Each time the friendly wargamers identify a decision point, the recorder makes appropriate entries in the recording tools, such as the decision support template, COA war game worksheet, and the synchronization matrix. The recorder should capture enough information to allow the staff to anticipate and plan for each decision. At a minimum, the recorder includes these elements—

- **Decision Points.** Estimated time, H + number of hours, and location.
- **Decision Criteria.** What activity, event, or information prompts a decision? This translates into potential CCIRs—information that could trigger a decision to execute a planned action.
- **Friendly Action and/or Response.** What friendly action must be decided? Decisions usually result in engagement of high-payoff targets that may have a decisive impact on one or more of the enemy's critical vulnerabilities.
- **Targeted Areas of Interest.** The planners ensure that the physical distance between the decision point and the targeted areas of interest are computed on the basis of the time-distance requirements involved.
- **Named Areas of Interest that Support the Decision Point.** The recorder must tie each decision point to its associated named areas of interest.

At this point, one of two outcomes will be evident; either the friendly force's planned action was sufficient to achieve its purpose or it was not sufficient. If the action was sufficient and the COA is on track, the players can proceed to the next game turn. If the action was not sufficient to achieve the desired effect, the friendly force considers its counteraction.

(3) Friendly Counteraction. The friendly force commander, in discussion with the red cell commander and the facilitator, determines the additional actions and resources necessary to achieve the original purpose. When modifying the COA, it is necessary to revalidate the location and composition of the main and supporting efforts, reserves, and control measures that affect their employment. If resources needed for the counteraction are available and can be reallocated from any intended use in a subsequent game turn, the friendly commander can add the additional forces to the COA.