COMMAND AND CONTROL

Command and control is the process through which the activities of military forces are directed, coordinated, and controlled to accomplish the mission. Effective command and control is directly linked to how well the commander implements troop-leading procedures. Skillful leadership is the main factor in deciding victory. At the battalion level, leadership must be supported by a reliable, flexible, secure, fast, and durable command and control system. This system must communicate orders, coordinate support, and provide direction to the battalion despite enemy interference, loss of command facilities, or loss of key soldiers. This chapter outlines a system of command and control that allows the battalion commander to use the operational concepts of AirLand Battle doctrine. It also discusses the command and control process, IPB, and command and control during battle.

Section I
COMMAND AND CONTROL SYSTEM

The command and control system includes the facilities, equipment, communications, procedures, and personnel essential to a commander for planning, directing, and controlling operations of assigned forces pursuant to the missions assigned.

2-1. ELEMENTS OF COMMAND AND CONTROL

The five interrelated elements of command and control are as follows:

a. **Facilities.** Command and control facilities at battalion level are classified by echelon as main, combat trains, field trains, and alternate CPs. The command group is a temporary facility. It comprises the commander, the soldiers in the command group, and the equipment the commander has with him forward to help command and control the immediate battle. The main CP includes all soldiers, equipment, and facilities employed in commanding and controlling the battalion. The TOC is the operations cell within the main CP. Integration of CSS is vital to successful combat operations. The combat trains CP is the battalion's CSS planning facility. An alternate CP is needed in case either the tactical or main CP is destroyed. (Appendix B shows a typical layout of command and control facilities.)

b. **Equipment.** Command and control equipment is provided by the specific MTOEs for each unit. Appendix B describes the functional command post and discusses how the equipment is typically organized.

c. **Communications.** Command and control communications are the means by which the command transmits and receives information and orders. As such, having these means is vital to the commander and his staff in the execution of military operations. The commander and staff must understand the capabilities, limitations, and vulnerabilities of their communications systems. They must expect and plan for interference from friendly and enemy units where radar, radios, and lasers can operate in the same

electromagnetic spectrum. (Appendixes A and B provide more information about communications.

d. **Procedure.** Command and control procedure is a mode or course of action that describes how to perform a certain task. (Appendix A provides an example of a battalion standing operating procedure.)

e. **Personnel.** The battalion commander has a staff to aid him in the exercise of command. The staff consists of the personnel necessary to perform command and control and supporting functions. The commander cannot abdicate his command responsibilities to the staff. Rather, the commander's job is to achieve his goals by intelligently using the unique abilities of his staff and subordinate commanders. Functional responsibilities and interrelationships of staff members are defined in Appendix B.

2-2. COMMAND

Command is the authority that a commander in the military service lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, and controlling military forces for the accomplishment of assigned missions. It also includes responsibility for health, welfare, morale, and discipline of assigned personnel.

2-3. CONTROL

Control is the exercise of authority and is the counterpart of command. It means following up a decision and minimizing deviation from the commander's concept. Control refers to the supervision of the operation while ensuring all systems and activities are synchronized.

2-4. COMMANDER'S AUTHORITY

Command authority derives from law and regulation. Command authority is accompanied by responsibilities that cannot be delegated. To accomplish specific functions, the commander can delegate his authority to his subordinates. However, the commander is solely responsible for his command. He meets this responsibility by leading, planning, making decisions, issuing orders, and supervising the execution of his orders.

2-5. COMMANDER'S PRESENCE

The commander must position himself on the battlefield where he can exert the greatest influence. This includes face-to-face orders in the operational area. At the same time, he must avoid sacrificing the ability to influence the battle by shifting the main effort or communicating orders without a loss of coordination, cohesion, and effectiveness. At times the commander may be forward with the foremost elements, while at other times he will be in the main command post. He must have equal ability to command and control his forces from either location. The commander establishes an environment of trust in his leaders-trust that gives them the freedom to operate within mission-type orders and to use initialize.

2-6. COMMANDER'S LEADERSHIP

Leadership is the key element of combat power. Leadership is personal and intangible; it is a combination of example, persuasion, and influence; it serves as an extension of the commander's self. Effective field commanders exhibit the following characteristics of leadership:

a. **Supervision and Standards.** The commander knows the standards that he wants to see on the ground. He communicates these standards clearly and with authority. He enforces them, holding soldiers accountable for their jobs and making rapid corrections. The commander enforces standards by supervising tasks after he gives the order: either he walks the line and inspects positions or he ensures this is done.

b. **Technical and Tactical Proficiency.** The commander knows the technical and tactical aspects of all assets that comprise his battlefield operating systems. He understands and uses terrain well. He communicates this knowledge and his professionalism through his actions and through interactions with other officers and soldiers.

c. **Time Management.** The commander conducts his planning to allow subordinates the time to prepare for the next mission. He manages time well and sets work priorities.

d. **Delegation.** The commander trusts his subordinate leaders and delegates authority to them. He develops them so the mission can continue when he is gone. This is leadership in depth throughout the chain of command.

e. **Decisiveness.** The commander adjusts quickly to difficult situations and makes sound decisions rapidly.

f. **Respect and Concern.** The commander knows and cares about the people in his unit. He respects subordinates. He knows subordinate leaders' and soldiers' strengths, weaknesses, and motivations. He rewards good performers and appropriately counsels substandard performers.

2-7. COMMANDER'S INTENT

The commander's intent drives mission tactics. It is the commander's stated vision, which defines the purpose of the operation and the end state with respect to the relationship among the force, the enemy, and the terrain. It should also include how this end state will support future operations. (Appendix A shows how the commander's intent is integrated into the OPORD.)

a. The overall purpose of the mission is more important than the individual assigned tasks. Each subordinate commander must know why and how his assigned tasks relate to the overall concept of the operation. Then, if the situation changes and contact with higher headquarters is lost, the subordinate can use his initiative to achieve the desired end results.

b. The battalion commander has a dual responsibility. He must understand the intent of the brigade and division commanders (two levels up) and must ensure his intent is understood at company and platoon levels (two levels down). The commander's intent paragraph in the OPORD should begin with the words, "My intent is..." so it can be understood and relayed to subordinates easily.

c. A clear commander's intent enhances agility, timing, and initiative at all levels. It helps in shifting the main effort on a fluid battlefield.

2-8. MISSION TACTICS

The purpose of command and control is to allow the commander to generate and apply combat power at the decisive point on the battlefield. Mission tactics is a method of directing military operations; subordinates are encouraged and expected to act alone in executing assigned missions, consistent with the intent of senior commanders. The commander must—

a. Anticipate a free-willed opponent; expect uncertainty. The enemy does not always follow his doctrine or act as IPB indicates he will. The commander must be flexible. War games, contingency plans, employment in depth, well-developed and rehearsed SOPs, and a reserve all contribute to flexibility.

b. Organize and direct operations to require minimum intervention. When precise control is required for synchronization, such as an on-order task, the commander should provide the subordinate with the criteria for making the decision.

c. Allow time for subordinate planning. The one-third/two-thirds rule applies not only to OPORDs but also to rehearsals, briefbacks, or any other centralized events that reduce subordinates' preparation time.

d. Assign resources with as few restrictions on employment as possible. The commander allocates assets and support priorities to subordinates and specifies only the results he wants achieved.

e. Allow maximum freedom of action within the scope of his intent. Because battles often develop in unforeseen directions, leaders often must act with incomplete information or instructions. Failure to act quickly can result in a lack of superior combat power at critical times and places. Taking advantage of opportunities to accomplish the mission is allowed, encouraged, expected, and sometimes required. Higher commanders should be informed before action is taken, if feasible.

f. Structure communication to allow subordinates to command well forward. The commander must position himself on the battlefield where he can exert the greatest influence, both through subordinate leaders and directly. At the same time, he must retain the ability to shift the main effort of the battle. The commander can be forward with the lead elements in the command group, or he can be in the main CP. He must be able to command and control all organic and supporting elements equally from either location.

2-9. MISSION ORDERS

AirLand Battle doctrine requires mission tactics. This decentralization provides latitude to subordinates to make decisions rapidly within the framework of the commander's concept and intent.

a. Mission orders address only the required information. They provide the framework of *what* the commander wants done—not *how* it is to be done. Such orders need only three important things. First, they must clearly state what the commander issuing the order wants accomplished. Second, they must point out limiting factors that must be observed for coordinating purposes. Third, they must state what resources are to be made available to the subordinate commander and what support he can expect outside his command.

b. Execution of mission tactics requires initiative, resourcefulness, and imagination. Commanders must be ready to adapt to situations as they are, not as they were expected or desired to be.

c. Subordinate leader initiative is based on mission orders and the commander's intent, which define the limits of unit operations. They provide the opportunity for a subordinate to take advantage of opportunities on the battlefield. The subordinate leader is positively aggressive. He asks his commanding officer for information, resources, or revision of plans as needed, and stands up for his position when he feels he is right.

d. Subordinate initiative and independence, though encouraged, is limited by the requirements for unity of command, unity of effort, and the commander's intent. Subordinates who feel they must disobey orders due to a perceived change in the situation must accept the responsibility for their actions. The commander's intent must be clearly stated and foremost in the minds of subordinate leaders. To win, subordinate leaders must display initiative, but their initiative must be driven by their understanding of the commanders' intent, not by a desire for independent action. For best results, unit actions are synchronized. If independent action is required to meet the commander's intent for the operation, the action is taken—but subordinate leaders must carefully balance the need for synchronized unit action with the changing tactical situation. They must look at the big picture. Thus initiative and freedom of action are more likely used during an exploitation or pursuit; an independent action during a delay or during a withdrawal under enemy pressure could produce disaster for the entire force.

e. Commanders normally use mission-type orders. However, due to the requirement for synchronization of the overall mission, they must occasionally give subordinates specific instructions on how to accomplish a mission.

2-10. MAIN EFFORT
The company with the most important task in the commander's concept at a particular time is designated as the main effort. All other units support the quick success of this company. Subordinate commanders link their actions to the actions of those around them, but leave room for initiative. They base their decisions about independent actions on how their unit relates to the main effort. Success by the main effort at the decisive point should result in the success of the commander's mission. If conditions change and success of the overall mission can be obtained more cheaply or quickly another way, the commander shifts the main effort to another unit. Support priorities also change to assure the success of the newly designated main effort.

2-11. CHAIN OF COMMAND
The chain of command consists of the successive commanders and leaders through which command actions are directed. Military operations demand strict adherence to this chain. Under unusual conditions, a commander might bypass levels in the chain of command. If he does so, he assumes responsibility for orders given. He must inform the intermediate commander of the actions taken as soon as he can and must quickly reestablish the normal chain of command. Sometimes, loss of the means of communication can prevent orders from being issued. In this case, the subordinate is expected to base his actions on the commander's intent. Commanders must prescribe the succession of command for all contingencies, from temporary absences to the loss of the commander and the staff.

2-12. COMMAND RELATIONSHIPS
The command relationship refers to the way the command relates to the various units of the battalion. More information on the following five possible command relationships can be found in FM 101-5:

a. **Organic.** This refers to an essential unit listed in the TOE.

b. **Assigned.** This refers to a unit permanently operating with an organization.

c. **Attached.** This refers to a unit operating temporarily with an organization. Logistics for this unit are the responsibility of the supported unit.

d. **Operational Control.** This refers to a unit provided to another commander for specific missions or tasks. Logistics for this unit are the responsibility of the OPCON unit.

2-13. SUPPORT RELATIONSHIPS

Support relationships are the specific relationships and responsibilities that exist between supporting and supported units. The assigning commander retains both the logistical support responsibility for and the authority to reorganize or reassign part or all of a supporting force.

a. **Direct Support.** A unit in DS gives priority of support to a specific unit.

b. **General Support.** A unit in GS provides support to an entire force.

c. **General Support Reinforcing.** The main task of a general support reinforcing unit is to support an entire force. Its secondary task is to provide reinforcing fires to a like unit.

2-14. ORGANIZATION

The battalion commander has a staff to help him exercise command; this staff consists of the personnel needed to perform command and control and supporting functions. The commander cannot give up his command responsibilities to his staff—rather, he achieves his goals by wisely using the unique abilities of his staff and subordinate commanders. Functional responsibilities and interrelationships of staff elements must be clearly defined and made into an SOP. Within functional elements of the staff, personnel are held responsible for accomplishing tasks assigned to them, and for coordinating their work with other staff elements according to established procedures. Command and control responsibilities and the duties of the staff are described in Appendix B. (Chapter 8 provides more information about the S1 and S4.)

a. **Battalion Headquarters.** The battalion headquarters consists of the commander, the XO, coordinating staff officers, special staff officers, personnel to support staff functions, and the command sergeant major. The headquarters is organized to allow for continuous operations in combat.

b. **Staff.** The commander has a personal staff, a coordinating staff, and a special staff. The personal staff works under the direct control of the commander and helps him directly instead of working through the XO. The coordinating staff reduces the demands on the commander's time by coordinating plans, activities and operations. This staff is responsible directly to the XO. The special staff includes officers who have special or technical skills. It also includes leaders of elements supporting the the battalion; these leaders work directly with the commander or work through the coordinating staff. All three staffs exist only to serve the commander. Their common functions include gathering information, estimating, anticipating, informing, recommending, ordering, and supervising.

(1) Staff sections must continuously collect, collate, analyze, and disseminate information gathered from all available resources. This information must be rapidly processed to provide the commander with data that is useful for making decisions. The information must be passed quickly among the staff and to units that need it, while at the same time ensuring that it is not disclosed to the enemy.

(2) Staff officers have no command authority, but they act for the commander as he directs or delegates. The commander may delegate authority to the staff or to a specific staff officer to take final action on matters as established within command policy. The authority delegated to individual staff officers varies with the level and the mission of the command, the immediate of the mission, and the staff officer's area of interest. The commander may delegate authority to staff officers to issue plans and orders without his personal approval. Such decentralization of authority promotes efficiency, reduces reaction time, and streamlines operations. Although the commander authorizes staff officers to issue orders in his name, he retains responsibility for these orders. Staff officers must keep the commander informed of actions that affect the command and the tactical situation.

Section II
COMMAND AND CONTROL PROCESS

Command and control is the process through which the activities of military forces are directed, coordinated, and controlled to accomplish the mission. This section describes the basic structure of the command and control process.

2-15. PLANNING
The situation changes rapidly in combat; communications are disrupted, units are disrupted, and the commander's personal presence is limited in time and space. Under these conditions, command and control cannot depend on positive control. Commanders and subordinates must be able to do what their commanders want them to do. Mission-type orders and the commander's intent provide soldiers and leaders with guidance for their initiative. All must have and apply a full and common understanding about the way the Army operates. This requires a common doctrine and vocabulary. These are supplemented by unit-specific factors, which are contained in SOPs (Appendix A).

a. **Doctrine.** Doctrine covers the basic principles by which the Army fights. It is authoritative, but judgment is required in its application. Doctrine focuses unity of action and provides a common language. Leaders use doctrine as a guide when making their plans. An example of doctrine is the principles of war.

b. **Operations.** An operation is a group of similar missions. FM 100-5 cites five general types: offensive, defensive, joint, combined, and contingency. More specific operations are performed under each of these categories. An example is a battalion defense with stay-behind operations. The tactics, techniques, and procedures for the various operations focus on training. They do not set forth a ready-made course of action for a mission.

c. **Tactics.** Tactics is the employment of units in combat. It is the ordered arrangement and maneuver of units in relation to each other, to the enemy, or both, to utilize their full potential—for example, a commander's plan to designate and employ a reserve.

d. **Techniques.** Techniques are the detailed methods for accomplishing a task. They are not the only way to do a task or the way a task must be done. They can be changed as needed. The use of checkpoints to control the movement of companies is an example of a technique.

e. **Procedures.** A procedure is a standard and detailed mode or course of action that describes how to perform a certain task. The "call for fire" is an example of a procedure.

f. **Tasks.** A task is a clearly defined and measurable activity accomplished by individuals and units. It is a specific activity that contributes to the accomplishment of a mission. Mission tactics requires a common vocabulary. FM 101-5-1, AR 310-25, and Joint Pub 1-02 provide definitions for common military terms. This section defines terms excluded from those sources or further clarifies their usage in this FM.

(1) *Clear.* To destroy or force the withdrawal of all enemy forces and reduce obstacles that may interfere with subsequent operations.

(2) *Delay.* To trade space for time, inflict maximum damage on the enemy force, and preserve the force within limits established by the issuing commander.

(3) *Destroy.* To physically disable or capture an enemy force.

(4) *Deny.* To maintain constant pressure against an enemy force that tries to pass through an area and to hinder the enemy's use of the area for command and control, combat support, or combat service support.

(5) *Isolate.* To prevent the enemy from gaining access to or from influencing a specific area.

(6) *Retain.* To occupy and hold a terrain feature to ensure it is free of enemy occupation or use.

(7) *Seize.* To gain physical possession of a terrain feature. The enemy may or may not be occupying the terrain.

2-16. DECISION-MAKING PROCESS

The commander, his staff, and his chain of command use the troop-leading procedures and command and staff actions to make decisions.

a. This process begins and ends with the commander. It is dynamic, it requires him to know the troop-leading procedures and METT-T (Figure 2-l). (FM 101-5 discusses this in detail.) The decision-making process permits

full coordination by the commander and staff; development of staff estimates; and preparation of synchronized, detailed orders. The detail in which actions are accomplished is based on the time and soldiers available.

NOTE: In time-critical situations, the commander may be forced to base his estimate on his personal knowledge of the situation and to issue oral orders to his subordinates.
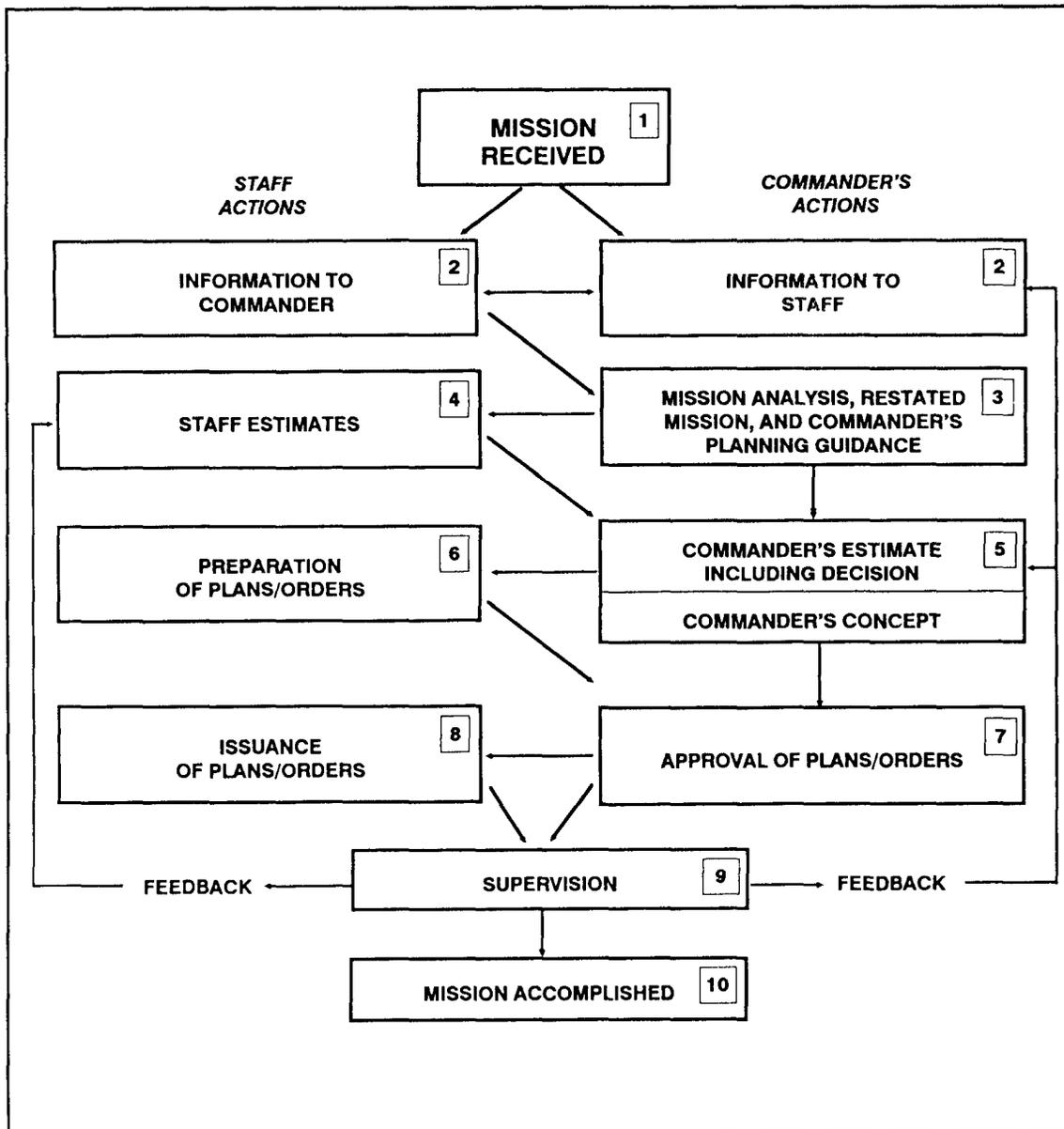

Figure 2-1. Decision-making process.

b. Time constraints may require the commander to use the abbreviated decision-making process (Figure 2-2). This technique is based on experience or intuition; it focuses on the commander's ability to recognize tactical patterns, to determine the correct counterpattern, and to apply it rapidly to meet the demands of time-pressured situations. With this technique, the commander skips some of the routine tasks normally associated with the formal decision-making process so he can reach a solution quickly. He skips tasks when he observes that the situation and indicated reaction are both typical; he evaluates this indicated reaction for its feasibility then he either implements it, improves upon it, or rejects it for another reaction.
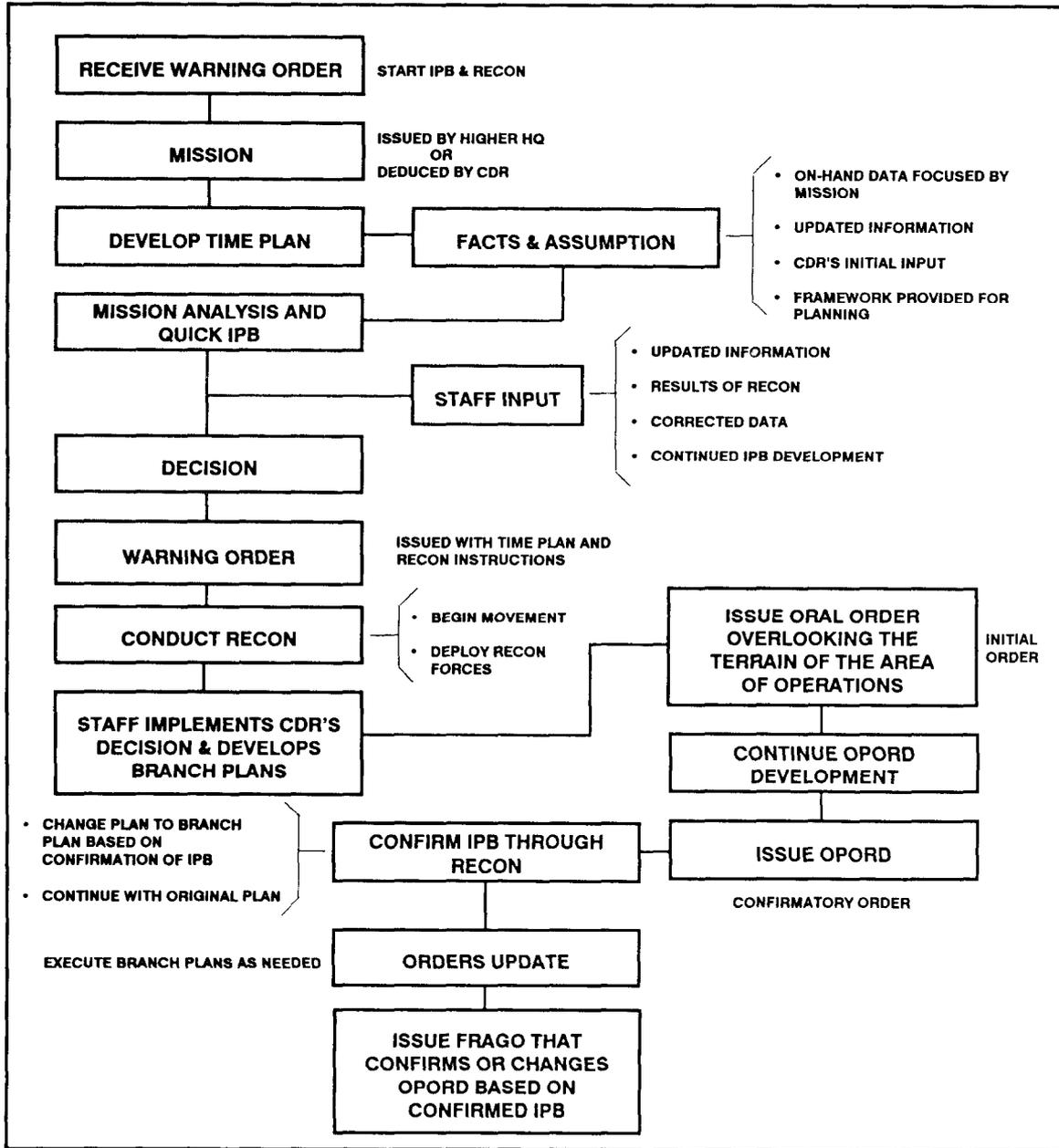

Figure 2-2. Proposed scheme for abbreviated decision-making process.

c. The analytical and the abbreviated decision-making techniques should not be considered as competing decision-making strategies. Instead, they offer the commander complementary options for making decisions.

2-17. TROOP-LEADING PROCEDURES

Troop-1eading procedures are the dynamic processes by which a commander receives, plans, prepares for combat, and executes a mission (Figure 2-3). Staffs provide information during these processes as time and situations permit. These procedures include the estimate of the situation.

2-18. RECEIPT OF MISSION

The battalion may receive a mission in the form of a warning order, operation order, or fragmentary order. The battalion should use no more than one-third of available time for planning and issuing the battalion OPORD.
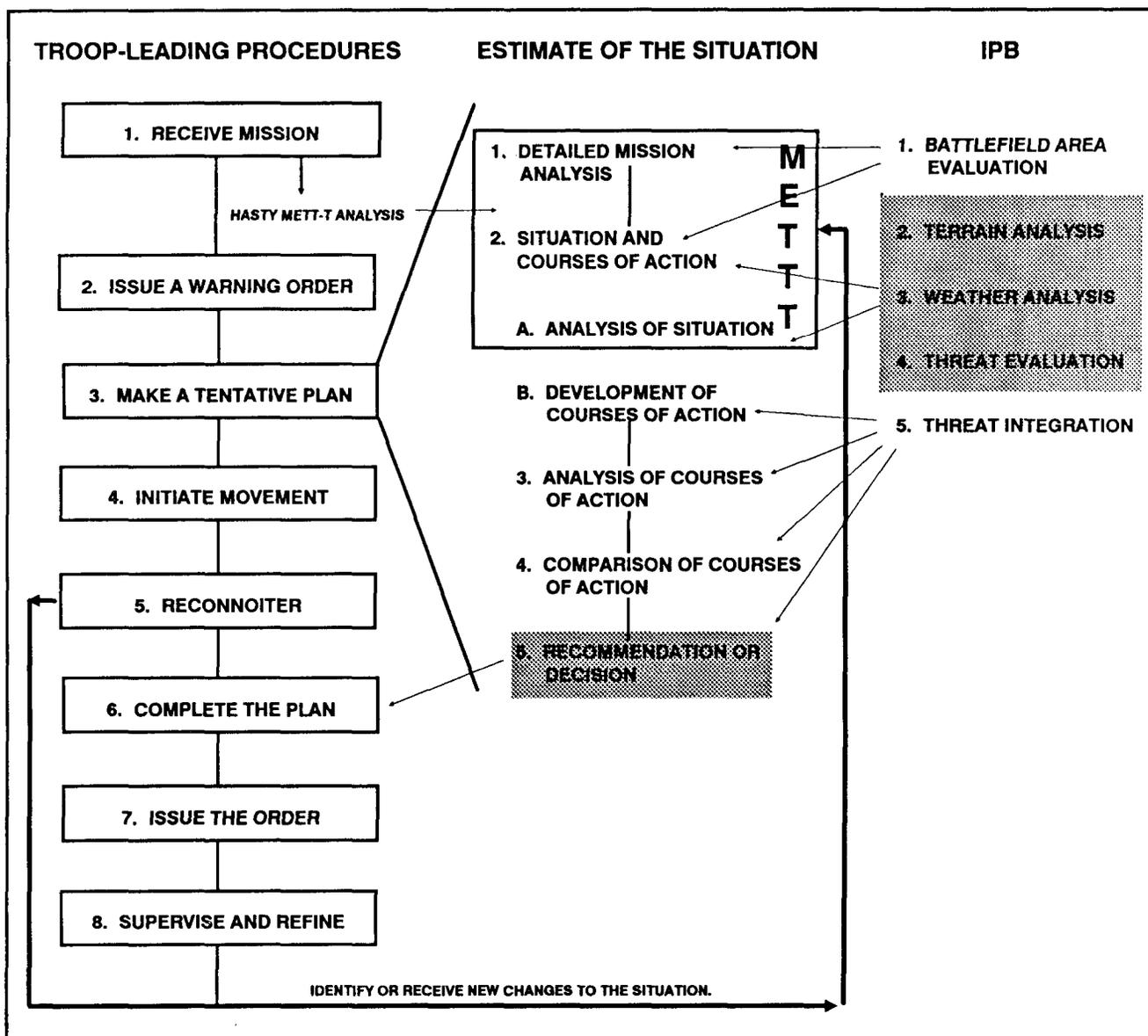

Figure 2-3. The TLP, the estimate, METT-T analysis, and IPB.

The remaining two-thirds is used by subordinates to planned prepare for the operation. Leaders should also consider other factors, such as available daylight and travel time to and from orders and rehearsals. In the offense, the leader has one-third of the time from mission receipt to the time the unit crosses the LD. In the defense, he has one-third of the time from mission receipt to the time the unit must be prepared to defend. Brigade headquarters assigns the mission. Ideally, the battalion commander receives a written OPORD in person with his key staff present. However, the battalion commander often receives the mission in a FRAGO over the radio. On the receipt of the mission, the battalion commander and staff exchange information and conduct a preliminary METT-T analysis. The purpose of this preliminary analysis is to quickly gather pertinent information for the WO that allows troop-leading procedures to begin at the next lower level. With this first look, the commander determines the mission, enemy, attachments and detachments, and time available; and forms a preliminary analysis of terrain. He determines the battalion's combat, CS, and CSS status; initial preparation actions required; and information needed to continue the planning process. The commander and staff draw up an informal time schedule. Use of this schedule ensures that no more than one-third of the available time is used to prepare and issue the order. This includes time required to conduct briefbacks, rehearsals, or any other centralized event that reduces subordinates' preparation time. Information is given to the staff and subordinate commanders as soon as it is available. Special consideration is given to providing the intelligence requirement. To enable units to begin reconnaissance operations, the commander, S2, and S3 must have current information on the enemy and terrain.

2-19. ISSUANCE OF WARNING ORDER

Issuance of the warning order is the second step in the troop-leading procedures. Prompt issuance is vital to effective use of available time. While no prescribed format exists, a WO at least should include information on the general situation, the mission, the time and nature of the operation, the earliest time of move, and the REDCON (Appendix A). OPORD time, place, and attendees are included, if known. Special instructions for preliminary actions are important. They can include reconnaissance and surveillance activities, employment of quartering parties, changes to task organization, special instructions for rehearsals and training requirements, and administrative instructions (logistics, equipment, supplies). If possible, a tentative time schedule is provided to guide unit preparatory activities. The more information given in a WO, the more subordinates can prepare. A WO should be updated as new information develops.

2-20. TENTATIVE PLAN

Development of the tentative plan is the third step in the troop-leading procedures. With the commander's guidance, the staff develops the tentative plan using the estimate of the situation. Conducting an estimate of the situation also consists of five steps: making a detailed mission analysis, analyzing the situation (METT-T) and developing courses of action, analyzing courses of action, comparing courses of action, and making a decision. The estimate process is dynamic. As new information is received, the estimate is reviewed. The time available and the planner's experience determine the thoroughness of the estimate. No matter how short the time, each step of the estimate must be at least considered.

   a. **Mission Analysis.** The first step of the estimate is mission analysis. It is the means for the commander to gain an understanding of the mission. Information pertaining to mission analysis is found in the higher unit's order to the battalion, mainly in paragraph 3 of the OPORD, EXECUTION, which provides the brigade commander's concept of the operation as well as subunit tasks and coordinating instructions. The division mission and the division commander's intent are included in paragraph 1 of the brigade OPORD. Paragraph 2 contains the brigade's mission. Other pertinent information is included in annexes and in overlays. Three key products result from the mission analysis: the commander's intent, the restated mission, and the initial PIR.

   (1) *Commander's intent.* The commander's intent one and two echelons higher provides a framework for the remainder of mission analysis

and the estimate process. The higher brigade commander's intent is stated in the brigade order in paragraph 3a (brigade commander's concept of the operation).

(2) **Task analysis.** The commander must identify and understand all tasks required for success, including those required to ensure unity of effort with adjacent units. This includes specified and implied tasks. As shown in Table 2-1, tasks received in the brigade mission statement are oriented as to terrain, enemy forces, friendly forces, or a combination of these factors.

TERRAIN	ENEMY	FRIENDLY	COMBINATION TERRAIN AND ENEMY
SEIZE	DESTROY	OVERWATCH	RECONNOITER
SECURE	NEUTRALIZE	SCREEN	DENY
OCCUPY	SUPPRESS	COVER	CONTAIN
RETAIN	DISRUPT	GUARD	ISOLATE
	FIX	CLEAR	
	INTERDICT		
	BREACH		
	FEINT		
	DEMONSTRATE		
	BLOCK		
	CANALIZE		
	ISOLATE		

Table 2-1 Typical tasks.

(a) *Specified tasks.* These are tasks stated by the higher commander or published in the OPORD.

(b) *Implied tasks.* These are tasks not stated in the OPORD but that must be done for the mission to be accomplished. They are implied by the situation, the mission, or the purpose. Routine or inherent tasks that must be performed for most tactical missions are not implied tasks—for example, coordinating fires across boundaries and refueling units are routine tasks that are part of SOP. They are not implied tasks. Responsibilities, such as providing flank security for your own unit or clearing your zone of enemy forces, are implied tasks (if not stated in the OPORD) and can be addressed in paragraph 3 of the OPORD.

(3) **Limitations.** These are restrictions on the freedom of action of the friendly force. Restrictions prohibit the commander from doing something specific. The statements,

"be prepared to...," "not earlier than...," and so on, are limitations. Radio listening silence and time are also limitations.

(4) **Initial time analysis.** Time is analyzed to determine how much is available, how it should be allocated, and how it will affect the command and control cycle.

(a) The ability to appreciate time and space is one of the most important qualities in a commander. Time is vital to all operations. It drives planning and execution. The commander gets his first indication of time available from the higher headquarter's WO. The amount of time a unit has to prepare for or to execute an operation determines the detail required of the planning process. For this reason, commanders must know the command and control process and must have a command and control organization, facilities, and communications to support it.

(b) Reverse planning begins with the actions on the objective and works backwards to find a start time for events. The following events must be accomplished at all levels: conduct reconnaissance, plan, issue orders, and deploy forces. All are performed at the same time, if possible. If not, the events that take longest must beset in motion first. The commander also considers movement times from assembly areas or present positions to sectors, battle positions, or LZs. In the offense, he estimates time from crossing the LD to seizing the objective or specific key terrain, then he plans the sequences of units and events associated with it. Other important time considerations include how long key terrain must be held and how long the enemy will take to react.

(c) Time factors should be conservatively planned. During operations, the unexpected occurs. Time-distance factors are only a guide. When synchronizing operations, leaders consider how the factors of METT-T affect their unit.

(d) The time analysis produces a schedule of the activities that must occur. Since it drives everything the unit does, the commander must approve this schedule.

(e) The orders spectrum shown in Figure 2-4 offers the commander several methods he can use to develop an order. The spectrum ranges from the quickest methods (on the left end of the spectrum) to the most time-consuming (on the right end of the spectrum). The time a particular staff requires to develop an order depends on many factors, including—

- Physical condition of the staff.
- Quality of command guidance.
- Staff's level of training.
- Staff's level of cohesion.

Figure 2-4. Orders spectrum.

(5) *Identification the mission-essential task(s).* The four previous factors should be reviewed. After this, all tasks should be identified that, if not accomplished, could cause the unit to fail to accomplish its primary purpose for that operation. Normally, only one mission-essential task is given.

(6) *Restated mission.* The commander constructs his restated mission statement clearly and concisely from the mission-essential task and its purpose. For clarity, it is restated in the format of who, what, when, where, and why. This statement becomes paragraph 1 of the commander's or staff's estimate and paragraph 2 of the OPORD. Those tasks not deemed mission-essential can reappear elsewhere in the OPORD. (The maneuver paragraph should include company mission-essential tasks and their purposes.)

(7) *Command guidance.* The staff completes their mission analysis, then briefs the commander. Having also done a mission analysis, the commander can then issue initial planning guidance. This guidance focuses the staff's efforts and speeds the development of COAs. When time is critical, the commander can omit the staff from the process, proceeding through the decision-making process and issuing oral orders on his own.

b. **Situation and Courses of Action.** The second step of the estimate process consists of analyzing the situation using METT-T factors to determine their influence on feasible COAs. Once this is done, courses of action are developed.

(1) *Terrain/weather analysis.* The S2 provides his analysis of the five military aspects of terrain to the S3. These aspects are identified by the mnemonic device "OCOKA." The S2 considers weather factors and other characteristics at the same time. Having received the S2's analysis, the S3 can more easily analyze the areas of operations with respect to friendly and enemy capabilities. In offensive operations, this means that the S3 works from the objective area back to the LD. In the defense, he might work from the security zone to the rear area or from the main effort to supporting efforts. The best sequence for analyzing terrain based on the five military aspects of terrain is as follows:

(a) *Obstacles.* Obstacles are any natural or man-made obstruction that canalizes, delays, restricts, or diverts movement of a force. All terrain is evaluated relative to the type of force that is to move, and is then coded as either NO-GO, SLOW-GO, or GO. Any reinforcing obstacles that hinder movement must be identified, whether established by higher headquarter or by the enemy.
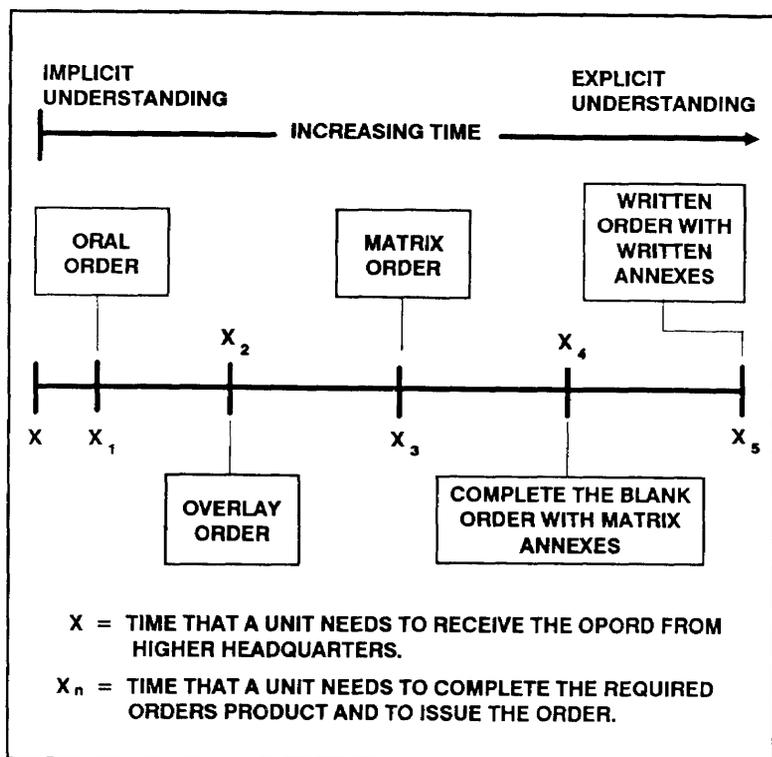
NO-GO. Terrain is judged NO-GO if movement through it by a particular type of force seems impractical unless much effort is made to enhance mobility. The road network in an area might still support mounted movement, even if the terrain itself does not support maneuver. Little terrain is NO-GO for dismounted infantry.

SLOW-GO. Terrain is judged SLOW-GO if the slopes or vegetation it contains can slow or disrupt maneuver of the force being considered to move through it. SLOW-GO terrain hinders maneuver less than NO-GO terrain. Other assets are also needed to enhance mobility. Terrain that is SLOW-GO to a mechanized force might be GO to a dismounted force.

GO. Terrain that is judged GO is fairly open and presents no hindrance to maneuver. Nothing need be done to enhance mobility. Again, terrain that would hinder one type of unit may not hinder another type unit.

(b) *Avenues of approach.* Avenues of approach are movement routes to an objective. A viable avenue of approach usually offers mobility corridors. These are areas within the avenue of approach that permit movement and maneuver. They permit friendly and enemy forces to advance or withdraw in doctrinal configuration, and to capitalize on the principles of mass momentum, shock, and speed. The S2 determines enemy avenues of approach one echelon above, and mobility corridors two echelons below the level of the command conducting the analysis. This is the one-up, two-down rule. He determines *friendly* avenues of approach and mobility corridors one echelon below and mobility corridors two levels below the level of the command conducting the analysis. This is the one-down, two-down rule. Both mounted and dismounted avenues of approach must be identified. For some operations, aerial or subterranean avenues might also be considered. When friendly forces are attacking, friendly avenues of approach to the objective must be identified, and enemy avenues of approach that could affect friendly movement—for example, counterattack avenues—must be identified. When friendly forces are defending, the opposite must be done. Possible movement routes for enemy reconnaissance units should also be noted. Obstacle considerations can be applied once potential avenues of approach have been identified. To do this, the following questions are asked:

- What existing obstacles in the avenues can impede advance?
- How would reinforcing obstacles (or proposed reinforcing obstacles) affect the avenues of approach?
- What existing obstacles parallel to the avenues afford flank protection or limit lateral movement?

Deductions should be made about the various avenues of approach and their abilities to support the plan while each of these questions is answered.

(c) *Key terrain.* Key terrain is any area whose seizure, retention, or control affords a marked advantage to either combatant. Using the map and information already generated, the commander must find terrain that could be used as positions for weapons or for units to dominate friendly or enemy approaches or the objective area. Remember, key terrain need not be occupied to be controlled. Direct or indirect fire can be used to control enemy access to key terrain. Decisive terrain should be sought that, if held or controlled, would have an extreme impact on the mission. This is "mission-hinging" terrain that must be retained or seized for the mission to be accomplished. Not every operation has decisive terrain. The commander, based on this analysis, should decide on potential positions for friendly and enemy units and weapons systems. These locations must be considered during development of COAs.

(d) *Observation and fields of fire.* Observation is the influence of terrain on reconnaissance and target acquisition. Fields of fire are the influence of terrain on the effectiveness of weapons systems. Terrain that provides the best of both relative to the systems available must be determined. The commander/S3 must determine the potential of friendly or enemy forces to overwatch or support with direct fire the movement of their forces; he must also determine the potential of enemy or friendly forces to observe movement along the avenue of approach and to place fire on it from various positions on the terrain; he

must analyze fields of fire to determine the ability to cover the terrain with direct fire from likely or known positions; he must determine where fires might be concentrated; and he must consider observation and fields of fire during conditions of limited visibility. After selecting a particular COA, he considers adjustments based on this analysis.

(e) *Cover and concealment.* Cover is protection from the effects of firepower. Concealment is protection from enemy observation or target acquisition. The analysis of cover and concealment is often inseparable from the fields of fire and observation. Weapons systems must have both cover and concealment to be effective and to survive. The effect of enemy NVDs or thermals on available concealment must be considered. Locations in which the enemy can be covered and conceded must be located.

(f) *Weather.* Weather is analyzed using the five military aspects of weather: temperature and humidity, precipitation, wind, clouds, and visibility (to include light data). To determine its cumulative effect on the operation, weather must be considered along with terrain. Weather affects equipment (including electronic and optical), terrain (trafficability), and visibility, but its greatest effect is on the soldier. In bad weather or in extreme heat or cold, the amount of time spent on leadership must increase as the severity of the weather increases. Inclement weather limits visibility, has obvious effects on soldier efficiency, and makes command and control more difficult.

(g) *Other characteristics.* Other charac-teristics are those, other than weather and terrain, that influence enemy and friendly actions. This includes sociological, political, psychological, and economic characteristics of an indigenous population or area of operations. (FM 34-130 provides more information about this subject.)

(2) *Enemy situation.* The goal of an enemy analysis is to predict the enemy's most probable COAs. Information for its development comes from a number of sources including enemy doctrine as well as current enemy activities. Information required to analyze the enemy situation includes the following:

(a) *Composition.* This can be in the form of an order-of-battle worksheet or doctrinal template from the S2. It is an identification of the forces and equipment that the enemy can bring to bear in the friendly area of operations.

(b) *Disposition.* This is an identification of the enemy's physical array in the battlefield. The disposition can be provided in the form of an overlay, situational template, intelligence summary, or other format from the S2. The S2 develops situational templates based on this information, on avenues of approach previously determined, and on enemy doctrinal templates.

(c) *Strength.* This information is found in paragraph 3c of the intelligence estimate. Committed forces, NBC, EW, air, artillery, reinforcements, and any other units the unit might have that could interfere with mission accomplishment should be considered.

(d) *Significant activities.* These are the enemy's most recent activities and intentions. The S2 and S3 exchange this information as they receive it. One example of such a significant activity is increased night operations.

(e) *Peculiarities and weaknesses.* These exploitable characteristics are examined carefully by planners. The inability of an enemy main gun to elevate or depress enough to fire up or down steep hills is such a characteristic.

(f) *Enemy capabilities.* These are actions that the enemy can perform and that influence the friendly accomplishment of the mission. The S2 identifies enemy capabilities and presents them in the intelligence estimate. Whether or not the enemy has chemical or nuclear weapons should be considered.

(g) *Enemy probable courses of action.* These are developed by the S2 from the previously listed information. The focus of this analysis is to locate the enemy's strengths (to avoid them) and his weaknesses (to exploit them). During the estimate process, the S3 and commander can accept, revise, or discard enemy COAs; and can develop other possible enemy COAs to consider. This interaction is vital in developing feasible friendly COAs. The result is a detailed statement of the enemy's most probable COA. This information allows the commander/S3 to war-game friendly COAs and to form tactical decisions.

(3) *Troops available.* The S3 receives information from all staff officers to help him determine the status of friendly forces relative to

the type of operation to be conducted. Much of this information (facts) might have been identified when the staff and commander exchanged information before the development of the restated mission (mission analysis) and commander's planning guidance. With the aid of the staff, the S3 projects the status of the unit at the beginning of the operation. The S3 does this by making assumptions about the changes that can occur between then and the time of execution.

(a) *Composition.* This is a summary of forces that can aid in accomplishing the mission. Familiarity with the unit, task organization, staff officers, subordinate leaders, and reference documents can aid the S3 in determining the unit's composition. Command and support relationships must be identified.

(b) *Disposition.* This is determined for the present and the future by the S3 with the aid of the commander, subordinate leaders, and other staff officers. The S3 can also use overlays, situational maps, or previously published documents. The information addressed should include the location of combat, CS, and CSS units.

(c) *Strength.* This listing develops friendly capabilities and vulnerabilities to aid the commander in selecting COAs. Factors to be considered include the unit mission and intent of the commander one and two levels up, current location of subelements, current and future locations of flank units and higher commander's reserve, the seven operating systems, and morale. The commander should also consider the soldiers themselves; pacing items; and the logistical status of the organic, attached, and OPCON combat, CS, and CSS units for this operation. Strength is determined by number of weapon systems and personnel strength, not by unit size. Battalions determine strength based on the number, type, and status of available platoons.

(d) *Signficant activities.* This refers to the selected items of information, such as successful tactical techniques or unit morale, considered during planning.

(e) *Peculiarities and weaknesses.* These should be considered. Their influence on possible friendly COAs should be noted. Only pertinent headings are used; they can include personnel, intelligence, operations, logistics, and

civil-military operations. Input from the appropriate staff officer is added.

(4) *Time.* Initial estimates of time should be reevaluated. The backward planning process should be used to identify any critical timings in the operation. The one-third/two-thirds rule applies. Time-space factors must also be considered. Critical times can include planning and rehearsal time, LD time, time to begin movement, defend-no-later-than time, time available to prepare and rehearse the attack or defense, time available for reconnaissance, and ranking of tasks based on time available. Both opposed and unopposed rates of movement should be considered. A time manager must be designated to ensure proper use of time during planning. He should be the senior officer responsible for coordinating planning; normally this is the battalion S3 or XO.

(5) *Assumptions and deductions.* The commander and his staff complete the METT-T analysis and form assumptions and deductions about the situation. The commander and his staff analyze the facts. In the absence of facts, they form assumptions to complete the picture of the situation. Also, they form assumptions for anything that can change before execution.

(a) These assumptions are based on the planner's knowledge of enemy doctrine and capabilities, on friendly doctrine and capabilities, and on the effects of the terrain and weather in a particular situation. From these facts and assumptions the commander and his staff deduce possible enemy and friendly actions. Knowing the key assumptions and deductions regarding the decision-making process, they can better assess the risks of an operation.

(b) The commander and his staff determine the relative combat power of enemy and friendly forces, which can suggest the nature and characteristic of feasible COAs. Potential combat power integrates firepower, maneuver, and protection (physical) with leadership (human dimension). If the S3 determines that more resources might be needed or could aid in the completion of the mission, he recommends that more resources be requested.

(c) A summary of the key deductions the commander and his staff must develop from the METT-T analysis are shown in Table 2-2, page 2-16).

AREA OF ANALYSIS	DEDUCTIONS
MISSION	What is our unit's purpose within the higher commander's intent?
	Which tasks allow us to accomplish our purpose?
TERRAIN/WEATHER	How do terrain/weather factors affect our soldiers/units and employment of our weapons system?
	Where can we focus our combat power (potential EAs, objectives, SBF positions) to accomplish our unit's purpose?
ENEMY	What are the enemy's most probable COAs given the terrain and his probable objectives? Where will contact first occur and how is the enemy arrayed?
	What are probable enemy weaknesses and vulnerabilities?
TROOPS	How can we focus our strength on enemy weaknesses?
	How can we make the most of our combat power given the current status of our soldiers?
TIME	What are the critical time aspects of the operation, (for us to accomplish our purpose, what must happen and when must it happen)?

Table 2-2. METT-T deductions.

(6) *Development of courses of action.* A COA is a possible plan to accomplish the battalion's mission. It should be brief and clear. It should describe how the unit will accomplish the mission; it must provide enough detail to allow the COA to be war-gamed during Step 3 of the estimate. Two or three COAs should be developed. By considering more than one feasible COA the S3 does not limit and commit his unit too early to only one option. Developing more than one COA also aids in contingency planning, which increases the flexibility of the command during execution. Each COA must be—

(a) *Feasible.* It must accomplish the mission and support the commander's intent.

(b) *Reasonable.* It must not cause undue harm to the battalion.

(c) *Distinguishable.* It must differ in missions assigned to subordinates to allow the

consideration of options. Planning one good COA then planning others that are not feasible or are like the first is a common pitfall.

(7) *Decisive point.* The battalion commander focuses his main effort during the critical phase of the battle on destroying or seizing a decisive point. Units are complex—their effectiveness depends on more than the performance of each component part. It also depends on the ease with which the parts work together and on how well they implement the will of the commander. Some components are more vital than others to the smooth operation of the whole. Loss of any of these parts unbalances the unit's cohesion and effectiveness. Different COAs may focus on different potentially decisive points, or they may concentrate combat power at the same point using different tasks, purposes, positions, and so on. For deployed tactical units, the enemy command post or a key piece of enemy-held terrain may be the decisive point.

(8) *Method of developing courses of action.* The following is a useful method for developing a course of action:

(a) *Determine the decisive point.* The commander, as previously discussed, seeks out the enemy where he is most vulnerable. Ideally, the commander identifies the point where an enemy weakness is or will be positioned at a time when the battalion can generate overwhelming combat power against him.

(b) *Determine supporting efforts.* The commander can determine what supporting efforts are needed by asking the question, "What else must be done to allow the main effort to succeed?"

(c) *Determine purposes.* The commander determines the purposes to be achieved by the main and supporting efforts. He links the main effort's purpose directly to the battalion's purpose. He links the supporting efforts' purposes as clearly to the main effort's purpose.

(d) *Determine essential tasks.* The commander determines the essential task(s) for subordinate units (main and supporting efforts) to achieve the purposes stated above.

(e) *Identify types of forces required to accomplish the mission.* The commander considers only the organic and attached units. The main effort is weighted. More risk is taken

in non-main effort areas (economy of force). Assets, such as CAS or FASCAM, which may be unavailable to the battalion during execution, should not be considered.

(f) *Assign control measures.* Control measures are established that clarify responsibilities and synchronize the efforts of subordinates to support the main effort. As much freedom of action is allowed as possible.

(g) *Prepare a COA statement and sketch.* A sketch of the COA enhances clarity. The sketch should show the maneuver aspects of the COA. Proper graphic control measures (FM 101-5-1) are used, but extra graphics may also be used to clarify the COA. If this sketch is used as part of the OPORD, the nonstandard graphics must be explained in a legend.

(9) *Goal of COA statement.* A COA statement should answer the following questions:

(a) *What.* What task(s) is involved?

(b) *When.* When does the action begin or end—for example, on order, D-day, H-hour, or 280305ZJUN90? (These are time limitations.)

(c) *Where.* Where are the areas assigned in the defense or where is the zone assigned in the offense?

(d) *How.* What is the scheme of maneuver, and what are the purposes of the maneuver element and subelement? What is the main effort?

(e) *Why.* What is the desired purpose and result (intent) of the operation?

(10) *Example COA statement and sketch.* The following scenario demonstrates an offensive COA and sketch (Figure 2-5):

• BATTALION MISSION STATEMENT: 2-66 IN (L) attacks 250100JAN to destroy enemy security elements vic NB135871 (OBJ WOLF) to allow TF 1-12 Mech to continue the attack east along Osborne Road.
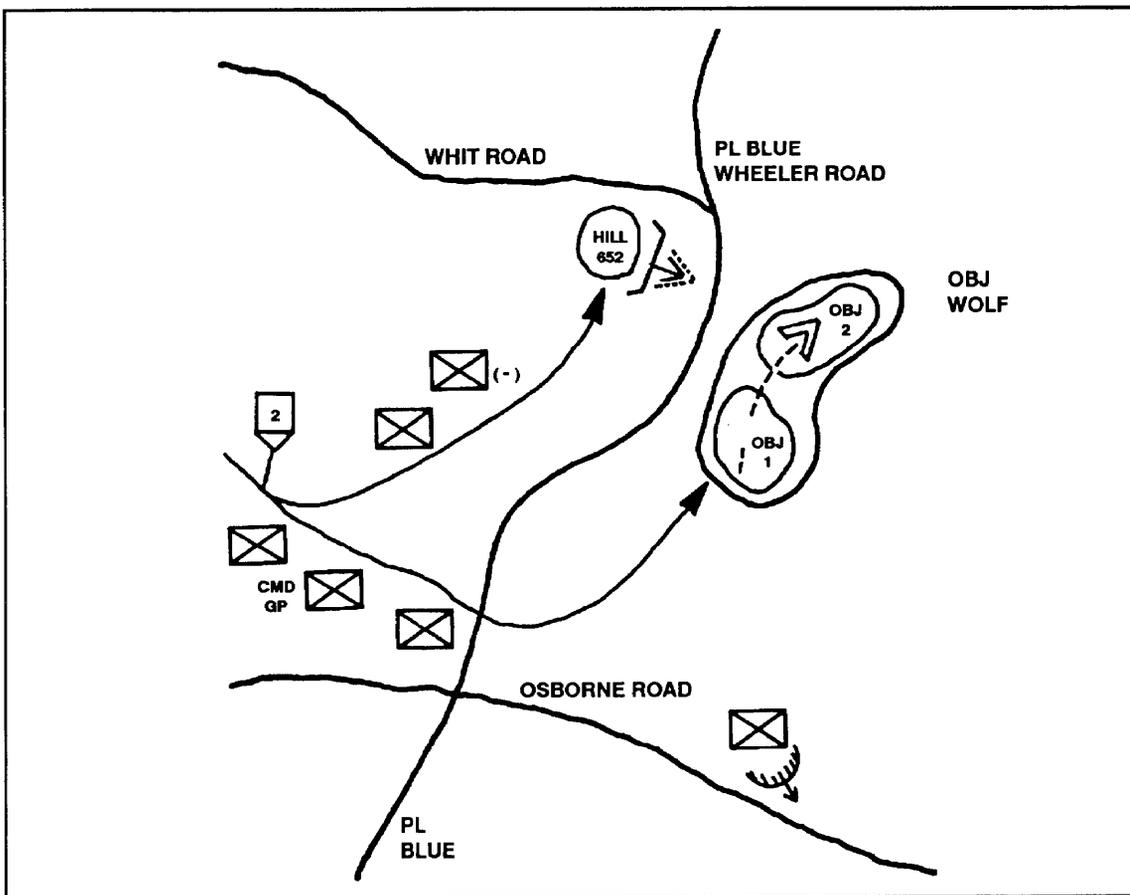

Figure 2-5. Example course of action sketch.

• COA STATEMENT: The battalion crosses the LD at 0100 along a direction of attack with one company (three infantry platoons, one engineer platoon, and one Stinger section) in the lead; followed by the command group; another infantry company (three infantry platoons, one Stinger section); and a third infantry company (minus) in trail (two infantry platoons and the AA platoon). At Checkpoint 2, the company (minus) and antiarmor platoon move to seize Hill 652 to support by fire the main attack. An infantry platoon establishes an ambush vic NV140857 to destroy enemy armored vehicles to prevent the enemy from reinforcing on OBJ Wolf. The lead company seizes OBJ 1 to allow the trail company (battalion main effort) to pass through and seize the decisive terrain. The trail company passes through OBJ 1, seizes OBJ 2 and prevents enemy security forces from firing on TF 1-12 as they attack south along Wheeler Road and east along Osborne Road.

(11) *COA options.* Development of a COA is a creative process. However, when little time is available, a COA can be developed in seconds.

c. **Analysis of Courses of Action.** The third step in the estimate of the situation is analysis of COAs. Short of combat, a war game is the best test of a COA. War games rely heavily on the tactical judgment and experience of the commander/S3 and staff, but is a step-by-step process.

(1) *Purpose of war games.* The commander/S3 analyzes (war-games) each friendly COA to determine its advantages and disadvantages, to incorporate improvements, and to identify any other tasks that might make the COA(s) more viable. During the war-game process, the staff identifies locations where combat multipliers, (indirect fire, obstacles, attack helicopters, and so on) can be used most effectively.

(2) *Action-reaction-counteraction.* The commander/S3 and staff war-game (mentally fight) the battle as it is expected to occur, pitting friendly COAs against the enemy's expected COA. The commander divides the COAs into a series of actions or events, analyzes each to determine its likely result or reaction, and then considers the likely counteraction. This process of action, reaction, and counteraction continues until the mission is accomplished or until the COA fails. The most probable enemy COA should be given the most time and emphasis during the war-game process.

(3) *Critical events.* The commander/S3 must break down the war game into critical events to analyze it more deeply. This could be as simple as making each essential task a critical event; or, the war gamer could go into more detail. Passage of lines, breach of an obstacle, seizure of the objective, and use of the reserve are examples of critical events in the offense. Operations in the security area, destruction of enemy first-echelon forces, and destruction of follow-on forces are examples in the defense. Other critical events can be determined during the war game.

(4) *Significant factors.* The S3 must next select the criteria (significant factors) that are used to analyze the COAs. The degree to which a COA satisfies a significant factor results in an advantage or disadvantage for that particular COA This information helps the commander select the best COA. The significant factors the commander/S3 selects help him improve and evaluate the overall concept of each COA during the war game. As the planner war-games, he asks for each factor, "Does the COA accomplish this?" If the answer is no, the COA must be disregarded or modified. For the war game to be manageable, the number of significant factors should be small. Three to seven are enough. For COAs to be compared to a common standard, the same significant factors must be used to war-game all COAs. These factors include mission-specific factors, doctrinal fundamentals, the commander's planning guidance, or any other criteria that the commander/S3 deems appropriate for this specific situation. One technique for determining which significant factors should be used in COA comparison is to analyze several different criteria for each METT-T factor and for logistics. The factors that should be selected are those that both relate

specifically to the planned mission and that will have a different outcome for each COA. The following are some of these criteria, by factor:

(a) *Mission.*

- Will COA accomplish mission?
- Is COA within commander's intent?
- Is COA restrictive or flexible?
- Does COA allow for follow-on mission posture?
- Is COA within constraints?

(b) *Enemy.*

- Does COA exploit enemy weaknesses?
- Will COA limit enemy capabilities?
- How will COA affect enemy morale or will to fight?
- How will COA affect enemy likely COA?
- How will COA affect enemy intentions?
- How will COA affect enemy reserves, reaction, or both?

(c) *Terrain and weather.*

- How does COA use avenues of approach?
- How does COA use concealment and cover?
- How does COA use or avoid obstacles?
- How does COA use key or decisive terrain?
- How does COA use ground conditions, speed of movement, and trafficability?
- How does COA facilitate fire and control of movement?
- How is COA affected by water drainage?
- How is the COA affected by weather and visibility?
- How is the COA affected by the availability of PZs, LZs, and DZs?

(d) *Troops.*

- How does COA utilize number and type?

- How does COA utilize location and disposition?
- How does COA utilize past performance?
- How does COA utilize leadership and morale?
- How does COA utilize level of training?
- How does COA utilize level of discipline?
- How does COA utilize combined arms?
- How does COA utilize relative mobility?
- How does COA utilize CS and CSS assets?
- How does COA facilitate task organization?

(e) *Time available.*

- How simple or complex is COA?
- Does COA provide adequate time for movement?
- Does COA provide adequate time for planning and preparation?
- Does COA limit enemy reaction time?
- Does COA meet time limitations imposed by higher?
- Does COA provide time for synchronization of the battle?
- Does COA provide time for limited visibility operations?

(f) *Logistics (supply and services).*

- How does supply availability affect COA?
- How does transportation availability affect COA?
- How does maintenance availability affect COA?
- How does water availability affect COA?

(5) **War-game techniques.** A planner can war-game each COA in any of several ways. The commander/S3 can use one or a combination of three techniques to conduct his war game.

(a) *Avenue-in-depth technique.* The planner focuses on one avenue of approach at a time.

This technique is the one most often used to war-game defensive COAs when several avenues of approach must be considered.

(b) *Belt technique.* The planner using the belt technique divides the battlefield into sections that run the width of the sector or zone. This is the preferred technique; it ensures simultaneous consideration of all factors that could affect a particular event.

(c) *Box technique.* The planner using the box technique focuses the war-game process on a specific area (box) of the battlefield. This can be the objective area, an engagement area, or some other critical area where the decisive action is most likely to occur. The war gamer uses the same action-reaction-counteraction method already discussed, but he limits himself to actions within the box. If time is short, this technique might be the best one to use.

(6) *War game planning.* The planner begins the war game by visualizing the flow of a battle, given friendly strengths and dispositions, enemy assets, probable COA, and a set piece of ground. He considers all facts, assumptions and deductions, and their effects on each COA. He tries to foresee the actions-reactions-counter-actions of the battle. The war game allows him to analyze each selected event. He focuses on the tasks of subordinates one level down (companies) and on assets two levels down (platoons). By war-gaming each COA, the planner can determine whether force allocation, dispositions, combat multipliers (obstacles, FA), and logistical resources are adequate or correct, and he can adjust as appropriate.

(a) *Conduct of war game.* The battle is visualized from the point where initial contact is expected. Using one or a combination of the three war-game techniques, he pictures the interaction of his soldiers, the enemy, and the environment (terrain and weather). When possible, the entire staff should take part in the war game. Each staff officer should be an expert in his branch and should know the the planning factors specific to his branch. The S2 acts as the enemy—the S3 war-games each COA against the S2. Each friendly COA must be analyzed against all of the feasible enemy COAs or capabilities, with extra emphasis on the most probable enemy COA. As the action/reaction/counterreaction drills are conducted for each COA the degree to

which it satisfies each significant factor counts as an advantage or a disadvantage for that COA. At any time, the COA can be changed or adjusted to better meet the criteria of the significant factors. New COAs can be introduced—others can be eliminated from further consideration.

(b) *Benefits of war game.* War-gaming each COA helps to identify its advantages and disadvantages. The analysis that continues throughout provides a better appreciation of time/space factors that apply to subordinate units. Other benefits of the war-game process concern the battalion's intelligence collection effort. The S2 can refine his NAIs to develop his collection and reconnaissance and surveillance plans. Also, based on the S2's identification of the threat, the S3 begins to develop DPs to be incorporated into the DST of the IPB product. No attempt should be made during the war-game process to compare COAs.

d. **Comparison of Courses of Action.** The fourth step in the estimate process consists of comparing options and choosing a COA.

(1) *Using a comparison matrix.* An effective technique for comparing COAs is using a comparison matrix. To set it up, list the significant factors used in step 3 (analysis) of the estimate on the left side of the chart; list the COA numbers across the top. (Table 2-3 provides an example format for a COA comparison matrix.) The simplest way to use this matrix is to give a plus to the best COA for each factor. If two or more COAs are equally superior, give them both a plus. All others receive a minus. Another way is to rank the COAs. The best COA for each significant factor is given a 1, the second best a 2, and so on. The COA with the lowest total sum supports the significant factors best. This comparison matrix conveniently summarizes the results of the analysis and comparison. It aids the staff in deciding their recommendations, and aids the commander in forming his decision during the decision brief.

(2) *Weighting significant factors.* The weights of one factor's advantages and disadvantages are rarely the same as those for another factor, so weighting significant factors might be necessary. One or several of the METT-T factors might be considered more important than others—for example, an assault might need to be conducted

on a particular objective before BMNT. In this example, time may be more important than the other significant factors. If the example chart in Figure 2-6 is used, speed may be weighted as twice as important as the other factors. The commander/S3 could annotate (x2) beside "SPEED" on Figure 2-6. If the numbering system previously described is used to rank COAs, the value assigned to each COA is doubled. This makes the already significant COA factor "speed" *more* significant than other significant COA factors.

NOTE: This method of "weighting" a COA is just one way the commander can indicate the importance of one factor over others. However, the commander should be careful when weighting significant factors. Seldom is one factor so vital to the mission that it causes the planners to rule out other viable COAs that do not take advantage of that specific factor.

e. **Decision.** The fifth step in the estimate process is a recommendation (with sketch) prepared by the S3 for the commander. The S3 also recommends the types of forces to be employed, but not the specific units. The commander then decides on a general scheme of maneuver.

(1) *S3's recommendation.* The S3 considers other staff estimates so his recommendation represents a coordinated staff position. If the commander greatly changes a COA or "creates" another one by combining parts of existing COAs, the staff must war-game the new COA to allow development of the tentative plan.

(2) *Commander's decision.* The commander considers the staff recommendation presented by the S3, completes his estimate, and announces his decision and concept.

(3) *Concept of the operation.* The commander's concept provides the necessary elements of paragraph 3a of the OPORD, concept of the operation. The commander's concept is a clear, concise statement of the task organization, the mission statement, the commander's intent, the general scheme of maneuver, supporting fires, and the acceptable degree of risk. The commander's concept takes the same form as the staff recommendation, except that the commander confirms the units to be employed. The main effort in the scheme of maneuver is critical—it affects all planning. The commander's concept provides the least information needed to further develop the tactical plan and to issue the order. The decision is the last step of the commander's estimate.

(4) *Additional guidance.* The commander can provide the staff with more planning guidance besides his decision and concept. How much he provides depends on the experience of the staff and on how well they know the commander. This extra

Figure 2-6. Example COA comparison matrix.

guidance helps the staff complete the plan and prepare orders. The commander can include an elaboration on the scheme of maneuver, fire support plan, and CSS. He outlines any task organization changes he wishes to make. He also designates subordinate units to be employed, which is a command responsibility that cannot be delegated. The S3 can only recommend units (though not as part of the operations estimate "recommendation").

(5) *Tentative plan.* The commander should expand the selected COA into a tentative plan. The plan is expressed as a broad concept; it includes a supporting overlay that shows its vital elements. It should relate to the OPORD format and should be complete enough that it can be executed as a FRAGO if time does not permit physical reconnaissance to verify the plan.

2-21. INITIATION OF MOVEMENT
Initiation of movement is step four of the troop-leading procedures. Movement can occur at any time in the troop-leading procedures to ensure the most efficient use of time. If time is short and much movement is required, the commander can start the necessary movement early, under the control of the XO. The task organization can also change. As much as possible, units should move to task-organize during daylight hours. The goal of the troop-leading procedures should be to build effective task forces and teams by starting movement and making decisions about task organization as early as possible.

2-22. RECONNAISSANCE
Reconnaissance is step five of troop-leading procedures. Reconnaissance actions must be carefully planned to quickly gather the terrain and enemy information the commander needs to complete his plan. Ground reconnaissance is conducted to confirm, adjust, or deny all or part of the tentative plan. If he has time, the commander might conduct an initial reconnaissance before he develops the tentative plan. Even if he does this, he should conduct another at the conclusion of the estimate to confirm the tentative plan. Reconnaissance is continuous; the battlefield is an ever-changing environment. A well-developed tentative plan makes the reconnaissance easier,

because subordinates can be given specific guidance.

a. A reconnaissance and surveillance plan (as part of the intelligence collection plan) and counterreconnaissance tasks must be developed and updated throughout the operation. The plan is keyed on the commander's PIR. It involves not only personal reconnaissance by the commander but also the employment of all feasible collection assets. These assets include scouts, company patrols, aviation, artillery, and available MI. Time and assets dictate how the reconnaissance is conducted. The commander also considers the risk of compromising the operation or losing key leaders if his reconnaissance force is discovered.

b. The reconnaissance plan can be issued as a FRAGO. It should include the following items:
- Composition/task organization for reconnaissance.
- Key facts (PIR) to be gained by the reconnaissance.
- Movement routes/formations to the reconnaissance location.
- Actions on reaching the location.
- Special instructions to members of the reconnaissance party. Collection tasks should be specified.
- Any special equipment required (chemical detection kits, expedient or directional antennas, and so on).
- Contingency plans.
- Requirements for continued surveillance after the reconnaissance.
  Indirect fire support for reconnaissance.
- Communications arrangements (nets, retransmission sites, and so on).
- Withdrawal, linkup, and dissemination plans.
- Security arrangements.

c. The commander continues to think about his estimate during the reconnaissance. If possible, he holds a first meeting on the reconnaissance site with the company commanders and staff. He then assigns specific requirements to his subordinates to collect information he cannot collect. The company commanders and staff conduct their

reconnaissances. Afterwards, the battalion commander meets with the company commanders and his staff, receives their recommendations, and modifies his concept if appropriate. If he chooses, the battalion commander can go through another war-game process with them, adding the new factors learned from the reconnaissance.

2-23. COMPLETION OF PLAN
Completion of the plan is the sixth step of the troop-leading procedures. A synchronized, viable, and timely plan is one of the most important preliminaries to battle. The commander and his staff continue to add detail, expanding the tentative plan into a five-paragraph OPORD.

2-24. ISSUANCE OF OPORD
Issuance of the OPORD is the seventh step of the troop-leading procedures. The OPORD is issued at the time and place stated in the WO. The way an OPORD is issued affects how clearly it is understood. A well-developed but poorly presented plan hinders mission accomplishment. Whenever possible, the orders group should rehearse the presentation and use terrain models or other visual aids to enhance clarity and understanding. An overlay, including an execution matrix and concept sketch, should be prepared and available for subordinate unit commanders and leaders when they come to receive the order. Written orders and overlays help counter the effects of stress and fatigue from continuous operations. Leaders should not have to copy anything. (Appendix A provides techniques for production and issuance of OPORDs.) The OPORD should be issued from a location that overlooks the terrain on which the operation is to be conducted, if possible. If so, the S3 or commander should orient the audience to the terrain and all briefers should reference the terrain rather than a map or sand table. If not possible, the commander should use any aids he can obtain or should construct aids, such as sand tables, large sketch maps, or relief maps, to help soldiers visualize the terrain. All soldiers who receive the OPORD should have a copy of the operations overlay. Graphics should be nonrestrictive, yet complete, and should include EEI for the flank unit.

2-25. SUPERVISION AND REFINEMENT
Supervision and refinement is the eighth step of the troop-leading procedures. The issuance of the OPORD does not end the troop-leading procedures. The TLP continues until the mission is accomplished. New information is fed back into the commander/S3's estimate so the commander can determine whether assigned tasks should be changed. Plans are good only when subordinates clearly understand their purpose within the commander's concept, coordinate with adjacent units, and rehearse critical events. During the operation, the command group and the TOC monitor the operation closely. The command group should be ready to make decisions on subordinate commanders' requests for changes to the tactical plan and should issue FRAGOs as needed. The requirement to supervise is continuous and is as important as issuing orders. Briefbacks, rehearsals, inspections, and continual coordination of plans are techniques that should be used to supervise and refine troop-leading procedures.

a. **Briefbacks and Rehearsals.** Briefbacks focus on the planning process; rehearsals focus on execution.

(1) *Briefbacks.* The commander should conduct at least two briefbacks with subordinate commanders. When possible, briefbacks should be conducted collectively at a meeting of the orders group. This simplifies the exchange of information, improves coordination among units, and speeds the distribution of changes.

(a) The first briefback occurs immediately after the battalion OPORD has been issued. The purpose of this briefback is to ensure the subordinate commander or special platoon leader understands his mission or critical actions he must accomplish.

(b) The second briefback occurs after subordinates have formulated their own concepts of the operation, but before they have issued their OPORDs. The purpose of this briefback is to ensure the commander concurs with the subordinate leader's concept, and to allow the commander to recommend changes before the subordinate issues his OPORD.

(2) ***Rehearsals.*** Combat rehearsals are conducted to help a unit gain agility, to ensure synchronization, to increase initiative, and to improve the depth of a force through practice. Both fire support and maneuver actions should be rehearsed, which reinforces the scheme of maneuver and the fire plan. A rehearsal should be conducted for all critical actions. When conducting one, the commander should emphasize key events that trigger friendly actions. Rehearsals ensure the unit can accomplish these actions based on its state of training, the orders issued, and the expected terrain and weather conditions. Rehearsals identify problem areas and contingency actions, determine movement reaction times, enhance coordination, and enable the commander to refine his plan. The commander uses the rehearsal to reinforce subordinates' understanding of the plan; to help them visualize the exact meaning of his intent; and to help them know what to do when the battle does not go according to plan. At the end of all rehearsals, the commander must review the plan to ensure that all of the BOSs have been properly synchronized. Commanders can choose from several types of rehearsals, based on time and feasibility. Figure 2-7 show six types of rehearsal on a time line. The types areas follows:

(1) *Full rehearsal.* This type of rehearsal is the most effective, but consumes the most time and resources. It involves every soldier who will participate in the operation. If possible, it should be conducted under the same conditions (weather, time of day, terrain, and so on) that are expected to exist during the actual operation.

(2) *Key leader rehearsal.* This type of rehearsal requires less time and resources than a full rehearsal. It involves only the key unit leaders, down to a level determined by the commander. However, it should also be conducted under the same conditions that are expected to exist during the actual operation. Selected leaders rehearse the plan in their assigned tactical vehicles, if applicable.

(3) *Terrain model rehearsal.* This type of rehearsal requires less time and resources than a key leader rehearsal. Its three-dimensional aspect helps subordinate leaders visualize the battle. When possible, the terrain model should be constructed overlooking the actual terrain or, if the situation requires more security, on the reverse slope and within walking distance of a vantage point that overlooks the actual terrain. Terrain models should be made to scale, and should include the grid lines from military maps. They should depict all information from the operations overlay, including the names of key terrain features enemy positions (known and suspected), and all critical fire control measures.

(4) *Sketch map rehearsal.* This type of rehearsal requires less time and resources than a terrain model rehearsal. Except that a sketch is used instead of a terrain model, the procedure for this type of rehearsal is the same as for the terrain model rehearsal. Using sketches large enough for all participants to see, the commander and his staff discuss the flow of the operation with subordinate leaders.

(5) *Map rehearsal.* This type of rehearsal requires less time and resources than a sketch map rehearsal. The procedure is the same for the sketch map rehearsal, except a military map with an operations overlay is substituted for a sketch. This technique works best if each subordinate leader has his own map and if the rehearsal is conducted from a vantage point that overlooks the terrain of operations.

(6) *Radio rehearsal.* This type of rehearsal, often referred to as a COMMEX, requires less time and resources than any of the other types—but is the least desirable. Also, the lengthy radio communications required endanger OPSEC. Consequently, a commander should use this method only when he has no other option. To conduct such a rehearsal, he and his staff transmit the execution of critical portions of the operation over the radio. For this technique to be effective, every participant must have working communications and a copy of the unit OPORD and overlays. Only essential phases are rehearsed.
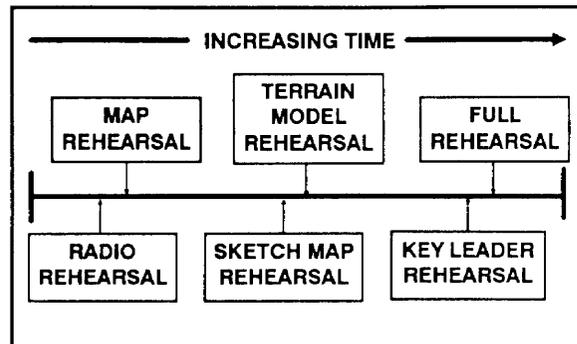

Figure 2-7. Types of rehearsals.

b. **Inspection.** Leaders at all levels inspect soldiers, their levels of knowledge, and their equipment. This is done to ensure that combat preparations are complete and that the commander's intent is understood two levels down.

c. **Coordination.** The commander visits his subordinates and discusses their plans. Changes resulting from this second set of briefbacks are given to everyone concerned. The commander and his staff supervise to ensure that all preparations necessary for conduct of the operation are being made. These include coordinating fire support and engineer activities, maintenance, resupply, casualty evacuation, movement, and any other required actions. Any departures from the plan, both before and during the operation, are coordinated with the battalion commander. However, this coordination might not be possible during the battle due to communications problems. In these cases, subordinate commanders should act on their understanding of the battalion commander's intent and on their own judgement. Staff officers must be ready to change their plans to take advantage of tactical opportunities that occur during the operation.

Section III
INTELLIGENCE PREPARATION OF THE BATTLEFIELD

Intelligence preparation of the battlefield (IPB) is a systematic and continuous process used to reduce uncertainties about the weather, enemy, and terrain in a specific battlefield area. It integrates enemy doctrine with the terrain and weather to evaluate enemy capabilities, vulnerabilities, and possible COAs. The formal IPB is performed at corps and division levels; the informal IPB is performed at brigade and battalion levels. (FM 34-130 provides more information on IPB.) Though the information flows through the S2, who also prepares the various overlays and templates, the IPB is the commander's decision-making tool. The S2 relies on higher headquarters to provide detailed terrain and weather information. During planning, IPB allows the S2 to develop probable enemy COAs against which the commander/S3 can war-game friendly COAs. During execution, the IPB aids the commander with situational development by showing him when and where he must make decisions. This provides him with the means to *influence* rather than just *react* to enemy actions (Figure 2-8).
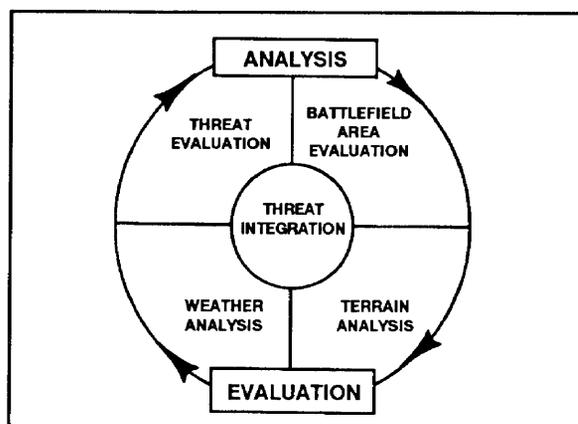

Figure 2-8. Intelligence preparation of the battlefield.

2-26. ROLE OF IPB

The commander must anticipate events on the battlefield and design friendly COAs to succeed despite enemy capabilities. The commander and staff must use IPB to assess the enemy's capabilities and possible COAs and must not expect to accurately predict enemy intentions or a specific COA. In fact, they must also remember that the enemy can "predict" IPB predictions and choose a less obvious COA.

2-27. FIVE FUNCTIONS OF IPB PROCESS

The five functions of the IPB process are battlefield area evaluation, terrain analysis, weather analysis, threat evaluation, and threat integration. Graphics are basic to IPB analysis. Intelligence is often best communicated with pictures, so the products are designed to be visual to increase understanding.

2-28. INTELLIGENCE COLLECTION PROCESS

The intelligence collection process is integrated along with the IPB into the commander/S3's estimate as follows:

a. The S2 reviews the doctrinal template (already prepared) on receipt of the mission and analyzes intelligence summaries from higher while the commander conducts his mission analysis. The S2 uses operations graphics, the terrain and weather analyses, the doctrinal template, and current enemy activities from INTSUMS (Functions 1 through 4) to provide the staff with a situational template.

b. The commander completes his mission analysis and provides his initial PIR to the S2. The priority intelligence requirement includes elements of information needed by the commander to confirm his estimate. The S2 uses the commander's PIR, along with the situational template and the INTSUMs from higher, to focus the intelligence collection plan. This plan goes to the scout platoon and to all other potential sources of combat information in the battalion. Other staff officers use the situational template as they conduct their estimates and determine their recommended COA. If the commander does not provide PIR, the staff should recommend PIR and the S2 should present them for the commander's approval. Completion of the IPB process identifies critical intelligence gaps that aid the staff in developing other PIR.

c. The S2 uses the situational template to identify NAIs from which to create the event template. He develops the event template by rapidly war-gaming each potential *enemy* COA from the point where friendly or enemy activity begins until the mission is accomplished. Depending on the situation, the assistant S3 can aid the S2 in developing the event template.

d. The S2 can also begin a reconnaissance and security matrix once he has identified the NAIs. This matrix is a good tool to ensure all NAIs are covered and the collection plan is synchronized.

e. The commander and S3 now war-game their maneuver COAs, by priority, against the S2's analysis of the enemy probable COAs. This war-game process identifies a friendly COA that has now been tried and refined based on the enemy's probable actions. This COA is the basis for the tentative plan that is then expanded into the OPORD.

f. DST is developed based on the selected COA. Specific units are assigned responsibility for observing and reporting activity at specific NAIs. Maneuver, fire support, and EW assets are given specific responsibilities to prepare to attack specific enemy targets at each TAI. Based on the response time required, the S3, with the aid of the special staff, assigns decision points.

g. Table 2-3 shows an example format for a reconnaissance and security matrix as completed after the war game and after assignment of specific responsibilities. This matrix, along with a combined obstacle overlay showing the locations of the NAIs and a copy of the commander's PIR, are the main tools needed by information collectors.

NAI	HIGHER/ADJ	BN	SUBUNIT	ACTIVITY	ACTION
10	2-21 IN	GSR	SCOUTS	ENEMY MOVEMENT WEST, COMPANY-SIZED FORMATION	ALERT COMPANY A TO CLOSE OBSTACLE GAP
11	4-73 FA	GSR	SCOUTS	CONFIRMATION OF RAG LOCATION	FA COUNTERBATTERY FIRES TAI
12			SCOUTS	ENEMY MOVEMENT WEST	ALERT COMPANY B TAI 12 (FA)
13				ENEMY MOVEMENT SOUTH FROM AA C TO AA D	NOTIFY COMPANY C
14				ENEMY MOVEMENT NORTHWEST, COMPANY-SIZED OR LARGER FORMATION	NOTIFY 2-21 IN & BDE
15				ENEMY MOVEMENT NORTH FROM AA D TO AA C	NOTIFY COMPANY B & C

Table 2-3. Example of format for completed reconnaissance and security responsibility matrix.

Section IV
COMMAND AND CONTROL DURING BATTLE

The processes of planning, command, control, and communications discussed previously in this chapter allow the commander to synchronize and support the combat, CS, and CSS elements of the battalion and to accomplish his mission. Battle command and control must be simple and responsive due to the violence, confusion, and pace of the battlefield. The battalion command and control system must work better and faster than the enemy's command and control system.

2-29. PLANNING
Execution unfolds from a sound plan. This plan must be simple and flexible. Planning must be conducted with an emphasis on preventing fratricide. Commanders must ensure adequate control measures are planned and rehearsals are conducted to help prevent fratricide. The following guidelines, which are all equally important, apply:

a. Subordinate input and recommendations should be sought and considered.

b. Initial plans must clearly establish the intent of the next higher commander and the battalion's concept of operations. To aid in understanding, orders should be delivered face-to-face.

c. Responsibilities and tasks should be clearly assigned and IAW units' capabilities.

d. The greatest possible tactical freedom is left to subordinate leaders within the requirement to synchronize operations with other elements.

e. A main effort is designated as a focal point.

f. Plans are simple in concept and follow a logical sequence.

g. Stand-alone graphics, including fire-control measures, should simplify cooperation between forces without restricting the freedom of junior leaders.

h. Planners should consider the responsibilities and the operational concepts of flanking and supporting units.

i. Forces are planned for and positioned in anticipation of tactical events and major contingencies.

j. All plans should be war-gamed.

k. Task organization is based on METT-T (not on habit).

l. Succession of command is planned for and rehearsed.

m. A training plan is prepared for any specific training that must be conducted before rehearsals.

n. Schemes of maneuver, fire support, indirect fire plans, and CAS requests must be reviewed to prevent fratricide.

2-30. PREPARATION

Preparation ensures that the mission and concept of the operation are understood, and enables units to better perform their roles. Preparation should include the following:

- Thorough briefbacks including all attachments.
- Rehearsals of plan and major contingencies at all levels.
- Rehearsal by reservess IAW priority of mission.
- Inspections at all levels.

2-31. EXECUTION

Execution of plans requires leaders to remain flexible, to retain and enhance synchronization, and to cope with the dynamic events of the battlefield. They must perform all of these more rapidly than the enemy. The following steps help them meet these requirements:

a. Junior leaders exploit changes in the tactical situation, within the commander's intent.

b. Commanders ensure that a leader is present at each critical point on the battlefield. Tactical leaders position themselves wherever the situation calls for their presence, but they retain their option to respond with the entire force to opportunities or changing circumstances. The commander can position the S3 to command and control an area that the commander cannot monitor.

c. Commanders observe the battle. Reconnaissance, surveillance, security, and IPB are all continuous.

d. Command and control is continual and rapid. Time is used wisely. Situational updates, WOs, and FRAGOs are used often. Critical combat information and intelligence are passed rapidly. Communications are redundant (sent by more than one means) to enhance survivability and to simpliffy the transmission of changes to the effort, the intent, or both.

e. Subordinate feedback and reports are continuous and rapid to expedite combat decisions and adjustments during battle. To prevent overloading the commander, the main CP should screen all information. The scout net is used to pass most information, which leaves the command net open for more vital information.

f. Execution of command and control focuses combat power on the objective of the operation. Movement is supported by direct and indirect fire. Mutual support is maintained to prevent defeat in detail.

g. Fire control and discipline are maintained. Graphics supply the framework and fire discipline (training) ensures success.

h. Succession of command is accomplished smoothly and rapidly.

i. The unit consolidates and reorganizes during lulls in the battle or after seizing an objective. Steps for consolidation and reorganization are discussed in Chapters 3 and 4. Within the context of sustained operations, consolidation must aid in future operations.