COMMAND ARRANGEMENTS FOR PEACE OPERATIONS

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CHAPTER 1

INTRODUCTION

With the end of the Cold War and the emergence of the United States as the only remaining superpower in a world increasingly characterized by disorder, the U.S. has found itself involved in a number of "peace operations." These are complex, untraditional missions that are as much political as they are military. Moreover, their successful conduct requires the U.S. military to work with a wide variety of institutions and organizations including foreign governments, non-national political actors, international organizations, and private voluntary organizations (PVOs), as well as the variety of U.S. Government agencies and foreign military forces that are typically part of a peace operation coalition.

The debate regarding the wisdom of whether—and the conditions under which—the U.S. should engage in such peace operations continues unabated. However, the reality for the defense establishment is that these operations will remain important for the foreseeable future. The consequences of failure to perform them effectively cannot be over-emphasized. Massive human rights abuses in Haiti, starvation in Somalia, genocide in Rwanda, persecution of minorities in Iraq, bitter ethnic warfare in the former Yugoslavia, and continued civil war in Cambodia are all too obvious examples.

While there are many differences between these untraditional operations and more customary combat missions, they share the requirement for effective command and control (C2). Indeed, because overwhelming force can often overcome C2 problems in warfare, but cannot be counted on in peace operations, command arrangements may be more important in peace operations.

By almost any measure, the U.S. experience shows that traditional C2 concepts, approaches, and doctrine are not particularly well-suited for peace operations. This paper (1) explores the reasons for the mismatch between traditional U.S. C2 and peace operations, (2) examines alternative command arrangements approaches, and (3) describes the attributes of the command arrangements needed to manage peace operations effectively.

The approach is to first briefly examine the key concepts—C2, command arrangements, and peace operations—needed to compare peace and war missions; second, review the command arrangements employed in a variety of recent coalition warfighting and peace operations and the lessons learned from those experiences; third, review state-of-the-art knowledge for designing ideal command arrangements; and finally, posit a system for assessing the adequacy of command arrangements in peace operations. This allows the U.S. experience in peace operations to serve as an empirical basis for the development of improved approaches, concepts, and designs for command arrangements.

CHAPTER 2

KEY CONCEPTS

COMMAND AND CONTROL

Command and control (C2) is the military term for the management of personnel and resources. Because warfare is qualitatively different from other aspects of society, C2 concepts both pre-date and have evolved separately from industrial management. Few human endeavors have either the time criticality or the high cost of error of warfare. These two crucial characteristics have shaped our thinking about C2.

The official U.S. definition of C2 is provided in a Joint Chiefs of Staff Publication (JCS Pub. 1, *Dictionary of Military and Associated Terms*): "The exercise of authority and direction by a properly designated commander over assigned forces in the accomplishment of a mission." This includes the militarily crucial term *command*, which is formally defined (also in Pub. 1) as:

> 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 the responsibility for health, welfare, morale, and discipline of assigned personnel.

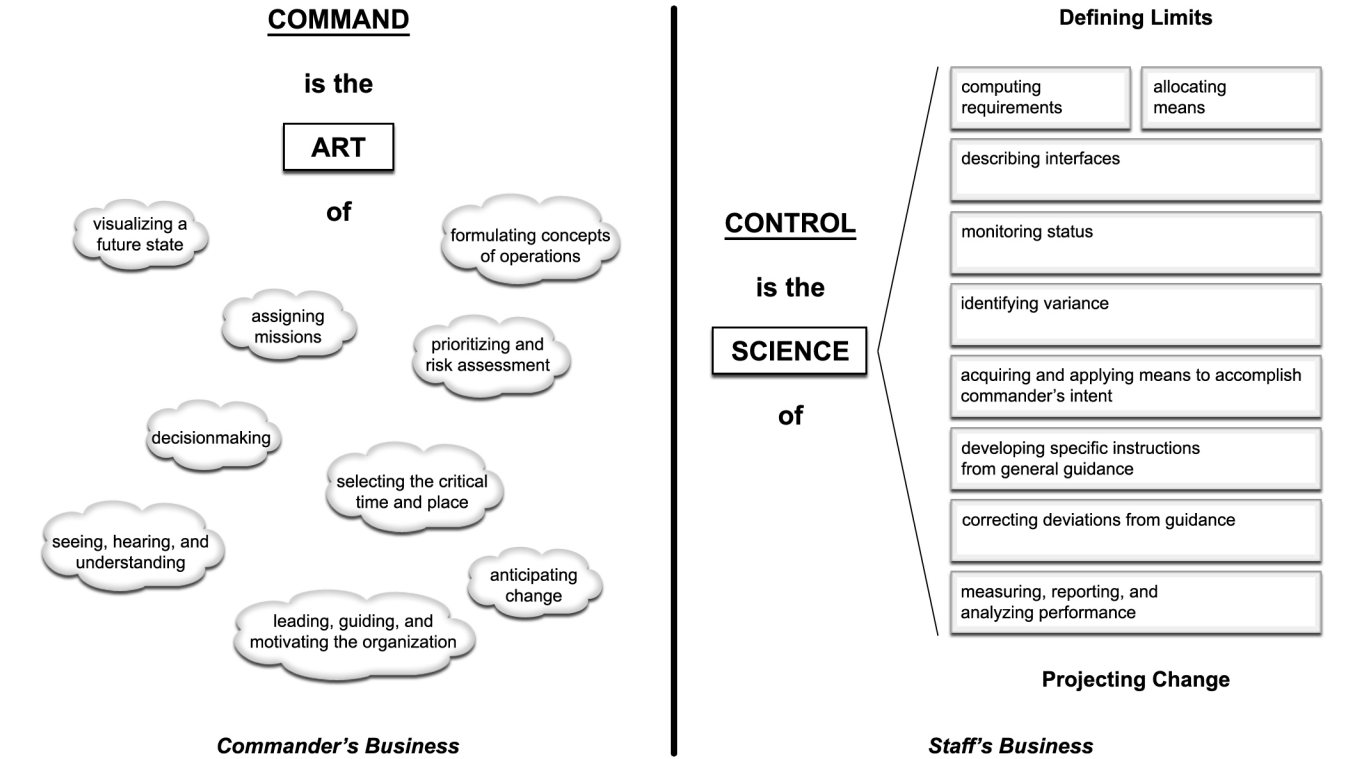
Several things are worth noting about these definitions. First, C2 involves the exercise of authority over assigned forces. Second, the term *C2* is quite encompassing, including personnel arrangements, procedures, systems, and facilities. Third, C2 extends well beyond decisionmaking and issuing orders to include the full cycle of decisionmaking activities; from situation assessment, planning (anticipatory decisionmaking), and gathering the information needed to assess the effectiveness of the actions taken, back to assessment of the situation resulting from those actions and of enemy responses to them. C2 also includes taking responsibility for the health, welfare, morale, and discipline of the military organization. In other words, C2 includes responsibilities that are associated with motivation, leadership, team building, management, and control.

The term *command and control* did not come into use until after World War II (WWII). Prior eras referred only to *command*. While no one knows why the language changed, two of the explanations offered are worth noting. One argues that it derives from the proposition that "one commands men, while one controls machines." This approach recognizes the increasing reliance on hardware and technology on the battlefield. The other explanation suggests that when a situation reaches a certain level of complexity (or chaos), people must concentrate on control. Hence, tacking the word *control* onto command gives it the proper emphasis. Derivatives from this theory have brought us C3 (adding communications), C3I (adding intelligence), and C4I (adding computers). For purposes of this book, C2 is taken to imply all of these dimensions.

Some authors have stressed the difference between command and control. For example, Bolger (1990) notes the difference between the leadership role of the commander and the more quantitative control processes that are largely undertaken by the staff. More recently, LTG Schoffner (Commander, Combined Arms Center, U.S. Army), stressed that same difference, which is shown graphically in Figure 1.

> Command is primarily an *art*. Commanders formulate concepts, visualize a future state, assign missions, allocate resources for those missions, assess risk, and make decisions. During the fight, commanders see and understand the battlefield, go to the right place at the right time, and anticipate change. Commanders lead, guide, and motivate their soldiers and organizations to accomplish missions and to win decisively. Command is the commander's business.
>
> Control, on the other hand, is a *science* of regulating forces and functions on the battlefield to execute the commander's intent. Control is a more precise means through which staffs support their commander's intent and work with other staffs. Control...is primarily the staff's business. (Schoffner, 1993)

Van Creveld (1985) adds an important perspective by stressing that command is an effort to deal with uncertainty and that command and control systems exist to support that effort. From this perspective, the leadership component of C2 helps by creating its own force capability and ensuring that those forces perform effectively. The systems that provide information about the warfighting environment and communicate that



Modified from: "Future Battlefield Dynamics..." LTG W.A. Shoffner. Phalanx. March 1993.

Figure 1. Command and Control

information and the commander's directives throughout the command are also crucial for success.

Command can take three very different forms in peace operations: Combatant Command (COCOM), Operational Control (OPCON), or Tactical Control (TACON). Combatant Command means owning the forces. The commander has the full range of authority and responsibility inherent in the concept of military command. Because governments will almost never surrender sovereignty and aspects of command such as force structure, promotion, and discipline, commanders in peace operations seldom have genuine COCOM over forces from foreign nations.

Operational Control allows for maximum control without full command or the burden of support. Some officers describe this as the equivalent of long-term leasing. The Clinton Administration policy on reforming multilateral peace operations, embodied in Presidential Decision Directive 25 (PDD-25) indicates that the U.S. President will, "on a case by case basis, consider placing appropriate U.S. forces under the operational control of a component U.N. commander to achieve specific military objectives." It notes that,

> Operational control is a subset of command. It is given for a specific timeframe or mission and includes the authority to assign tasks to U.S. forces already deployed by the President and assign tasks to U.S. units led by U.S. officers. Within the limits of operational control, a foreign U.N. commander cannot: change the mission or deploy U.S. forces outside the area of responsibility agreed to by the President, separate units, divide their supplies, administer discipline, promote anyone, or change the internal organization.

Tactical Control is equivalent to short-term rental. A commander is allowed to use forces without the burden of supporting them, but also knows that they may be reassigned at any time. JCS Pub. 1 does not recognize *TACON* as an official term, but notes that in NATO it means "the detailed and, usually, local direction and control of movements or maneuvers necessary to assign missions and assigned tasks."

Note also that when a commander has OPCON or TACON of forces, they retain their linkage to another military organization that retains a range of authorities over and responsibilities for them. As forms of control, OPCON and TACON do not convey the full set of command responsibilities and prerogatives.

Major U.S. military operations are now almost always "joint." This simply means that forces from more than one Service participate under a single commander. In addition, as the size of U.S. forces has been drawn down and U.S. military posture has evolved from one based on large, forward-deployed forces toward one of expeditionary forces based in the continental United States (CONUS), the likelihood that any one unified CINC will have COCOM of all the forces required for a large operation has declined. To permit optimal use of important, scarce resources, new unified and specified commands such as TRANSCOM (Transportation Command) and SOCOM (Special Operations Command) have been created to support the more traditional geographic CINCs such as CINCPAC (Commander in Chief, Pacific) or CINCCENT (Commander in Chief, Central Command).

Current doctrine for U.S. warfighting C2 is shown in Figure 2, "Typical Joint C2." The National Command Authority (NCA), which consists of the President and his advisors (including the Joint Chiefs of Staff), provides overall strategic

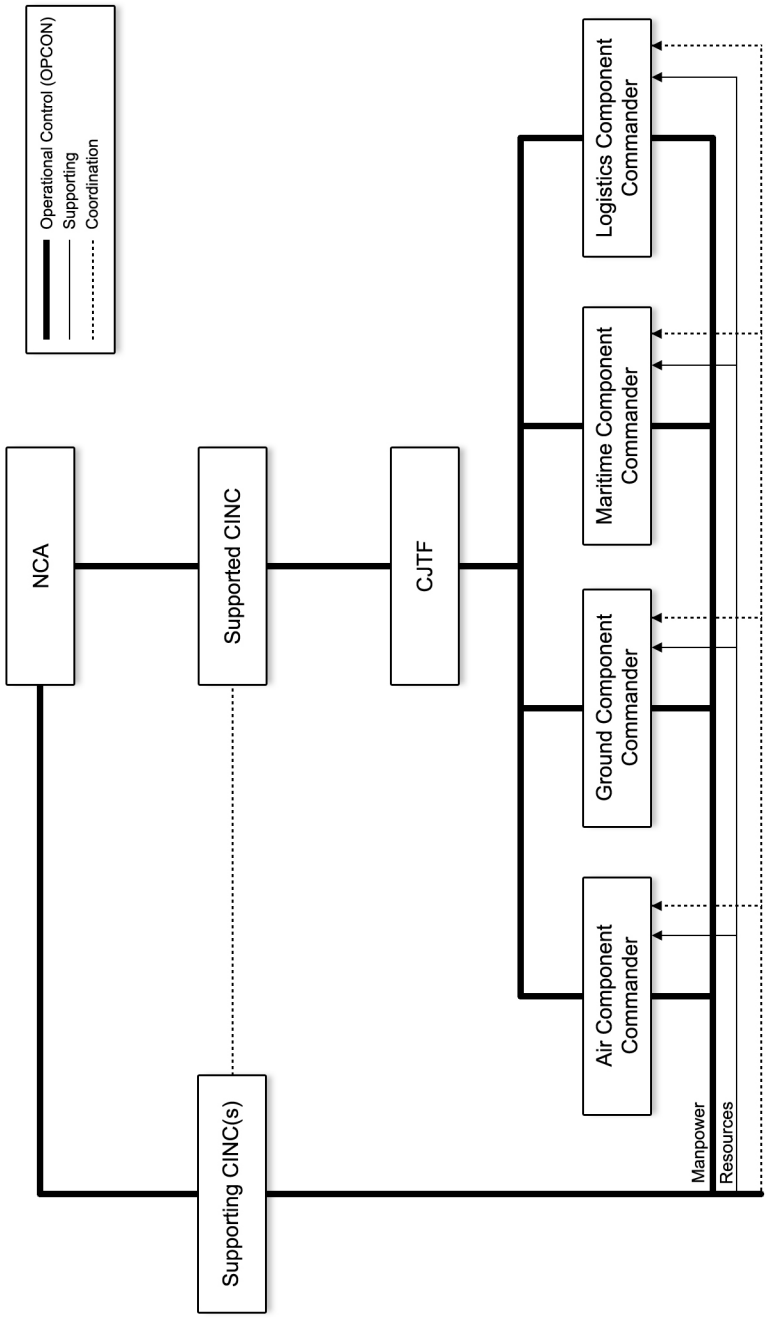


Figure 2. Typical Joint C2

guidance. One CINC, usually a theater commander such as CINCPAC or CINCCENT, provides the operational guidance in close cooperation with the commander of the CJTF (Combined Joint Task Force). Supporting CINC efforts are directed by the NCA (CINCs are equals and do not direct one another's efforts) and coordinated at all appropriate levels. The CJTF is usually made up of force components that are functionally differentiated: air, ground, maritime, logistics, and so forth. The CJTF is seldom the unit with COCOM for all of these forces. Indeed, CJTF's are often ad hoc organizations made up of a commander and a rapidly assembled staff. Ideally, they include a commander of appropriate rank and experience with an existing staff, perhaps augmented to ensure adequate capacity and appropriate expertise to manage the assigned forces effectively.

Command Arrangements

While military systems can be understood in terms of C2, this language is too narrow to describe the organizational and institutional arrangements necessary for peace operations. As is discussed in detail below, peace operations are qualitatively different from warfighting and involve political relationships as much or more than military ones. U.S. forces engaged in operations other than war (OOTW) are, for example, sometimes one component of the U.S. country team, which is led by the U.S. ambassador. Often coordination must also be effected with other parts of the U.S. Government. In many cases, U.S. forces in peace operations are part of a coalition, working in partnership with a host country or other foreign forces, but not having direct command over them. Most peace operations also involve working closely with a variety of non-governmental organizations (NGOs) and/or private voluntary organizations

(PVOs) such as the Red Cross or Doctors Without Borders, whose humanitarian or other functions make them important to overall mission accomplishment. In some cases, as in Somalia or Haiti, U.S. forces also work directly with local political or traditional leaders (tribal or clan chiefs, etc.). Effective military C2 depends on organized, effective, and efficient interactions with the entire range of relevant actors.

Relationships with these actors are anything but military command relationships. Indeed, few of them will take direction from military leaders. Yet, the ability to achieve military missions during peace operations depends on dealing with them effectively. Information must be exchanged with this diverse group of players. They must be taken into account when the situation is assessed, when alternative courses of action are developed and considered, when decisions are made, when actions are coordinated, and when directives for military forces are developed. This broad set of relationships needed for success is more properly understood as *command arrangements* than as any relationship found in the military C2 literature. To be successful in peace operations, a system of effective command arrangements must be developed.

PEACE OPERATIONS

The last key term needed to understand this analysis is *peace operations*. Even the language for describing peace operations remains unsettled, at least partly because the explosion of relevant experience continually introduces new interpretations and distinctions. Wiseman (1983) notes the distinction between operations carried out under Chapter VI of the U.N. Charter, dealing with the pacific settlement of disputes, and those carried out under Chapter VII, dealing with enforcement measures. He credits former U.N. Secretary General Dag

Hammarskjold with creating the phrase "Chapter VI and-a-half" to describe situations that fall between the two categories. However, Hammarskjold was referring to the absence of U.N. Charter references to armed peacekeeping missions rather then the current U.N. experience of inserting combat troops to impose international will on belligerents. The key distinctions are illustrated in Figure 3, "Spectrum of Recent United Nations Peace Operations." Note that wars are not peace operations. When the international community, or one or more nations acting on behalf of the international community, enters a war to reverse aggression, as was the case in the Korean Conflict and Operation Desert Storm, the goals are classic warfare goals—imposition of your will on the enemy by force of arms—and the proper command arrangements and C2 systems are best derived from the history, theory, and the relevant technological state-of-the-art in warfare. Note also that many cases move between situations. In October 1994, U.S. and coalition partner troop movements to the Iraq-Kuwaiti border, for example, could have deteriorated from a Chapter VII situation into warfighting had the Iraqis not backed down.

Classic *peacekeeping* operations (Chapter VI) assume that the parties to a conflict want peace and desire the presence of the peace operators. Hence, the military missions implied are really quite minimal—monitoring and reporting on the maintenance of cease-fires and demilitarized areas or providing a buffer force in zones of disengagement between the belligerents. Only minimal force is required. In fact, Mackinlay (1989) identifies "use of force only in self-defense" as one of the principles of U.N. peacekeeping during the Cold War era. Moreover, the normal response by the United Nations was to retreat whenever consent was absent or overwhelming military

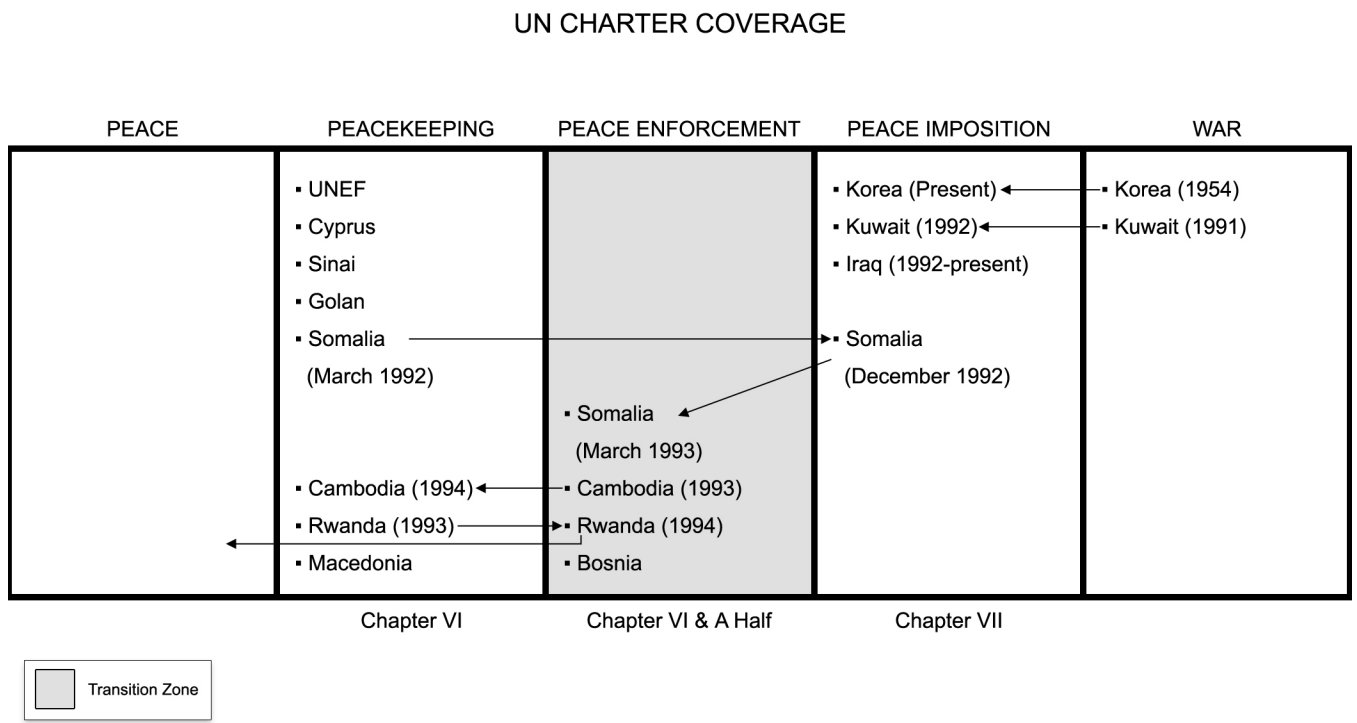


Figure 3. Spectrum of Recent United Nations Peace Operations

force was encountered (Wiseman, 1983). However, the withdrawal of U.N. peacekeeping forces under pressure has been long considered a very serious step, inviting the recurrence of conflict. Indeed, one of defining events of the U.N. peacekeeping tradition was the withdrawal of the United Nations Emergency Force (UNEF) from the Middle East in May of 1967, which was followed in June by the Six Day War. Whether withdrawal stems from a lack of will on the part of the U.N., participating countries, or public opinion, it removes the direct international sanction from the situation. Moreover, the threat to withdraw peacekeepers is often a powerful incentive for the parties to control their actions and forces, and thus maintain the peace.

The maintenance of stable conditions under which peace can flourish is the primary goal in peacekeeping operations. Successful peacekeeping operations can be sustained for years, or even decades (as they have in Cyprus, for example), because they represent a stable political situation, bloodshed is avoided, and the costs of observer forces are modest. Other examples of straightforward Chapter VI peacekeeping include the Sinai and Golan missions in the Middle East and deployments in Macedonia to monitor embargo compliance and border crossings.

By contrast, the use of military force to protect international peace and order, which belongs under the self-defense provisions of the U.N. Charter, is *international war.* The Korean Conflict and Operation Desert Storm were major regional conflicts fought under United Nations mandates to deny success to international aggressors. The purposes of these U.N.-sanctioned military operations extended beyond creating or maintaining a peaceful state of affairs in the regions where they were fought to include preservation of the principle that military aggression is wrong and must not become an accepted

way for states to settle their disputes. This view is an extension of the feeling that the international community has a responsibility to check naked aggression and should come to the aid of countries that are threatened or attacked.

Both the Korean Conflict and Kuwait invasion situations were converted from wars to Chapter VII peace imposition operations when the hostilities were concluded and U.N. forces and Chapter VII mandates were converted to the use of force to ensure that peace terms were obeyed by unwilling aggressors. Similarly, the U.N. mandates that limit Iraqi military activities in border areas in order to protect minority populations are peace imposition operations because force is maintained along the borders to impose the international community's will on Iraq, even within its own sovereign territory.

Hence, just short of international war lies the region where the international community becomes involved because the consequences of allowing a conflict to continue are unacceptable. Widespread starvation in Somalia led to conversion of a Chapter VI peacekeeping mandate (1992) into Chapter VII *peace imposition* operations in 1993 by a U.S.-dominated coalition of U.N. forces under the command of a Turkish general. Initial success based on the overwhelming U.S. force presence encouraged the U.N. to convert the Somalia mission to a peace enforcement one, with considerably less military force available. However, this mission failed and the peace operators were withdrawn, as they were in the earlier UNEF operations, leaving Somalia to resolve its own conflicts. In these cases of peace imposition, the parties are in active conflict and the international community uses force or the threat of force to halt the bloodshed.

Somewhat less dangerous situations, also under Chapter VII, call for *peace enforcement* operations designed to hold the parties to an agreement that not all of them endorse strongly to buy the time needed to raise the level of trust between the belligerents and to create an atmosphere in which they can participate in the peaceful resolution of their problems. These enforcement operations are likely to involve one party that does not believe that peace is the most favorable state of affairs. Sometimes, as in the many-sided conflicts in and around Bosnia-Herzegovina, peace enforcement deals with several parties that are unhappy with the existing arrangements by which the peace is maintained.

When the international community makes the decision to intervene in a situation where the parties do not have consensus on the terms of peace, whether in the form of peace imposition or peace enforcement, the military elements of the peace operators have been assigned an extremely difficult mission. On the one hand, the physical risk is great, which means that the peace forces must be armed well enough to protect themselves. In many cases, their effectiveness depends on the perception that they have the military capability to take the offensive and impose their will on those who violate the established peace arrangements. At the same time, creation of an atmosphere of trust is essential. The peace forces cannot be seen as taking sides, lest they become participants in the conflict. Withdrawal is not a realistic option because it is a sign of weakness and/or a signal that the international community has failed to create the conditions necessary for peace. Finally, while the onus for failed peacekeeping operations falls on the belligerents who break their own peace arrangements and force peacekeepers to withdraw, the public "blame" for failure

of peace imposition or peace enforcement operations falls on the peace operators and their governments.

In essence, the act of intervening makes the peace operators responsible for the outcome, despite the fact that they do not have full or direct control over the situation. For example, Somalia's apparent return to political and economic chaos is seen as a failure of the U.S. and the U.N., even though the political culture there is the root cause of the problem.

Key Relationships Between Types of Peace Operations

The distinction between traditional peacekeeping operations and the more active roles of peace enforcement and peace imposition were explored in detail at a workshop sponsored by the Center for Advanced Command Concepts and Technology (ACT) of the Institute for National Strategic Studies at the National Defense University in the summer of 1994 (ACT, 1994a). The insights derived from the workshop are summarized in Figure 4. Beyond the very different nature of the peace operators in Chapter VII as compared with Chapter VI operations, the nature of the command and control arrangements they imply is also striking.

- The military missions change from assuring stability through information and non-military deterrence to more active missions of military deterrence, defense or denial of territory or military functions (such as flights over certain regions), and coercion or compellance.
- The less stable the situation is, the greater the military component of the mission becomes, and vice-versa. The ability of a military force to act and be perceived as act-

UN MANDATE	LEVEL OF RISK TO PEACEKEEPER	NATURE OF OPERATIONS	UN RESPONSE TO VIOLATION	PUBLIC RESPONSIBILITY FOR FAILURE
UN Charter VI	Generally low, Between armed forces	Observation	Disengage / Withdraw	Belligerent
UN Charter VI	Moderate risk, More arms for armed forces and civilians	Peacekeeping	Disengage / Withdraw	Belligerent
G R E A T D I V I D E				
UN Charter VII	Generally high, One belligerent begins fighting	Peace enforcement	Military response	Peace operator
UN Charter VII	High, Belligerents return to fighting	Peace imposition	Military response	Peace operator

Figure 4. Nature of Peace Operations

ing impartially declines with the degree of force it must apply to achieve its mission.

- The measures of success for peacekeeping are stability and a transition to a long-term peace. Chapter VII operations must cross the "Great Divide" to Chapter VI peace operations before they can be seen as successful. Lengthy peace imposition or peace enforcement operations are failures by definition—bloodshed continues, stability does not really exist, and peace is a chimera.

The single most important insight from the ACT Workshop on Combined and Coalition Peace Operations was that *peace operations close to the Great Divide represent the greatest challenge* and account for the vast majority of troubled situations in the post-Cold War era.

In the words of the Workshop report,

> The popular phrase, "Chapter VI and a half operation," far from being a cute way to note the clever ambiguity of international diplomacy, was in fact a recipe for disaster in which members of the international community inserted themselves into a conflict situation with the mindset, forces, and posture of a peacemaker. That is, they were organized and prepared for (and had sold their various constituencies on) an operation "above the Great Divide," when the situation on the ground really belonged "below the Great Divide."

Indeed, the most difficult peace operations are those close to this dividing line. When the situation is closer to war (as often in the initial steps of peace imposition), classic military command arrangements and practices become more useful.

However, it is very difficult to transition to peacekeeping from active peace imposition or even from peace enforcement. Perhaps more importantly, peacekeeping operators who are faced with substantial active resistance may lack the force to defend themselves, the capacity to transition to more active military missions, or both. The tensions between the basic missions of peacekeeping and peace enforcement are a major challenge in designing C2 arrangements.

Peace operations, particularly those that involve the United Nations, tend to involve a variety of other characteristics:

- Political—rather than military—considerations predominate. This implies close working relationships between the military C2 system and the political elements of governments, international organizations, and non-national actors.
- NGOs and PVOs are important actors and must be dealt with on a continuous basis. These organizations are particularly important when humanitarian missions are an inherent part of the peace operation, which has usually been the case.
- Coalition operations require a considerable capacity to deal with different languages, traditions, doctrine, and levels of military competence. International peace forces are often composed of diverse military organizations. The process of managing these forces so that they are effective is a major challenge.

Chapter 3

Tensions Between Principles of War and Peace Operations

Neither command arrangements nor C2 systems (including commanders, staffs, and the equipment they use to perform C2 functions) actually carry out military missions. Rather, they perform the functions that organize, direct, and enable others to carry them out. But while they have no intrinsic value, their role is instrumental—they facilitate mission accomplishment. Effective command arrangements result in effective military operations. One way the quality (effectiveness) of military operations has traditionally been assessed has been in terms of the proper balancing of the "principles of war" that have been used as shorthand guidelines by generations of military leaders.

For a variety of reasons (ranging from the genuine complexity of military operations and the diversity of cultures within which the military art is practiced to simple egotism and the idiosyncracies of leading authors), no single list of principles of war has gained universal acceptance. An excellent concise summary of the candidates is included as an appendix to Hughes (1986). He compares lists from 350 B.C. (Sun Tzu) through 1976 (Gorshkov). A fairly standard list is found in the U.S. Army's basic field manual of 1945, which identifies seven principles:

- Objective: All military activities must be focused on accomplishing the assigned mission or objective, which

must, therefore, be clearly stated and understood by military leaders, staff, and personnel at all levels.

- Simplicity: Because of the "friction" and "fog" of war as well as the difficulty of coordinating actions across time and space, military plans should be as simple as possible and must be within the capability of the forces involved. When coalition forces are involved, this also includes transparency—making sure all elements of the force understand the plans fully.
- Unity of command: Divided command arrangements multiply the likelihood of confusion about the objective and the synchronization of forces, as well as inviting multiple agendas in military councils.
- Offensive: Passive military operations allow the adversary to select the time, place, and terms of combat, permitting him to maximize his force's potential. Gaining control of selected aspects of the situation or accomplishing missions are both more likely and more efficient when the initiative is seized and the terms of battle are dictated to the enemy.
- Concentration of superior force (sometimes termed *economy of force*): No military organization can expect to have adequate forces to overwhelm the enemy in all places at all times. Superior command and control uses a variety of techniques to focus military pressure at critical times and places on the battlefield or within the campaign. This requires the ability to understand terrain, to know or infer from doctrine the disposition and activity of enemy forces, and to maneuver effectively.
- Surprise: However achieved, surprise confers massive advantage. Whether it consists of attacking along an

unexpected axis, using weapons unknown to the enemy, adopting tactics that are unfamiliar, employing feints, deception operations, or psychological warfare, mission accomplishment is enhanced when surprise is achieved.

- Security: Commanders must also prevent their own forces from being surprised and take calculated risks, rather than gambling their forces. Hence, security is vital. It ranges from counterintelligence to protect battle plans and communications security to surveillance plans and flank security elements.

The principles of war are both interrelated (concentration of force depends on objective, simplicity, and unity of command) and somewhat contradictory. For example, concentration of force is always balanced against security; surprise almost always requires more complexity in the battle plan, etc.; however, effective C2 succeeds in balancing these different elements and making them mutually reinforcing. Similarly, effective command arrangements for peace operations must balance principles related to peace.

While they may involve the use of force, peace operations are not warfighting operations. As a consequence both of their different purposes and the different environments in which they take place, *peace operations often force commanders to violate principles of war*, which both increases the short-term military risk to the peace forces and makes their military commanders very uncomfortable. These conditions are exacerbated when the operations in question become coalition operations.

The first principle of war that must be abandoned by peace operators is *surprise*. Given that peace operations are intended to build trust and verify the continuation of an agreed set of physical conditions (a demilitarized zone, separation of forces,

etc.), the peace forces themselves must be visible and prevent creating uncertainty on the battlefield. Their physical security, as well as the stability of the peace arrangements, depends on the absence of surprises. As uncomfortable as the scene of U.S. Marines landing at night on a Somali beach under television lights made the professional military feel, it was a correct peace operation event—the possibility of an accidental encounter with some party to the conflict was minimized by advanced notice.

As soon as surprise is abandoned, *security* is compromised. More importantly, peace operators must accept much greater risk than warfighting troops. One of the interesting issues the U.S. has faced in peace operations is that the traditional peacekeeping forces, such as the Scandinavians, believe that U.S. forces are poorly suited for this type of duty because they are unwilling to accept enough risk. For example, when U.S. forces were first sent to Macedonia to join the U.N. peace observers there, the local U.N. commander noted that he could not trust U.S. troops to allow themselves to be captured by hostile parties, which might be an essential part of local success as peacekeepers. Field operations by U.S. forces were delayed while local training and situation familiarization were accomplished.

No principle of war is more violated in peace operations than the *offensive.* Peace operations are inherently reactive and passive. Even when one of the parties appears to be preparing to violate a peace agreement, the peace operators are usually constrained to warning the parties and threatening action if a violation occurs. In some cases where the perceived costs of renewed violence are greater than the risks assessed, peace forces might be moved into positions that make the violation more difficult, more visible, or more dangerous for the violator.

However, even these types of action will certainly be seen as provocative or destroying trust by some parties. As noted earlier, in simple peacekeeping operations, the U.N. has traditionally threatened withdrawal as its most aggressive proactive action.

Concentration of superior force can only be a last-resort tactic for peace operators and is often seen as provocative. Given that the peace forces do not want to become parties to the conflict, they must avoid creating threats to the belligerent parties. Moreover, assembly of major forces draws the attention of the parties and may cause them to concentrate their own forces, thereby creating a more dangerous situation. If anything, peace forces want to remain dispersed and ubiquitous in the areas they are responsible for monitoring.

Ideally, the principles of war that ought be preserved in peace operations are *unity of command*, *objective*, and *simplicity*; however, even these are very difficult to achieve in any coalition operation and have proven extremely difficult in coalition peace operations.

First, *unity of command* in a multinational force is virtually impossible. Neither the U.S. nor any other power is likely to allow their forces to join a multinational peace operation and cut their ties to the national command structure and political agenda. The experience in Somalia, where national groups maintained dual chains of command and multiple agendas predominated, is mirrored by the independence of French behavior in Rwanda and the need for separate command arrangements for Arab forces in the Desert Storm coalition. Most authors now call for a conscious effort to achieve *unity of purpose* in peace operations. Even this is a very real challenge and depends as much or more on diplomatic relationships as

on military ones. Moreover, even the military relationships must be more *consultative* than directive-driven.

The principle of the *objective* is obviously influenced heavily by the lack of unity of command. However, the importance of clearly articulated objectives is magnified in multinational forces. In the absence of a common doctrine or language, both the detailed review of specific military objectives and the exchange of liaison officers to ensure ongoing dialogue and communication become essential for success.

Simplicity also becomes a watchword in coalition operations, but is inherently much more difficult to achieve. Not only are the forces involved often very different in the level of sophistication of their weapons, training, and communications equipment; they are also often unfamiliar with one another. In many cases they have serious communications problems—linguistic and technical. Attempts at complex operations are therefore fraught with peril. Commanders must rely on a combination of tools, such as assigning geographic and functional responsibilities to forces that have a history of working together effectively and using mission assignments that do not ask too much of forces with limited professionalism. These assignments must also be made in ways that are politically sensitive, so that home governments are receptive and the elements of the peace force perceive that they have appropriate roles. Making *simple* plans under these trying circumstances requires sophisticated and complex decisionmaking and coordination.

All of this having been said, however, forces with missions such as peace imposition may well be conducting classic military operations. They will be relying on traditional principles of war except where that reliance makes it more difficult to achieve their overall mission. Such forces may well need to

concentrate superior forces, rely on surprise, take measures to ensure the security of their forces and operating bases, and seize the military initiative. However, the goals of their operations will typically be limited and their offensive operations designed to establish the credibility of their forces and induce the parties to make greater efforts to find political solutions. They are unlikely to include the destruction of major forces or the creation of dangerous situations in which military force will be continually required to ensure peace.

The realistic principles for coalition peace operations therefore might best be stated as:

- Unity of Purpose;
- Consensus Planning;
- Simplicity;
- Adaptive Control; and
- Transparency of Operations.

The first three of these principles are closely interrelated. *Unity of purpose* is created and maintained by adopting *consensus planning.* This permits the interaction necessary both to "hear" the range of national agendas relevant to the operation and to build confidence within the coalition. At the same time, *simplicity* is essential both to ensure that consensus can be built and to make it easy to maintain the clear objectives and procedures on which effective unity of purpose depends. The lack of mutual doctrine, linguistic barriers (both cultural and professional), and different levels of capability and training within a multinational force make complex plans into recipes for defeat. Where sophisticated military operations are required, they need to be stated as simple functional elements of the plan and left to specific national forces with the requisite capabilities

(U.S., NATO, or other modern military establishments). In many cases these burdens will fall on U.S. forces.

Simplicity is the only principle that survives from the original list. In the context of coalition peace operations, however, its connotation shifts to keeping the set of military plans simple and appropriate for the forces assigned and ensuring that directives are clear and perceived correctly by all the elements of the peacekeeping force, as well as the other agencies and organizations who are supporting the peace effort or whose activities will be impacted by them. In this sense, "simplicity" requires enormous effort and is also related to transparency.

The other two principles are derived primarily from the nature of peace operations and the environments in which they are undertaken. The need for *adaptive control* is driven by the essentially passive and reactive nature of peace operations. It refers to understanding the situation well enough to specify the range of possible futures that can evolve, collecting and assimilating the information necessary to recognize which of those futures is emerging, and taking timely action to influence the course of events such that the mission or objective is achieved. Given that peace operations must be reactive, the only intelligent level of control to seek is adaptive, and the preparation of contingency plans to control major developments allows a maximum of "pre-real-time" planning. This also helps to keep plans simple and to allow consensus planning rather than reactive, ad hoc planning in a time-stressed environment.

Transparency of operations is primarily desirable so that the parties to the conflict are not surprised by peace operator actions and are given minimal opportunity to misunderstand them. For example, regular patrolling designed to minimize the opportunity for mischief is preferable to irregular patrolling designed

to catch violators red-handed. Announced convoys of supplies and prearranged evacuations allow the peace operators to accomplish important objectives without creating uncertainty about their cargoes, purposes, or movements. Transparent operations are also easier to keep simple and generate consensus about. Hence, they are most likely to preserve *unity of purpose* in the coalition.

Chapter 4

Military Capabilities Required for Success

Command and control and principles of war are not substitutes for having the full suite of military capabilities required for success. These include the basic military functions:

- Force structure appropriate to the mission,
- Personnel with appropriate experience and training,
- Intelligence about the situation and potential adversaries,
- Capacity for planning and coordination,
- Logistics support,
- Communications systems, and
- Effective capability for civil-military relationships.

These, in turn, must be applied in the heavily political context predominant in peace operations, as well as in concert with associated humanitarian efforts.

CHAPTER 5

RECENT U.S. EXPERIENCE WITH COMMAND ARRANGEMENTS

Ideal command arrangements or C2 have not been achieved in recent U.S. experience, particularly when coalition forces have been used for peace operations. Even when the U.S. has been organizing its own forces, either as independent military organizations or as part of a coalition, U.S. joint doctrine has not always been followed. For a variety of reasons, largely related to the political situations surrounding the peace operations, C2 and other command arrangements have tended to evolve over time and be shaped by factors far removed from the key goals of organizing, deploying, or employing an effective force.

AN EXAMPLE COALITION PEACE OPERATION: SOMALIA

Real-world peace operations are complex. Their organizational structures and command relationships evolve over time as a function of the missions assigned, the situation on the ground (both as the mission is first undertaken and as it evolves over time, the national governments involved), the forces each contributes, and the institutions that participate, such as the United Nations. Figure 5 shows, for example, the organizational structure of United Nations Forces in Somalia (UNISOM) in the summer of 1993. Eighteen different

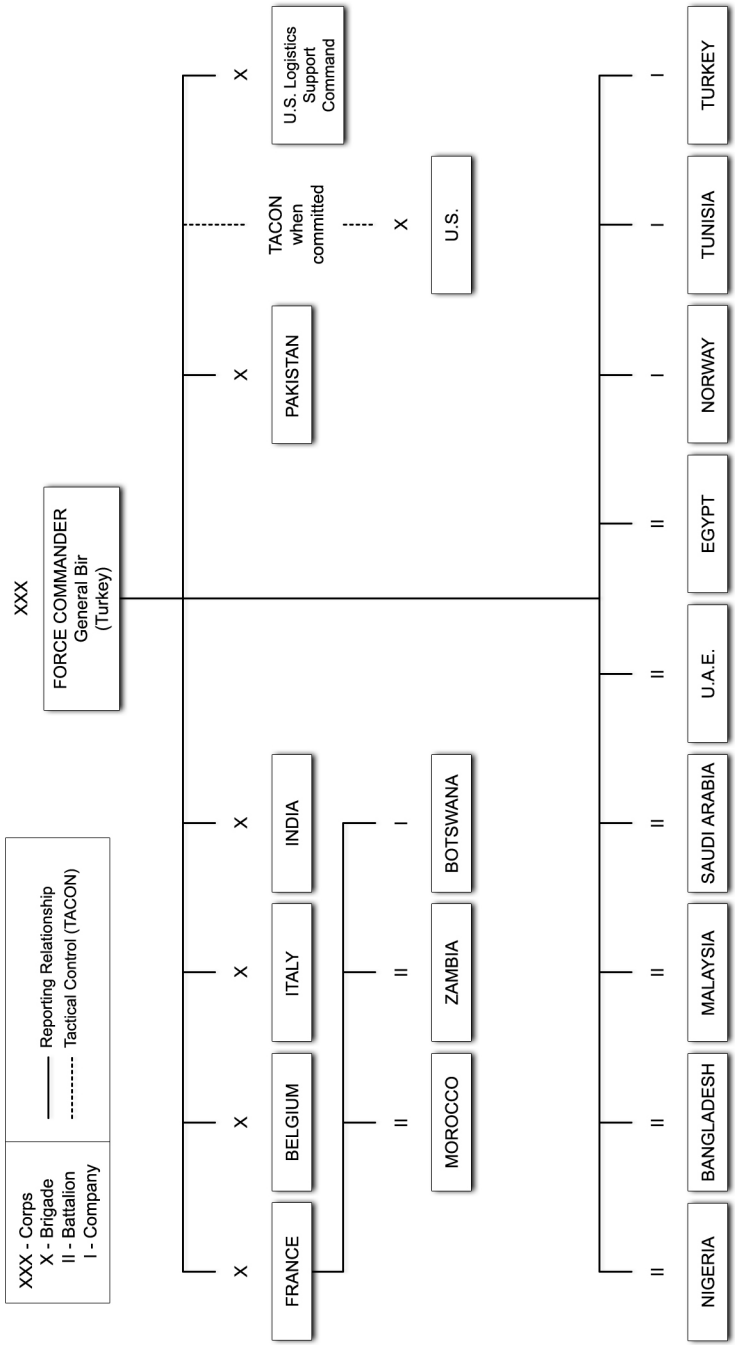


Figure 5. UNISOM Command Relationships

nations contributed forces. Fourteen of them reported directly to the Force Commander, General Bir from Turkey. These ranged in size from companies to brigades and represented myriad levels of military competencies and languages. All of the national forces except those of the U.S. were nominally under combatant command (COCOM) to UNISOM—they were UNISOM's forces to command and UNISOM was responsible for their logistical support.

In fact, these forces operated under a variety of employment restrictions and maintained direct contact with their national governments. Missions were negotiated with them, not assigned to them. Three countries (Morocco, Zimbabwe, and Botswana), sent their forces under COCOM to the French brigade commander. However, these forces also retained direct ties to their home governments and participated actively in defining their own military missions and roles. Thus, the traditional military command prerogatives implicit in COCOM could not be fully exercised. Logistics support was often dependent on U.S. forces, though the civilian U.N. procurement system was also active on some logistics matters.

In fact, both the U.N. mission and the role of U.S. forces in that mission developed over time and across changing circumstances. ACT was fortunate enough to host a workshop that reviewed the evolution of the coalition and its mission with the senior U.S. officer who participated (ACT, 1994b). These events are also reviewed from the perspective of the U.S. central command in a recent account of *Operation Restore Hope* (Freeman et al., 1993) by the U.S. Deputy CENTCOM.

U.S. forces were nominally under the tactical control (TACON) of UNISOM, but only when committed. As a practical matter, they were controlled by MG Montgomery, U.S.

Army, who was both the Deputy UNISOM commander and the commander of all U.S. forces in Somalia (USFORSOM). The structure reporting to him is shown in Figure 6. The main fighting elements were organized into a Quick Response Force (QRF) that was available for TACON to UNISOM when MG Montgomery felt it was needed, a decision on which he consulted the U.S. CINC responsible for the region, CINCCENT. The U.S. Logistic Support Command was continuously under MG Montgomery's OPCON in his role as Deputy UNISOM commander. (As noted earlier, OPCON provides for longer-term control over the forces than TACON, while both relieve the commander from providing logistics support to the force.) This was the logical relationship for the Logistics Support Command because UNISOM (a) had very limited independent ability to support forces under his command, and (b) relied on the U.S. Logistic Support Command to support most of the national forces for which UNISOM had nominal COCOM. Other U.S. forces in and near Somalia reported to USFORSOM. Special Forces are, by U.S. doctrine, provided by SOCOM as a supporting CINC. Both U.S. doctrine and practice prevent the assignment of military intelligence organizations to U.N. or other non-U.S. commands, so the Intelligence Support Element (ISE) assigned in Somalia reported to USFORSOM. Smaller U.S. military elements not assigned to the Quick Reaction Force also stayed within the U.S. C2 network and were subject to U.S. command arrangements.

U.N. command arrangements were also in accordance with standard U.N. structures and practices. Figure 7 shows the major features of that U.N. system. The design was functional and heavily administrative. The "legislation" of the Security Council provided the mandate for action, which was the responsibility of the Secretary General. His Undersecretary for

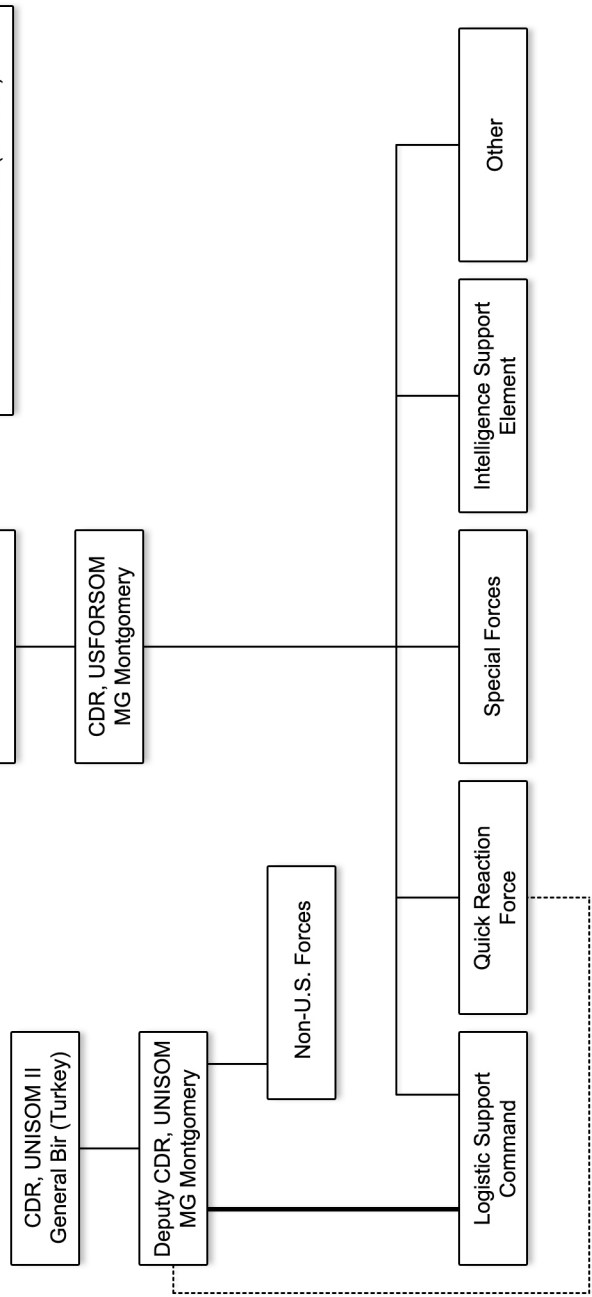


Figure 6. UNISOM II and USFORSOM

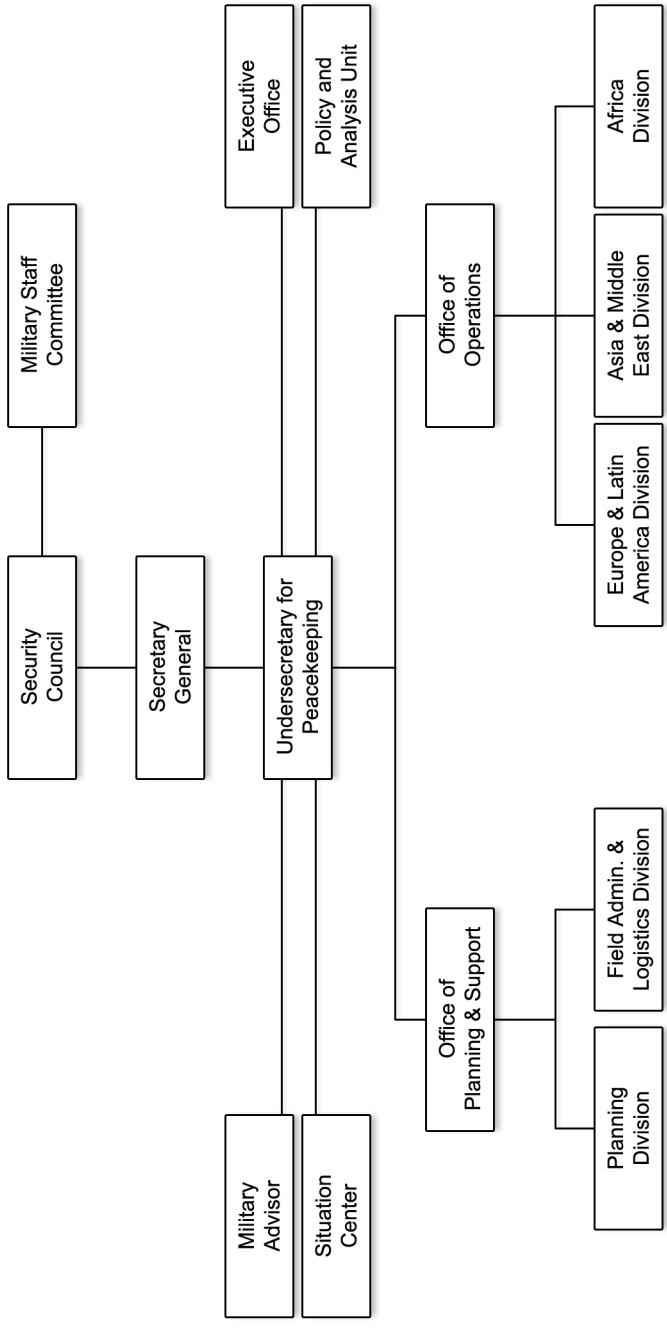


Figure 7. U.N. Department of Peacekeeping Operations

Peacekeeping was supported by military advisors, a situation center, a policy and analysis unit, and an executive (administrative) office. None of these were in the direct military C2 system or network or had any formal command relationship with military forces. The geographically organized Office of Operations coordinated regional activity, but did not play any military command role. Support came from two separate divisions—one for Planning and one for Field Administration and Logistics. U.N. logistics support for military peace operations has been continually and heavily criticized as too slow, too cumbersome, and too expensive to support military operations. The major role of the U.S. Logistic Support Command in Somalia was partly an effort to get around the costly, time-consuming, and often ineffective U.N. procurement processes.

Direction and guidance for the U.N. force commanders in the field (UNISOM in this case) came from the Secretary General, the Undersecretary, and the U.N. resolutions themselves. In fact, MG Montgomery and analysts of the Somalia experience agreed that the UNISOM commander and his headquarters were guided heavily by the text of the U.N. resolutions themselves. This presented two different but related problems:

1. The military commanders in the theater and their staffs were required to work at all three levels of command (strategic, operational, and tactical) while lacking the command experience and staff support needed, particularly at the strategic level. An in-theater headquarters was translating strategic guidance into tactical instructions.
2. While the U.N. resolutions indicate the responsibilities (missions and objectives) of U.N. forces and identify some limits on them, they do not automatically provide either the political authority or the military capacity (forces, logistics, information needed, etc.) to accomplish

those missions or the authority to acquire the necessary assets and support needed to achieve them.

Not surprisingly, the UNISOM command arrangements were not perceived as effective, and the U.N. had difficulty in conducting successful peace operations in Somalia.

Each of the individual elements of the command arrangements in Somalia made perfect sense when looked at in isolation and from the perspective of both the national governments and the United Nations. However, taken together, they made force management cumbersome and ultimately ineffective. The UNISOM case was an important and instructive situation, particularly for the dangerous "Chapter VI and-a-half operations."

- All three levels of command—strategic, operational, and tactical—had to be dealt with in the UNISOM headquarters. Normally the strategic is accomplished by a national military joint or general staff, the operational by the theater commanders, and the tactical by the commanders of the force elements. Hence, enormous pressure for essential and time-critical work was placed upon the UNISOM headquarters.
- The number of immediate subordinate commanders was far beyond the span of control considered desirable in any military or organizational structure.
- The effects of this multiplicity of lines of command were compounded by the complexity of the authority relationships involved. National governments had to be consulted, either directly or indirectly, on almost all decisions affecting the roles, missions, or actions of forces nominally under U.N. command.

- The sheer size of the headquarters communications and control components became amazing. Any national loop involved translators, dedicated communications systems, and liaison officers, all of whom were required to ensure that tasking and reporting were clearly understood. These people, in turn, required logistic support, space, communications, and information management resources.
- The absence of standards and common doctrine had broad, pernicious effects. Lack of technical standards forced proliferation of overlapping and redundant channels of communication. Lack of common doctrine made it inordinately complex to develop, coordinate, communicate, adjust, or execute plans, even for simple operations.
- The forces included in UNISOM ranged from fully professional front-line units to one military organization that arrived with no uniforms, boots, or weapons. UNISOM had to manage logistics support for all except the U.S. forces and, to a lesser extent, the French. These demands multiplied the workload in—and the pressure on—the headquarters.
- The UNISOM commander relied on traditional methods for assigning roles and missions to forces. Less-capable forces were given geographically and functionally limited tasks (e.g., guarding the airport). Forces were assigned to areas where they would not have to work with other U.N. forces with whom national problems might emerge. U.S. forces were reassigned the role of Quick Reaction Force because of their superior mobility and firepower, rapid planning ability, and quick response capacity. Adopting these time-tested methods allowed UNISOM to function, but often slowly and in ways that were less than perfectly coordinated.

Warfighting Coalition Structures

Peacekeeping operations are not all that unusual in their complexity. Typical warfighting command arrangements for coalitions also evolve on the basis of international precedent and national practices and priorities; they change over time as the situation changes. Figure 8 shows the U.S. ideal "combined force structure with national integrity." At its top is the multinational alliance or authority from which legitimacy and guidance are derived. The U.S. Government (USG) does not accept this multinational authority except in the form of coordination unless the commander is a U.S. officer, thus preserving sovereign control over U.S. actions and forces.

The international authority (U.N., NATO, etc.) provides strategic direction to the combined command. This may be, but does not have to be, headed by a U.S. officer. The U.S. has a Unified Command (one of our CINCs) who has COCOM of all U.S. forces assigned to the combined command. The terms of the combined command's relationship to the U.S. Unified Command and his subordinates will vary with the mission, U.S. role, and the nationality of the combined commander.

Operation Desert Storm provides a practical example of how this theory was implemented in a real case. The Desert Storm coalition operated under the terms of a U.N. resolution, but was a case of U.N. sanction and enforcement wherein individual member nations were free to contribute and define their own roles. The three major Western force contributors (the U.S., the U.K., and France) each provided a theater commander, as did the Saudi Arabians on behalf of the Arabic and Islamic nations (see Figure 9). While the U.S. CINCCENT was considered the first among these equals, his leadership did not take the form of "command," but rather

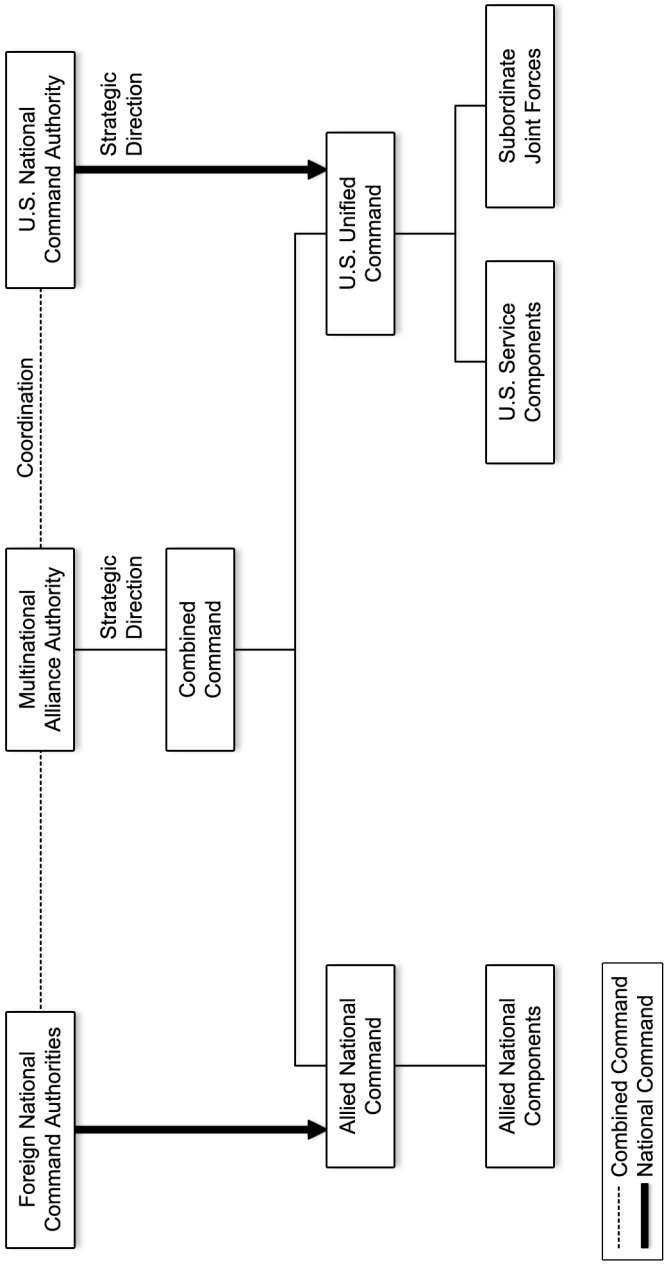


Figure 8. Combined Structure with National Integrity

of vigorous personal leadership and coordination reinforced by the size of U.S. forces and the superior C2 systems they brought to the theater. Indeed, a special coordinating center, the C3IC (Combined Coalition Coordination and Intelligence Center), had to be created to ensure integration and coordination among these four major organizations. Beyond this, McCausland (1994) reports that CENTCOM created 109 three- and four-man coordination teams to focus on particular issues. This practice mirrors one of the major tools employed by Eisenhower to manage the Operation Overlord coalition and the subsequent fighting in western Europe during WWII. Each of the four theater force commanders had at least nominal COCOM of the national forces reporting to him. As Figure 10 indicates, the Joint Forces Command was in turn made up of elements from the armed forces of Saudi Arabia, Egypt, Syria, and other (largely Arabic or Islamic) nations. National linkages and consultations with national governments were routine throughout the structure, often as an explicit part of the agreement to participate.

U.S. commanders had to remain aware of the need to maintain the coalition throughout the campaign. Indeed, several important decisions were influenced by the relative looseness of the bonds of the coalition. For example, U.S. assistance to Israel against the Scud threat was seen as necessary to keep Israel out of the conflict and thereby preserve Arab participation. Similarly, the decision to end the war without attacking toward Baghdad was heavily influenced both by the limits of the formal U.N. mandate for the Gulf War and by the need to maintain the coalition.

The four-part substructure both made cultural and national relationships easier to manage and also assisted the span-of-control issue, although it also complicated the decision pro-

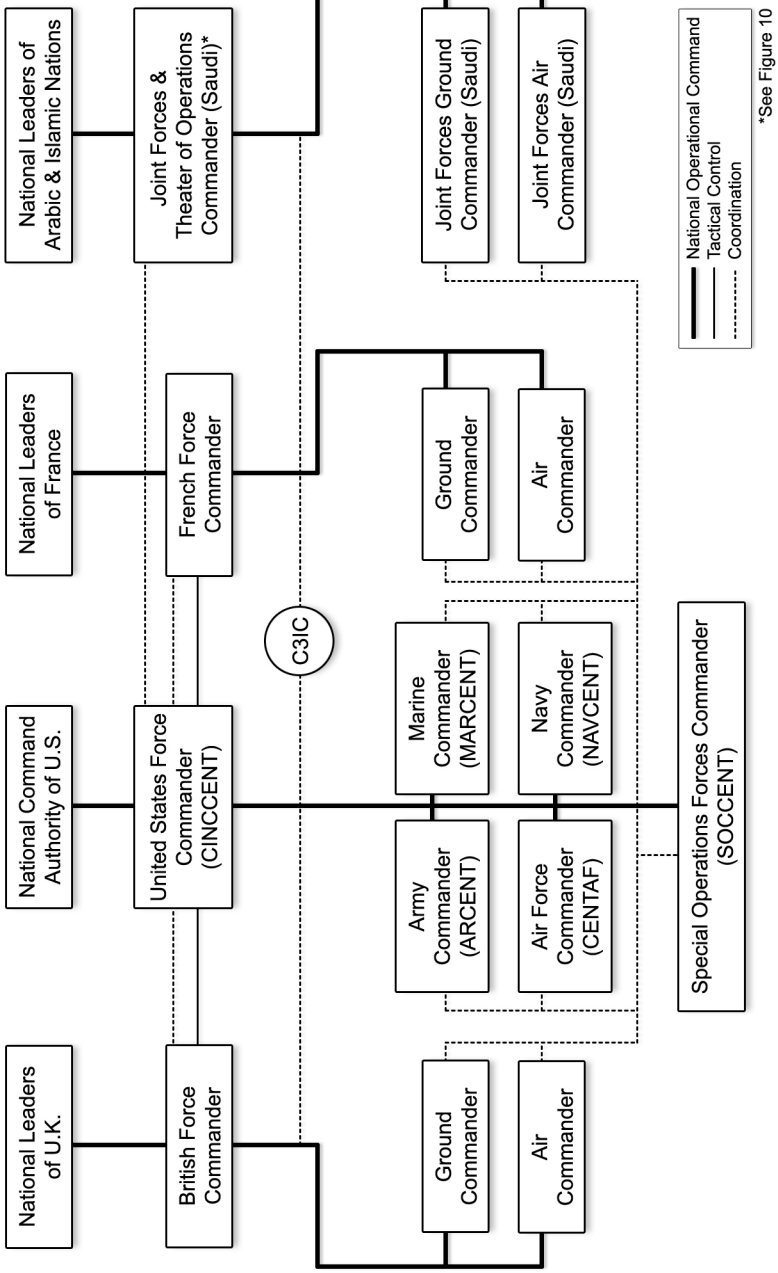


Figure 9. Coalition Command Relationships for Operation Desert Storm

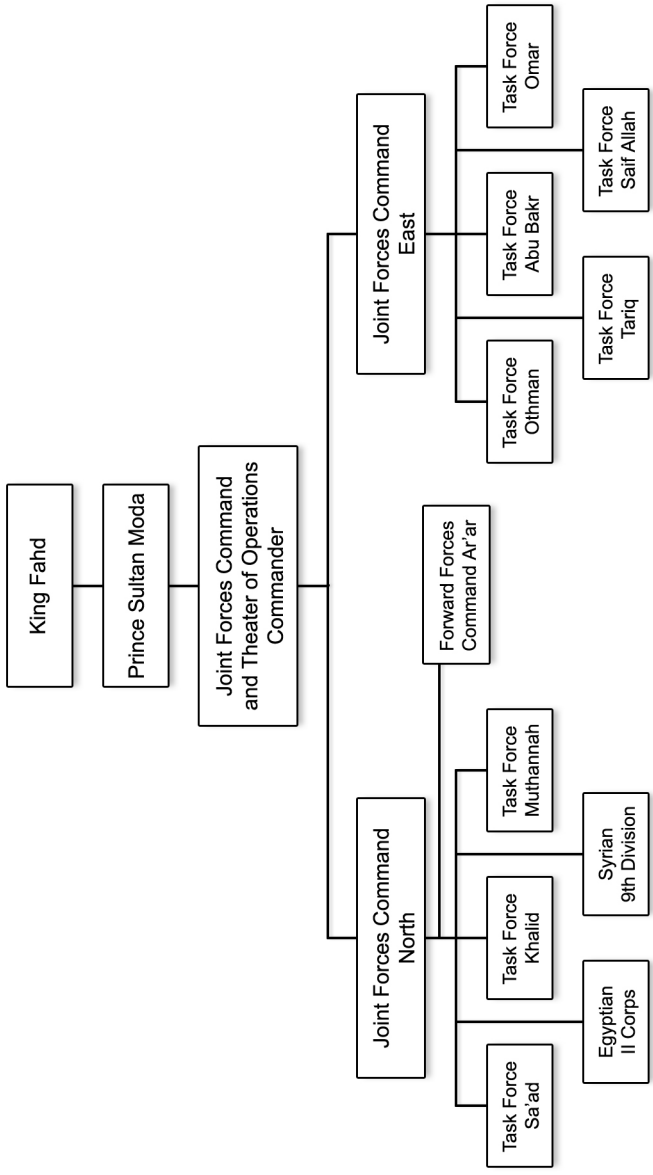


Figure 10. Joint Forces Command Relationships

cess. The illustrations are somewhat misleading in that they do not show the myriad countries that made limited contributions of medical personnel, single vessels, or goods. Each of these countries coordinated their activities with one or more of the major and subordinate military organizations, with close attention both to national agendas and to international political considerations.

The Desert Storm coalition also employed the time-tested procedure of assigning geographic and functional missions consistent with force capabilities and political objectives. For example, air elements with inferior night flying capability were assigned daylight missions. Similarly, the relatively light French ground forces were assigned an area of operations where they were unlikely to encounter heavy armor. When the British Tornado aircraft experienced disproportionate losses because of their high-risk mission (cratering Iraqi runways), both the mission and the tactics used to accomplish it became serious issues for the coalition. At the same time, great care was given to ensure that the Arab forces, particularly those of the Saudis and Kuwaitis, were given meaningful roles in both ground and air fighting. In some cases this meant assigning other, highly capable forces to support them. For example, Saudi and Kuwaiti fighter aircraft sometimes formed the first line air defense for the coalition forces, but never the last line. Similarly, the sectors assigned to Arab forces on the ground were selected so that heavier coalition forces could assist them if the fighting became heavy.

Overall, the coalition command arrangements for Desert Storm were very consistent with those employed by the Western allies in World Wars I and II, or by the U.N. command during the Korean Conflict. Key tools, besides physical separation and assignment of roles and missions consistent with the

capabilities of each force, included exchange of liaison officers, continuous coordination among senior political and military leaders, use of functionally specific coordination teams, and development of a repertoire of adaptive contingency plans so that the coalition minimized the need for rapid decisionmaking on novel problems. Key problems included a lack of linguistic (both professional and vernacular) and doctrinal consistency, as well as maintenance of sovereign control over all national military forces.

Then There Are The Messy Cases: The U.N. in Yugoslavia

While the U.S. experience in coalition and peace operations is complex, it pales in the face of situations such as the U.N. operations in the Former Republic of Yugoslavia (Figure 11). U.N. authority comes from resolutions in the Security Council but is exercised through the U.N. Secretary General. He has a Special Representative who acts as the direct link to the peace operators, but is also an active part of the process of attempts to limit the conflict and negotiate genuine peace arrangements among the parties. That representative can play a direct military role, at times calling for or blocking specific military actions such as NATO airstrikes because of their impact on the political situation.

None of the senior U.N. military commanders in this force were U.S. officers, nor were they drawn from a single country. The United Nations Protection Force (UNPROFOR) included elements from twenty-three different countries (including Russia), many of which had units on the ground. Three major subordinate commands were organized: one in Croatia, one in Bosnia-Herzegovina, and one in Macedonia. U.S. force elements were included in the UNPROFOR Macedonia, which

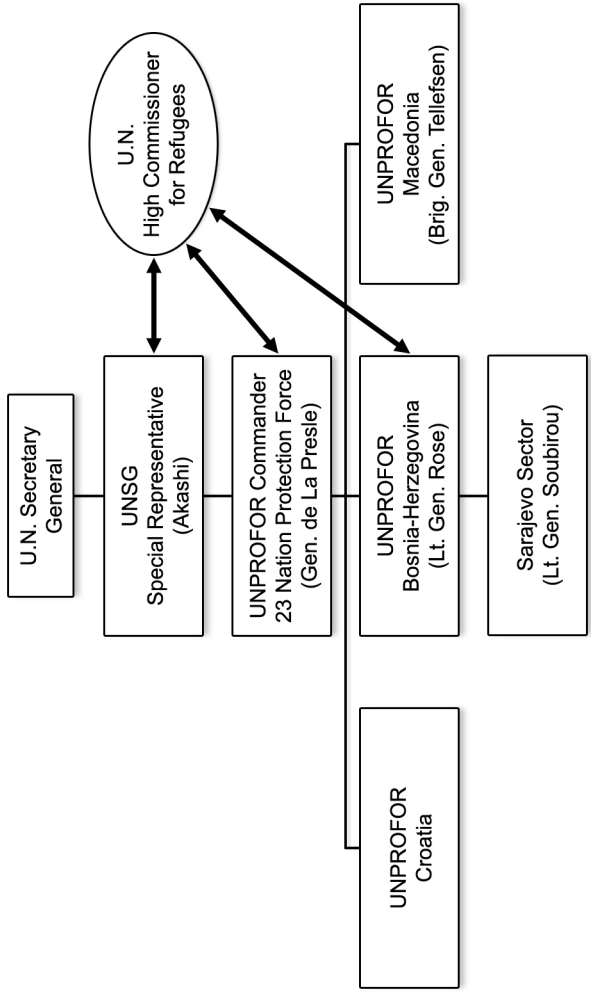


Figure 11. Current Former Republic of Yugoslavia U.N. C2

was a peacekeeping organization monitoring military movements and shipments of supplies across the border of the Macedonian province of the former Yugoslavia. UNPROFOR Croatia was somewhat closer to the "Great Divide" than UNPROFOR Macedonia; it largely monitored peace arrangements that had been in place for some time. Bosnia-Herzegovina, however, was constantly in turmoil, with the Sarajevo sector sometimes a relatively quiet place for peacekeeping and sometimes a bloody mess where peace enforcement was essential. Bosnia-Herzegovina was the general area where peace imposition may have proven necessary, although the participants (incluing the U.S.) would not have been willing to provide the large forces necessary. Command arrangements with national forces depend on sovereignty issues, so the U.N. commanders had COCOM of few of their forces' elements.

At least two other outside organizations were also very important in the former Yugoslav area. On the one hand, the United Nations High Commissioner for Refugees (UNHCR) conducted large-scale humanitarian efforts throughout the region. Those on UNHCR missions required protection and escorts, as well as consideration whenever military activities were contemplated. Actions by UNPROFOR that complicated UNHCR operations were considered somewhat counter-productive. At the same time, NATO was deeply involved in the area, providing "teeth" in the form of (1) a naval embargo designed to reduce arms availability and to punish those parties seen as violating U.N. resolutions or peace arrangements, as well as (2) NATO air power to strike symbolic targets when cease-fire violations occured or U.N. personnel were threatened. The U.S. provided the communications backbone for these U.N. forces, which also connected through Lt. Gen.

Rose, who was "double-hatted" as a UNPROFOR and NATO officer. The U.S. and the other NATO partners also provided the bulk of the logistics support to UNPROFOR.

If one of these coalition peace forces is examined in greater detail, the cost of all this complexity is thrown into relief. Figure 12 shows the command relationships active in Operation Deny Flight, which was only one of UNPROFOR's working missions. Operation Deny Flight was the name used to cover U.S. and NATO air support to the UNPROFOR Area of Responsibility (AOR). In addition to the overall complexity inherent to any air operation (for example, having Search and Rescue available on call), several other points should be noted.

- UNHCR's humanitarian operations (the Bosnia-Herzegovina Airdrop and Sarajevo Airlift) were included in the tasking, including the information necessary to provide protection for the aircraft involved. However, UNHCR requests for support were funneled through UNPROFOR as well as coordinated with military air control centers.
- The U.S. and NATO command structures were closely connected, with CINCEUR and SACEUR staffs both involved at the theater level.
- Local command was organized into Task Forces, which actually commanded and controlled air operations in the AOR; and
- Theater reconnaissance was conducted by U.S. assets, which provided their information to the relevant air control centers.

Figure 12 shows only military command arrangements and makes no effort to display the myriad political and functional relationships that surrounded and constrained the military sys-

tem. Given this, the true complexity of peace operations becomes even clearer.

HUMANITARIAN OPERATIONS IN RWANDA

U.S. involvement in Rwanda illustrated: (1) the way peace operations evolve, rather than occurring as the result of deliberate planning and design, (2) the intimate relationship between humanitarian and peace issues, and (3) a very different set of command arrangements than those previously depicted. The U.N. became involved in Rwandan peacekeeping during 1993 as part of the settlement of a civil (tribal) war. A few hundred peacekeepers (about 700 in June of 1994) were deployed under the United Nations Assistance Mission in Rwanda (UNAMIR), commanding what was perceived to be a minimal-risk situation. A number of NGOs and PVOs were involved in humanitarian operations to help care for the victims of the civil war. Schroeder (1994) provides a description of this operation and lessons learned from the perspective of USCINCEUR.

When the leadership of the unity government was killed by a surface-to-air missile, tribal violence erupted overnight, resulting in massacres across the land, as well as creating hundreds of thousands of refugees. The French, acting as the traditional colonial power and with motives that many found questionable (their support for the ousted government was widely known), sent in troops and created a safe area for many refugees in one sector of Rwanda. Huge numbers of other refugees fled across international borders, overwhelming the humanitarian efforts to care for them and creating vast camps of sick, starving, and dehydrated individuals. The two key issues became closely linked: (1) unless the bloodshed could be stopped and people's confidence restored, they would not leave

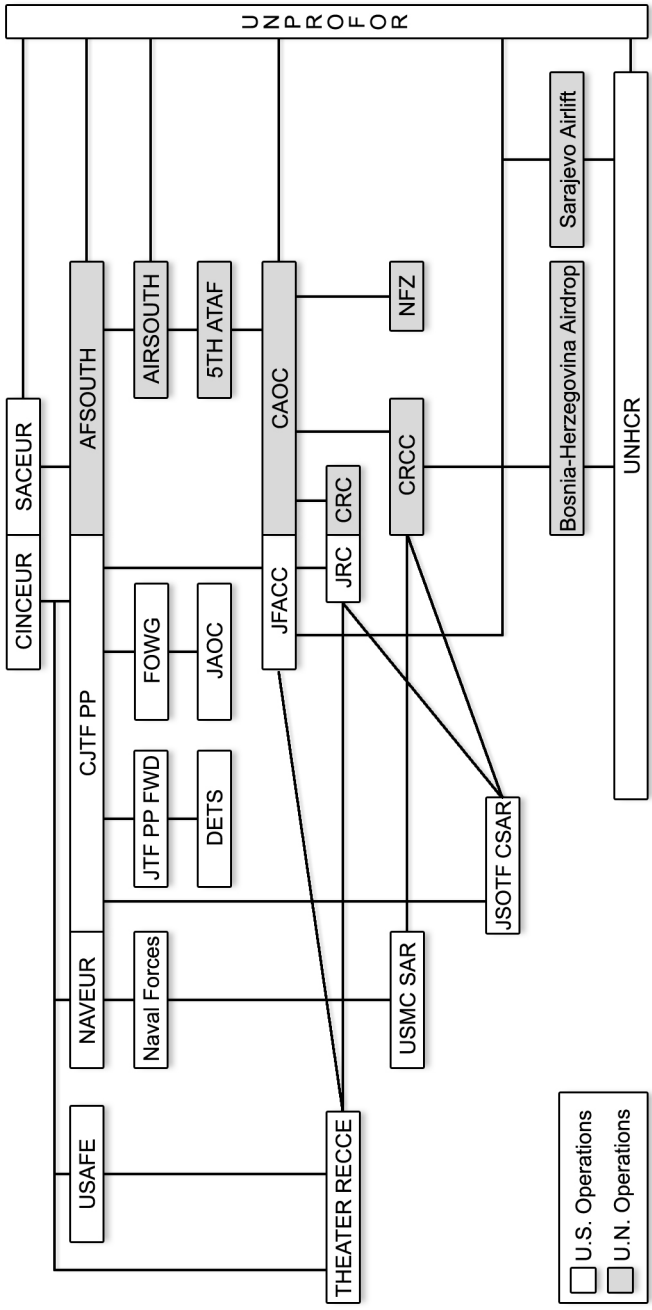


Figure 12. Operation Deny Flight Command Relationships

the camps to go home, but (2) those still in the camps required immediate relief, which encouraged them to stay in the camps. Many found themselves choosing between the threats of death from disease and tribal enemies at home.

U.S. involvement, in the form of Operation Support Hope (Figure 13), came relatively late after the initial crisis and exodus were largely complete, when inadequate food, water, and sanitation were beginning to make disease a major factor in the refugee camps. From the U.S. perspective, C2 arrangements were relatively simple; USCINCEUR was the responsible Unified Commander. He created JTF Support Hope with a three-star commander (the Deputy CINCEUR) who had the rank and experience necessary to deal with the national leaders and international organizations active in the region. U.S. forces were largely support elements and were organized geographically with a flag-rank JTF-Forward commander to integrate their efforts. TRANSCOM, responsible for long haul airlift, acted as a key supporting CINC.

The U.S. C2 arrangements were generally reported to have worked well, though the commanders and their staffs "met on the ramp" rather than being a team with experience at solving problems together. This slowed activities in the first several days. The U.S. presence was largely confined to support troops, with just enough combat elements to ensure physical security. U.S. combat elements did not go into Rwanda except as limited security escorts for engineers, airport specialists, and other technical personnel.

Command arrangements with the broader set of actors were much more chaotic. UNAMIR elements sought to create and maintain peaceful areas, but lacked the mandate or force to intervene and were themselves sometimes targets of ram-

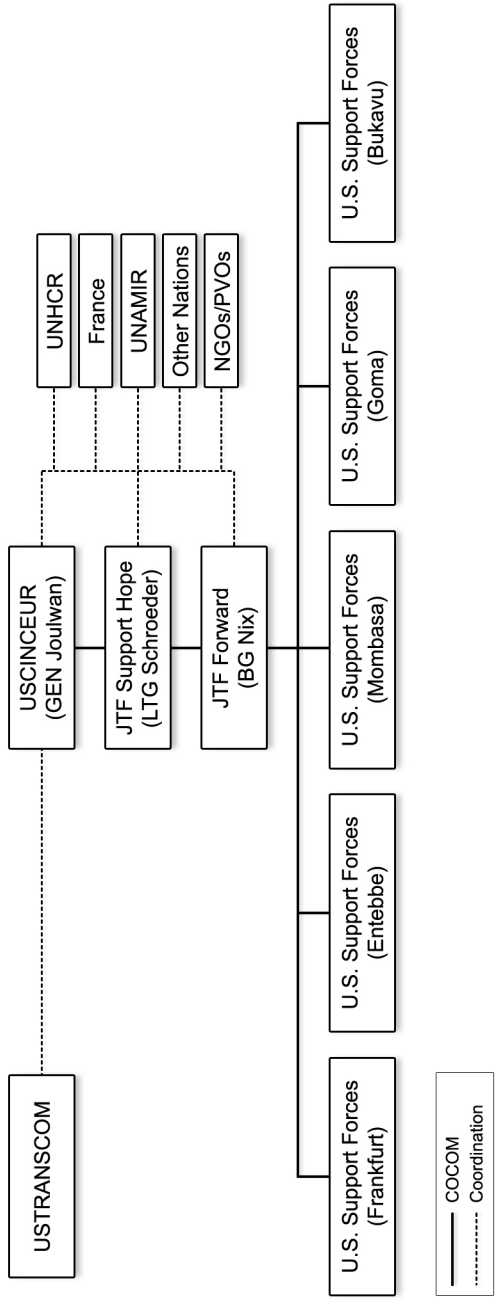


Figure 13. Operation Support Hope Command Relationships (Rwanda)

pages. The NGOs and PVOs sought to protect the population, particularly at orphanages and hospitals, and to provide relief for the refugees both on the road and in the camps. They sought security and logistic support from the peace operators. The French followed their national agenda, both when inserting their troops and later in withdrawing them, despite the U.N.'s and others' pleas to leave them in place. Other nations tended to work directly with the U.N. but often requested U.S. logistic support.

The UNHCR sought to coordinate efforts and ensure logistic support, but its procurement bureaucracy made this difficult. At one point, for example, the U.S. set up a number of water generation units, only to discover that the U.N. had not made provision for trucks to haul the bottled water from them to the refugees. The initial U.N. public affairs position was that the U.S. should have brought in trucks as well as water generation plants. Like other identified problems and bottlenecks, this one was resolved, but people suffered in the mean time.

Lessons from Recent U.S. Experience with Command Arrangements

While reviewing the empirical experience is somewhat discouraging, some very clear lessons can be gleaned by thoughtful comparison of these recent U.S. experiences. If performance is to improve, both positive and negative aspects of the experience must be understood. Moreover, the analysis should not stop with description but should explore the implications of the observed patterns.

One obvious pattern is that the need for the broadest possible coalition participation and issues of sovereignty combine to create cumbersome networks of military command, far

exceeding the ideal span of control for effective management. The unwieldy structures of the 23-nation UNPROFOR and the 18-nation UNISOM are prime examples. Strategies for combating this problem include clustering smaller national force elements under senior commanders from "natural leader" countries, as was done with the Saudis in Desert Storm and the French in UNISOM. At the same time, the lack of common language and doctrine in these multinational coalitions could be addressed by establishing:

- international standards for communications, including language qualifications;
- a core multinational dictionary and basic doctrine, to be widely published; and
- training programs and exercises involving potential coalition forces.

The U.S. would greatly benefit from these developments and should, based on its experience in peace operations, encourage their development and adoption by international organizations like the U.N. and regional organizations such as the Organization of American States (OAS) and the Organization for African Unity (OAU).

Second, decisionmaking through the types of cumbersome command arrangements that tend to emerge is also inherently slow. Elements of the peace force are constrained by the mandates provided by the U.N. or other authority for the operation by considerations affecting the safety of their forces and by national political agendas. Moreover, they are almost never fully COCOM to the peace operation commander, which means that, whenever unanticipated situations emerge, considerable discussion will be required before effective action is

possible. Consensus-creation, which is required for unified action, takes time.

- The mechanisms to communicate quickly when novel situations arise must therefore be put in place at the outset of the operation. These may take the form of local area networks for exchange of information, periodic meetings of the parties, provisions to assemble leaders rapidly, or teleconferencing.
- Equally important, planning must be forward-looking and identify contingencies, "trigger" events or situations, and appropriate reactions before the fact.

Failure to offset the inherently slow decisionmaking of consensus systems will surrender the initiative to those who oppose peace.

The time-tested techniques of geographic separation, small teams created to coordinate or troubleshoot specific functions, and assignment of functions that reflect the capabilities (political, military, and logistic) of the elements of the peace operations force remain valuable. While some improvement in the quality of forces might be generated by programs of standardization, training, and multinational exercises, overall levels of competence and equipment will continue to vary widely. Moreover, national political agendas will impact mission assignments. Organizing for success will require consideration of all these issues. Some patterns of success appear in this area.

- Rapid response activities and areas where combat is likely are best assigned to the most capable military forces, normally those of the U.S. and its NATO allies. Separate organizations, such as the QRF in Somalia and the NATO air forces in UNPROFOR, can maintain warfighting C2 and rapid-response capability, limiting

their command arrangements with the more cumbersome overall peace operation to deciding the conditions under which they should act and limitations on their activities.

- Very few peace operations forces have adequate logistics capacity to sustain themselves independently. The few that do (and the U.S. has by far the greatest such capacity) should be tasked and organized to provide logistics support elements to the overall force. This process would be facilitated if (a) international standards were adopted for basic supply items and (b) the existing U.N. procurement system could be set aside during peace operations and replaced by more responsive, field-oriented systems.

Regardless of other command arrangements, the classic technique of exchanging liaison officers has also proven valuable. In Desert Storm, this extended in some cases to having more capable military forces provide trainers (often U.S. Special Forces) who stayed on in an advisory capacity during hostilities. Similarly, liaison officers were often the key to effective working relationships in Somalia.

Insights from the Available Evidence

1. Peace operations into the twenty-first century will remain dominantly "polyglot," in that multiple nations will participate; the military elements of peace forces will vary widely in competence, doctrine, organization, and level of modernization; and a wide range of actors will participate (national governments, international organizations, NGOs, PVOs, local and regional officials, traditional authorities, and ethnic/religious groups).

2. Military command and control will remain part, but only a part, of the larger set of command arrangements necessary to conduct peace operations because peace operations will remain at least as much political as they are military activities. However, military C2 for peace operations cannot be planned or judged outside the larger context of command arrangements.
3. The command arrangements found in past coalition and peace operations were all cumbersome and highly decentralized at the strategic and operational level, but heavily centralized in terms of tactical C2 relationships. The senior commander in typical coalition peace operations:
   - did not have genuine COCOM of the forces nominally under his command;
   - lacked the staff capacity (numbers, experience, information processing capability, and communications systems) to support his C2 needs; and
   - had inadequate logistics capacity to support his forces.

   The forces themselves did not share common military doctrine, language, or standards.
4. Successful peace operations require an understanding of the definition of success. For peacekeeping operations, this means creating and maintaining arrangements by which the parties can live peacefully while they develop trust and seek to work out long-term political stability. However, for peace imposition or peace enforcement, the measure of success is material progress toward and across the "Great Divide" to peacekeeping. The cost in blood and national resources of extended peace opera-

tions where violence is not controlled means that these operations cannot be sustained over time. Hence, missions, objectives, and orders must be proactive toward creating stability so that peacekeeping can promptly achieve more active roles.

5. When peacekeeping fails, the belligerent parties take the blame because they have destroyed their own set of agreements. When peace imposition or peace enforcement fails, the peace operators get the blame and risk casualties. They have failed to control a situation they explicitly sought to control, even at high risk.
6. Operations near the "Great Divide" are the most difficult. Peace operators must be perceived as neutral to be successful, which is very difficult if they are engaging one or more of the parties in the name of peace. Equally important, the peace operations forces are at greatest risk when the situation is unstable.
7. U.N. procurement systems have proven too cumbersome and bureaucratic to support fast-moving peace operations. They need reform, and peace operators need an independent set of procurement officials, particularly individuals with military and disaster relief experience.

CHAPTER 6

ALTERNATIVE APPROACHES TO COMMAND ARRANGEMENTS

The preceding material focuses largely on history and fact: how military establishments have established and applied command arrangements. However, an important body of material has also been built up on the theory of command and control. That body of knowledge is particularly important in conceptualizing how command arrangements might be designed and the range of situations (or operating environments) in which different approaches might prove wise.

Few serious analyses of alternative approaches to command arrangements have been conducted, partly because C2 community research has been preoccupied with communications and computer systems, and partly because command has generally been understood as an art, often driven strongly by the personalities and styles of individual military leaders. The major exception to this neglect has been a long-running discussion concerning the degree of centralization in command arrangements. Historically, command arrangements have gone from more centralized to more decentralized approaches, in large measure because of the complexity of the warfighting environment and the limits on the technologies available for gathering information and distributing directives.

Figure 14 illustrates the evolution of approaches to command arrangements. The vertical axis ranges from the simple battlefields of classical armies, which were commanded by individuals who took into consideration only the immediate terrain, weather, and forces to the combat of modern warfare in which relevant actors are spread over vast distances, from space to undersea and underground locations. The horizontal axis represents the degree of centralization inherent in the dominant command arrangements.

As the complexity of the environment to be controlled and the technologies available to commanders have evolved, command arrangements have also evolved. Heroic, individual leaders who could dominate a battlefield were the state-of-the-art until forces became so large and the environment so complex that organized staffs were required to coordinate forces out of physical contact with one another. Napoleon is generally credited with developing staff planning and logistics systems that permitted massive armies to operate effectively. The Prussians took these ideas further and produced staff planning and communications systems that enabled centralized control over widely dispersed forces, taking advantage of the technologies of industrial society. These more or less centralized staff systems proved to be transitional, as forces became so large and operating environments so complex as to defy centralized control with the available technologies.

The Germans are normally acknowledged as having recognized that the time needed to collect information from the fighting front, move it to the center, make a new "optimum" decision, plan and coordinate a new course of action, transmit the plan to the forces, and have them implement the new plan was too long to enable them to react to battlefield developments in time to take advantage of opportunities as they arose.

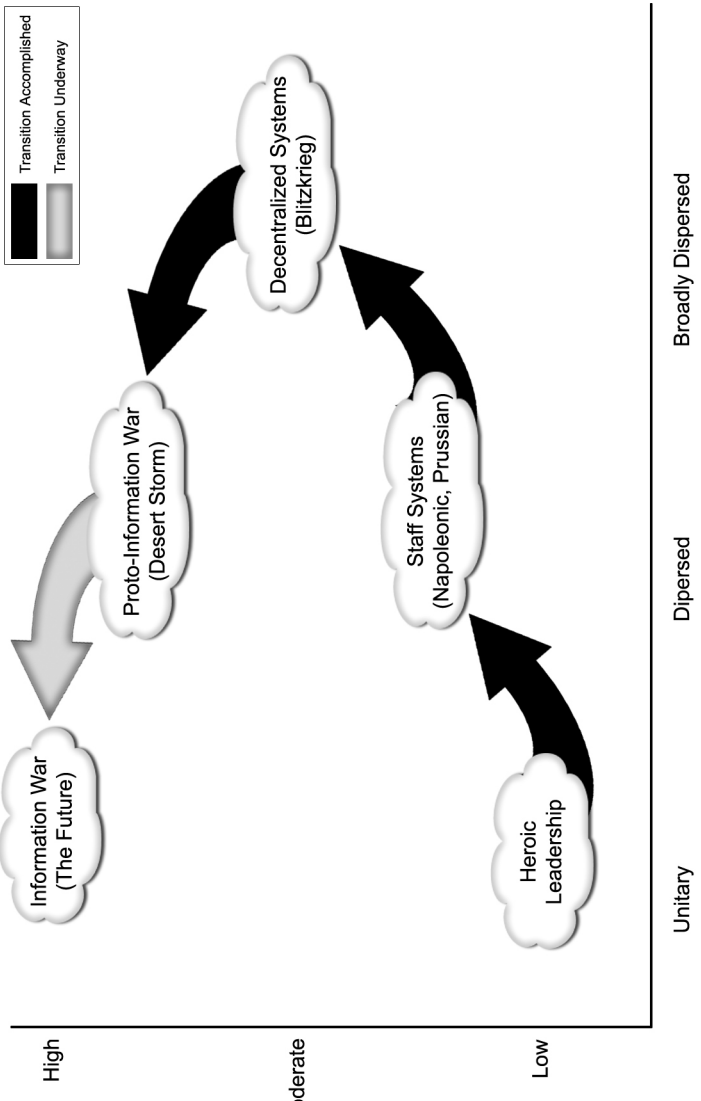


Figure 14. Evolution of Approaches to Command Arrangements

In the twentieth century, they developed more decentralized approaches that exploited the speed and firepower of modern forces by permitting—even requiring—initiative at lower levels. The classic analyses of these developments are Van Creveld (1985) and Keegan (1987). This process culminated in *blitzkrieg*, which permitted the Germans to fight and win a number of local battles that their opponents at the beginning of World War II (the French and Russians in particular) were barely aware of before they were over. This decentralized model was essential because the Germans lacked the technology for greater control from the center. Some authors (e.g., Leonhard, 1994) argue today that modern warfare should be based on this "mission tactics" approach, but note that it is not clear that senior U.S. commanders are culturally and psychologically capable of relinquishing central command.

However, since WWII, the technologies for collecting and communicating information have grown faster than the complexity of what must be controlled. As Figure 14 shows, the most modern military establishment in the world, that of the U.S., is in the process of using those technologies to recentralize the battle. In Desert Storm, the U.S.-led coalition was able to establish a major advantage over the Iraqis in information about the battlefield. The Iraqi forces largely fought blind, and their commanders found themselves committing their forces piecemeal. Many are now arguing (e.g., Alberts, 1994) that emerging technologies will enable the U.S. to move toward true "information warfare," in which fully centralized, optimal decisionmaking becomes possible because of "total battlefield awareness" and "information dominance."

ALTERNATIVE COMMAND ARRANGEMENT SYSTEMS

More than a decade ago, the Defense Information Systems Agency (DISA, at the time called the Defense Communications Agency) sponsored broad research on a variety of historical systems approaches to command arrangements (Hayes et al., 1983a and Hayes et al., 1983b), including that of the United States (in WWII, Korea, Vietnam, and various crises), U.K. (in WWII and the modern period), the USSR (in WWII and the modern period), Israel (in 1956, 1967, 1973), China (in the modern period), NATO, and others perceived to have effective military establishments. Lessons learned and changes made by outstanding commanders, such as Eisenhower, Nimitz, and Bradley, as well as within significant commands (such as the 12th Air Force and the British Fighter Command during World War II), were also examined.

One product of that historical and comparative research was the identification of three major types of C2 approaches, each with at least two important subtypes. All six approaches have been successful, but each is more appropriate for some types of warfare than others. Figure 15 shows these subtypes and the relative headquarters capacity (information processing and military art capability) required to apply them successfully. The key distinction is the level of centralization required, ranging from the heavily distributed "control-free" to the inherently centralized "cyclic" approaches. The three categories of directive specificity reflect the level of detail required in the directives issued by headquarters in each type of system, ranging from mission-specific through objective-specific to order-specific.

Control-free command centers (the most distributed approach) seek to assign missions to their subordinates, who are then

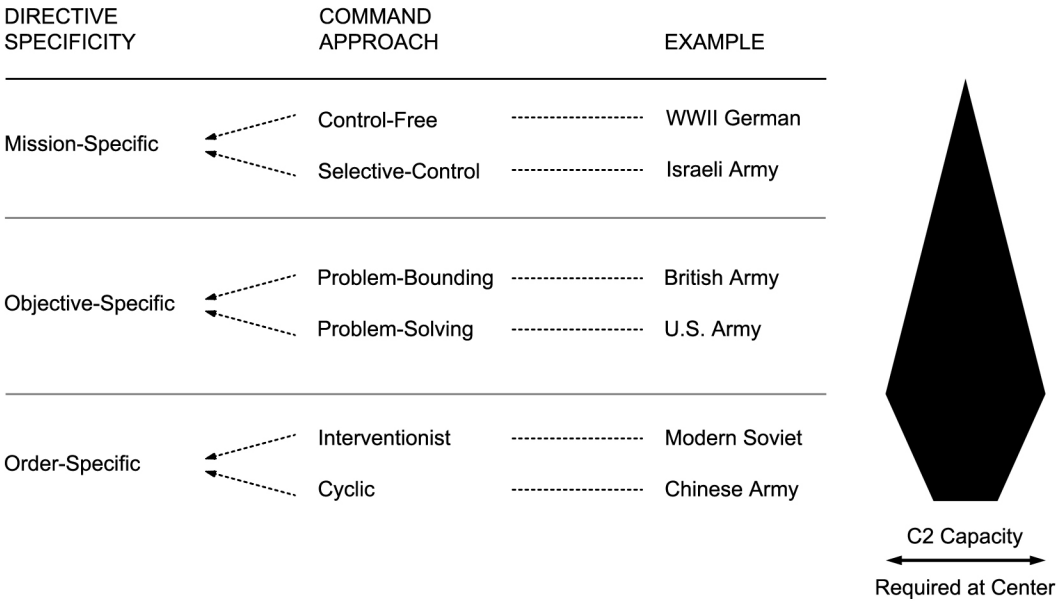


Figure 15. How Can Military Functions Differ?

expected to employ all of the assets available to them to accomplish their missions. This requires a military organization where the lower echelons are competent and trusted implicitly by the higher echelons. The system designed by the Germans for World War II is the case that fits most clearly in this category. The success of Germany's blitzkrieg was due not only to the superior weapons and mobility of German forces, but also to the capacity of their officers and non-commissioned officers to operate independently, even under trying conditions. (The fact that Hitler and the Nazi Party often interfered with this system is one major reason that it did not work effectively all the time.)

The Israelis admired the philosophy of the German approach, but felt that it was perhaps too decentralized, particularly given their narrow margin for error in wars that threatened the very survival of their country. They have developed *selective-control* systems in which higher headquarters also issue mission-type orders and expect subordinates to take broad and deep initiatives. However, their higher headquarters follow the battle in detail and are prepared to intervene in the event of a major opportunity or major threat that the lower-level command does not perceive or cannot manage. This approach requires great discipline on the part of the senior commanders, who have tactical-level information and considerable skill as tactical commanders, but only intervene when operational- or strategic-level issues emerge. In essence, the Israelis prefer rapid reaction on the battlefield but seek to maintain the capability for central intervention.

Taken together, the control-free and selective-control systems comprise the more general class of *mission-oriented* command and control arrangements. Each level tends to assign missions to its subordinates and permit them to define further details

of the military situation, beginning with selecting the objectives necessary to accomplish the missions. The presumption is that the commander on the scene has more current and accurate information than superior headquarters and has adequate resources to exploit local opportunities and protect the force while accomplishing the mission. Moreover, through a combination of doctrine, training, experience, and mission orders, the subordinate commander is presumed to understand the intent and overall concept of the operation of the superior commander so that local actions will not be inconsistent with the larger military mission or the actions of other commanders.

U.K. doctrine can best be understood as *problem-bounding*. That is, the higher headquarters tend to compose their directives in terms of the objectives to be accomplished, but to couch them in very general terms. Hence, directives are more specific than mere mission assignments and some explicit boundaries (deadlines for achieving some objectives, guidance on risks that might be accepted or avoided, etc.) are articulated. British plans for an operation tend to be less detailed than those of Americans, often by a factor of three to one, reflecting this lack of detail.

For their parts, the U.S. Army and Navy have, since World War II, tended to issue *problem-solving* directives in which missions and objectives are articulated for two levels of subordinates and substantial guidance about how the objectives are to be achieved is also included. Although this approach provides more detailed direction than the U.K. philosophy, considerable room remains for lower-level initiative and creativity in accomplishing the objectives. At the same time, however, the high-technology assets that U.S. forces tend to employ often mean that subordinates are heavily dependent

on senior commanders for key assets such as lift, intelligence, supplies, or precision munitions.

Together, the problem-bounding and the problem-solving approaches comprise the *objective-oriented* approach to command arrangements. They assume some level of trust, creativity, and initiative in subordinate commands, but stress synchronization of assets and actions. As a result, they assume greater coordination and more continuous contact between superior and subordinate, and among subordinate commands. This provides greater control. These systems were brought to fruition by the resource-rich in "attrition wars" where superior materiel and technology were applied to wear down adversaries with limited resources (such as Axis powers in World War II).

Ultimately, someone in every military system issues *orders* to subordinates (directives that tell units and people what to do, where to do it, and when it is to be done). However, this is only done by headquarters above the tactical level in very centralized systems (or in cases where politically sensitive assets such as nuclear or chemical weapons are involved). These have historically been systems where the commanders at lower levels are considered quite weak and unable or unlikely to take the initiative or develop effective courses of action on their own.

The Cold War-era Soviet system can best be described as *interventionist* in that it relied heavily on central authority to issue directives, but also maintained very detailed information about the battle (requiring continuous and specific reports from subordinates two layers down) and attempted centralized control through detailed directives. The Soviets used exercises and training of front-line units to ensure that they could execute a variety of quite standard maneuvers, from breakthrough assaults and river crossings for land forces to

standardized attack patterns against U.S. carrier battle-groups at sea. Senior headquarters specified the time and place for such preplanned operations and controlled them through the preplanning process.

The greatest degree of centralization occurs when the senior headquarters issues orders to all subordinates, but does so on the basis of a preset cycle time. The Chinese Army and the Soviet World War II forces adopted this approach because their communications structures could not provide continuous information to the central headquarters and because their subordinate organizations were culturally unable to display initiative in the absence of detailed directives. The U.S. Air Force has followed the same approach since World War II, but for a very different reason: the complexity of air operations has meant the information required, coordination needed, and relative scarcity of the assets involved tend to drive the decisionmaking up the chain of command. The USAF has chosen to invest in communications systems so they can issue orders at the numbered Air Force level. The 24-hour air tasking order is *cyclic*, however, in part because the amount of processing needed to develop these intricate plans requires relatively long lead times.

The existence of these six distinct types of command and control systems in prominent military establishments helps to explain why coalition operations are plagued by interoperability problems at the cultural, organizational, and procedural (doctrinal) levels, to say nothing of the technical communications systems they use.

Capacity Requirements for Different Types of Command Arrangements

Major differences exist in the capacities required for the six types of command arrangements. Figure 16 illustrates those differences.

First, assuming that the quality of information provided is constant across all cases, *the more centralized the decisionmaking is, the more information is required at the higher headquarters*, which means greater detail in each situation update transmitted. However, major differences exist in the frequency with which updates are required. Control-free systems, in which the central commander is not seeking to control the schedule of events closely, require infrequent updates. The two approaches that seek to issue objective-specific directives, problem-bounding and problem-solving, require moderately frequent updates. Cyclic command assumes periodic, paced updates, the lowest frequency. Interventionist and selective control systems, both seeking to assert themselves on an as-required basis, must have almost-continuous updates about the situation, making the required capacity very high.

The information-processing capacity required for these different approaches also varies widely. This represents the effort needed to receive the appropriate inputs, transform them into information that the C2 system can act on, and conduct the necessary operations to support decisionmaking. Because the volume of input and output to be processed is lowest for control-free systems, the processing capacity required is also low. This grows as the degree of centralization rises. However, cyclic approaches, because they have a low update rate, need less processing capacity than their interventionist counter-parts, which must be ready to act at any time. In general, *greater capability to acquire, integrate, move, and process*

	INPUTS		PROCESSING	OUTPUTS		SUBORDINATE ATTRIBUTES	
Command Approach	Detail of Update	Frequency of Update	Quantity Required	Level of Detail	Frequency	Professional Competence	Creativity/ Initiative
Control-Free	Low	Low	Low	Low	Low	Very High	Very High
Selective-Control	Low	Very High	Moderate/Low	Low	Moderate/Low	High	High
Problem-Bounding	Moderate	Moderate	Moderate	Moderate	Moderate	High/Moderate	High/Moderate
Problem-Solving	Moderate	Moderate	High/Moderate	High/Moderate	High/Moderate	Moderate	Moderate
Interventionist	High	Very High	Very High	Moderate	High	Moderate/Low	Moderate/Low
Cyclic	High	Very Low	High/Moderate	Very High	Very Low	Low	Very Low

Figure 16. Capacity Requirements for Different Command Arrangements

larger amounts of information rapidly makes more centralized decision-making possible.

Indeed, current discussion of the need for new C2 approaches in an era of information warfare explicitly considers situations where the best (most current, accurate, and complete) information may no longer be located at the subordinate command engaged in the field, but rather may be located at higher headquarters. This implies a change in the "best" approach to C2, although considerable choice exists in how information is distributed using state-of-the-art technologies. Whenever speed of decisionmaking becomes crucial, the creation of automated approaches to decisionmaking becomes relevant.

The amount of internal information processing required is minimized in control-free systems and maximized in those systems seeking to issue orders from the top, particularly the interventionist model. The same pattern generally holds for the quantity of output generated, and therefore the coordination and explanation of what is wanted. The interventionist approach (as practiced by the Cold War-era Soviets) is able to take advantage of pre-real-time learning by subordinates so it can, in essence, call plays like a football team and does not have to provide detailed instructions in every order. However, this approach limits the flexibility of the command system, making it difficult to make subtle adjustments in response to opportunities or threats on the battlefield.

Finally, the different command approaches require very different capacities among the subordinate commanders and their organizations. In general, *the more centralized the command arrangements are, the less that is required from subordinates.* Competence here refers to the ability to plan, coordinate, and execute military functions. Similarly, the *less centralized systems require more*

creativity and initiative on the part of subordinate commands. In fact, classic cyclic systems (such as that of Stalinist Russia during World War II) are perceived to punish subordinate commands that undertake creative activities or move off the detailed orders they are given.

The degree of centralization adopted also influences the degree to which automation can be used to achieve the capacity required. Figure 17 shows these relationships. Mission-specific systems primarily assign highly creative roles to the higher headquarters, with selective-control systems both needing more overall capacity and having more potential for automation of those functions they perform. Objective-oriented systems (which require somewhat more capacity) can be more automated. In particular, the problem-solving system in which detailed guidelines and planning for logistics and other support are relatively simple to automate can be managed at the higher levels. Interventionist systems need the most capacity, but are also the easiest to automate because they rely more on prior training and are designed to generate prepackaged "good enough" or suboptimal solutions that can be implemented successfully. Cyclic headquarters are designed to do the same work as interventionist ones (issue orders), but perform each task less often, which reduces their need for overall capacity.

Command Arrangements and Operating Environments

The variety of command arrangements adopted by successful military systems over time and space should make it clear that there is no single "correct" approach. Rather, there are alternative approaches that are better and worse in different circumstances. The environment in which the system operates

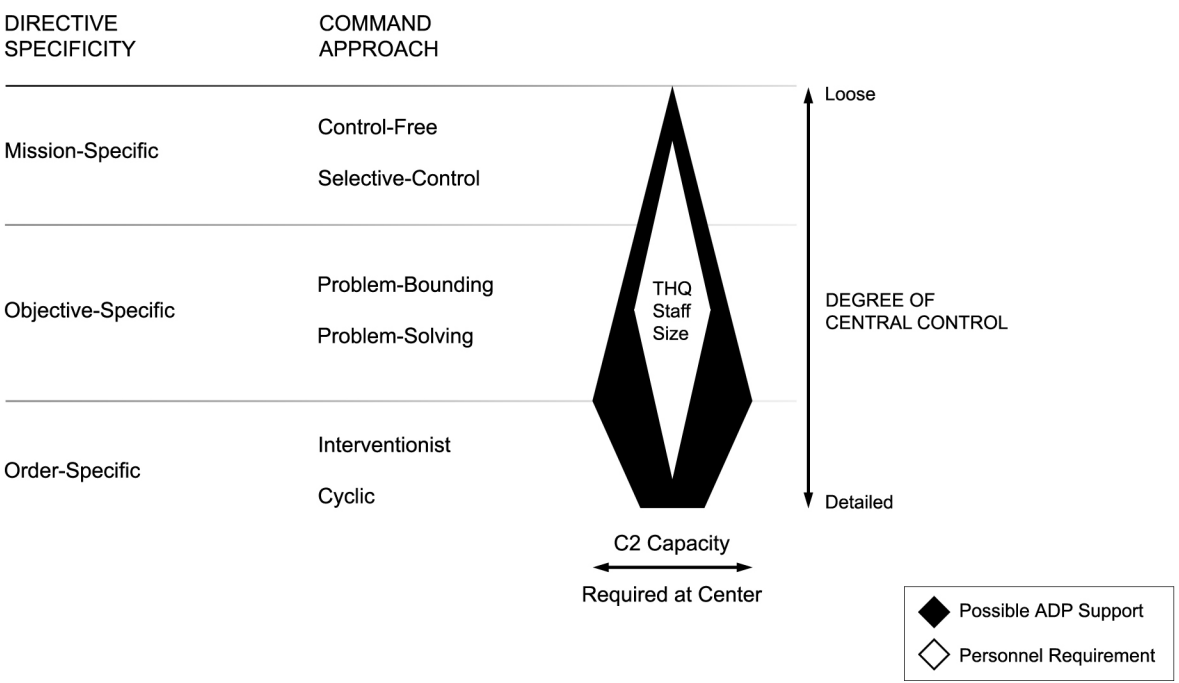


Figure 17. Level of Detail Implications of Required Capacity

(the physical, political, social, economic, military, and technological situation in which the military force is working) is one of the most important of these. The ability of more appropriate C2 arrangements to offset gross imbalances in military force is limited; however, the more closely balanced the forces are, the greater the potential becomes for C2 differences to determine the outcome.

Figure 18 was developed to analyze warfighting environments, but its basic logic also applies to peace operations. It illustrates what happens when different philosophies are adopted in different types of military environments. The controlling characteristic of the environment is the ratio of the pace of battle to the speed of the C2 system—in other words, the rate at which the situation changes and the speed with which the C2 system can sense those changes, make a decision about whether and how to react to them, and initiate the desired action. In maneuver warfare, for example, the pace of battle and the relative slowness of the C2 system interact to create a large number of local battles fought with local resources and information. At the other end of the spectrum, in static warfare, such as World War I trench warfare, the C2 system is faster than the changes on the battlefield, which means there is no penalty for the time spent in centralized, optimized decision processes. Near the center, in attrition warfare, the ratio approaches 1:1.

In maneuver warfare systems, all other things being equal, decentralized C2 arrangements have the advantage. The decentralized German blitzkrieg, for example, allowed division and lower commanders to fight and win engagements and even battles that the French C2 system hardly knew were taking place. The centralized French system took too long to assemble the information, make decisions, and transmit directives. The

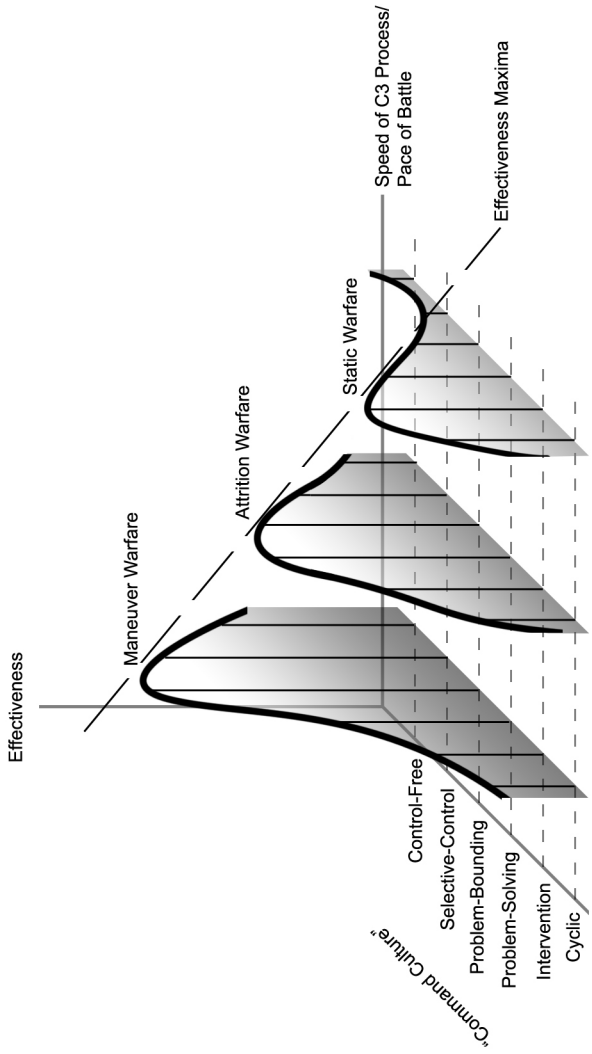


Figure 18. Effectiveness, Command Culture, and Combat Environment

Germans, with excellent officers at all levels, simply did not attempt centralized, optimized operations.

At the other end of the spectrum, *in static-warfare systems, centralized systems have the advantage.* The Eastern front of World War II provides a good illustration. After the Russians had retreated, stretching the German lines and attriting their ranks, the front stabilized. During this period, Stalin operated a centralized, cyclic system, giving orders each day to all commands. Despite severe shortages of materiel, the Soviet forces were able to manage their static battle to frustrate, and ultimately defeat, the German forces.

In attrition warfare, where materiel and depth of force prevent exploitation of local victories, the type of objective-oriented systems favored by the U.S. and U.K. proved to be superior. Neither local victories based on local information nor ponderous "optimum" choices proved adequate to overcome superior materiel properly employed. *Objective-oriented approaches synchronize force elements well enough to defeat any adversary when the pace of battle and speed of C2 processes are nearly equal.* They prevent major surprises and use contingency plans to prevent catastrophic defeats.

One challenge for peace operators comes from the fact that coalition operations are almost always heavily decentralized, which means they are not in a position to respond rapidly. As a consequence, the enemies of peace are often free to select the crucial time and place to strike. On one level, this is simply restating the principle that peace operations cannot realistically strive to take the offensive. More importantly, this implies that they must seek to achieve adaptive control—to foresee the set of possible futures and take steps to influence the course of events so that unacceptable futures are prevented and desir-

able ones encouraged. Thinking about alternatives available to the enemies of peace and finding ways to structure the situation so that their interests and actions coincide with those seeking peace become very important. This can be as simple as ensuring observation, documentation, and media attention when peace terms are likely to be violated, or as complex as creating incentives for cooperation between groups with very different world views.

Another consequence of the variety of levels of centralization found in military systems is the fact that coalition forces are unlikely to share common C2 or command arrangements approaches. When forces with fundamental differences in understanding of the degree of information they should report, the detail that should be contained in directives, and the degree to which subordinate organizations should take initiative are placed in one military organization, the potential for confusion is massive. Reporting, situation assessment, course of action analysis, decisionmaking, coordination, crafting directives, and implementation all become massively complicated when people with different training, experience, habits, and expectations of command arrangements must work together. In itself, this variety of backgrounds slows the process as well as creates opportunities for errors.

CHAPTER 7

ASSESSING ALTERNATIVE COMMAND ARRANGEMENTS

Designing an appropriate set of command arrangements for coalition peace operations requires a clear understanding of the essential functions to be performed and the qualities desired—the objective criteria for success.

THE ESSENCE OF COMMAND ARRANGEMENTS: KEY TO MEASURING SUCCESS

Command arrangements are the systems by which military and political-military organizations make and implement decisions in an operating environment. Figure 19 shows the essential elements of this process (Hayes, 1983a). Note that the command arrangements always exist in the context of a larger environment, which includes military elements (own, enemy, and potentially other forces that are not directly included in the network), physical and ecological factors (terrain, weather, and so forth), as well as political, social, and economic factors. The purpose of the system of command arrangements is to control some selected features of this environment (for peace operations, this might include keeping military forces out of demilitarized zones, preventing the flow of arms across a border, or other explicit tasks), which is the equivalent of accomplishing assigned missions.

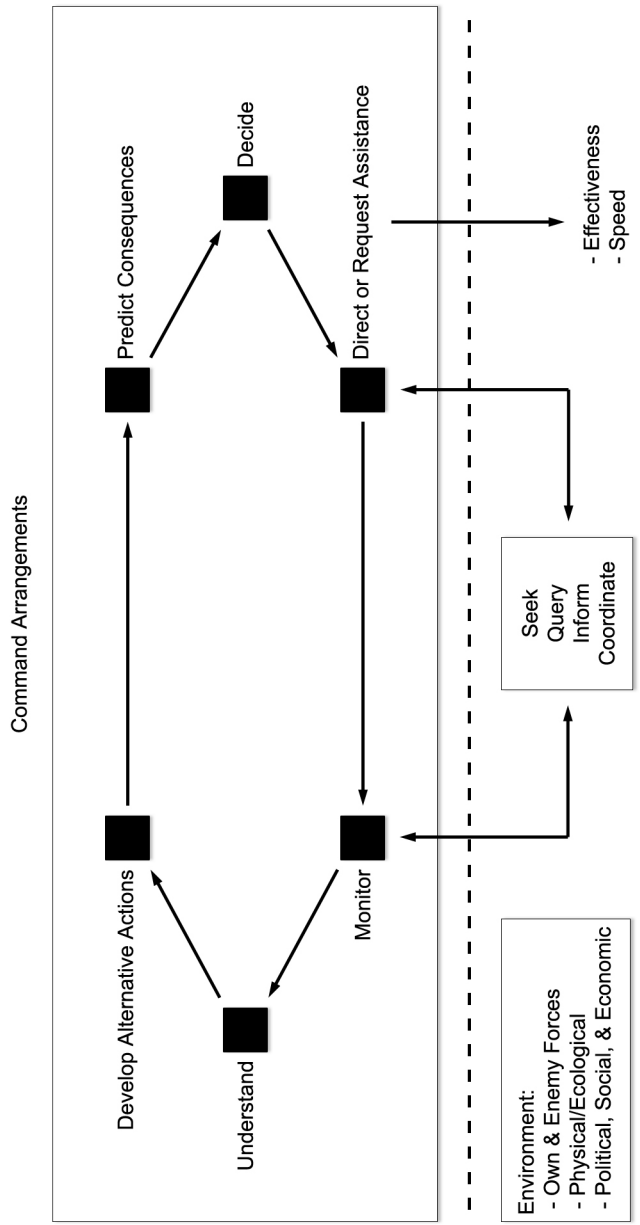


Figure 19. The Essence of Command Arrangements

However, the system of command arrangements and the decisionmakers it serves do not, in and of themselves, execute operations or accomplish missions. Rather, they create favorable circumstances, develop plans, ensure that the materials needed are available, coordinate activities, and undertake representational and decision functions that enable other (usually subordinate) organizations to accomplish missions. The plans they create consist of five key elements:

- *missions* (or objectives) to be accomplished;
- *assets* (resources) to support each mission;
- *boundaries* that organize these efforts in space;
- *schedules* (either explicit times or sequences) that organize the efforts over time; and
- *contingencies* under which the first four elements change.

Success (effectiveness) consists of creating directives and coordinating requests for assistance from actors who are not subject to military command. Such directives should (1) reflect the planning process, (2) be implemented successfully without change beyond the contingencies explicitly built into them, and (3) have the desired impact on the environment.

The processes inherent in command arrangements (which are always part of the process, whether explicitly or not) are also illustrated in Figure 19. They include:

- *monitoring* the environment (i.e., developing facts about it);
- *understanding* the larger patterns that the facts describe or imply such that, if no new initiatives are undertaken, the command understands how the future is likely to unfold (including multiple possible futures when the information is incomplete, inconsistent, or ambiguous);

- *identifying alternative courses of action* (including doing nothing or continuing with the existing course of action) that could influence which future(s) occur;
- *assessing each alternative course of action*, including predicting the likely consequences of following each, as well as their feasibility;
- *deciding* (i.e., choosing from among the available courses of action); and
- *directing*, in other words, preparing and issuing guidance to those organizations that are responsible for execution or whose cooperation is needed.

While these six steps are inherent aspects of any system of command arrangements, four other processes are also normally involved and contribute to success:

- *information seeking*, which is undertaken when a commander recognizes the need for some specific information;
- *reporting* to inform superiors, subordinates, those in lateral positions, or the general public (through the media);
- *inquiries* to clarify directives or reports received, or to resolve inconsistencies within and among the elements of information received; and
- *coordinations* undertaken to synchronize activities.

These four additional activities are particularly crucial in peace operations where the number and variety of actors, their lack of prior experience working with one another, and the absence of common, reliable communications systems often make timely information collection and dissemination very difficult.

Quality of Command Arrangements Performance

Given an understanding of what command arrangements are and the different ways in which they can be structured, the issue of how their performance should be assessed must still be addressed before better command arrangements can be designed for coalition peace operations. Command arrangements operate to determine both the flow of information within and among the actors and the nature and process of decisionmaking. Assessment should therefore start by examining the structures, functions, and capacities of the support systems that provide and process the information needed for achieving goals and missions.

As Figure 20 illustrates, there are at least three distinct levels at which the value of these information management command arrangements could be assessed: (1) system performance (the qualities of the elements that make up the system), (2) attributes (or qualities) of the information provided to decisionmakers, and (3) the overall value of the information within the decisionmaking system. These three levels interact, with problems at the poorer levels almost always leading to lower performance at the higher levels. For example, if the information available is out of date (level 2), then good quality decisions (level 3) become unlikely. Similarly, if the systems that must move information around among the actors are unreliable (level 1), the information available to decisionmakers will tend to be out of date (level 2). Hence, performance at all three levels should be assessed so that it is possible to diagnose the causes of any problems.

System performance measures describe the individual elements of command arrangements. Communications speed and capacity between important headquarters or actors, the

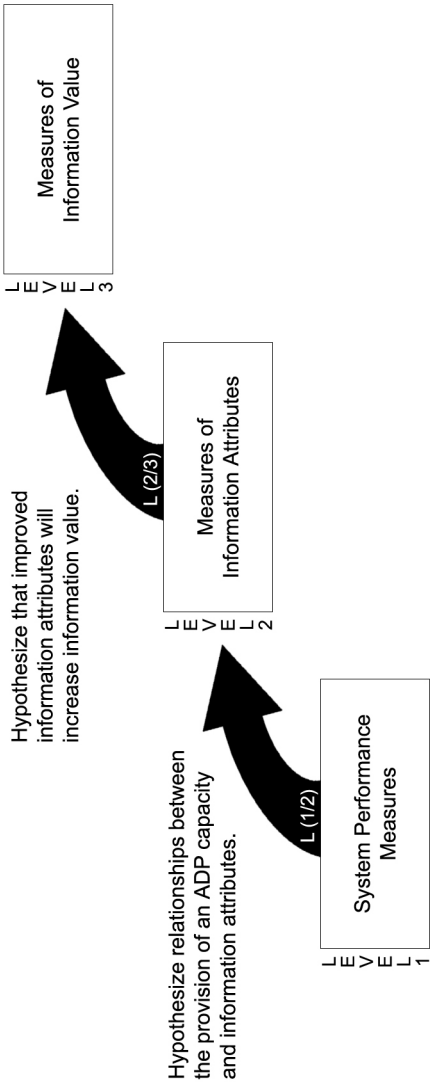


Figure 20. Linkage Hypotheses

size and reliability of the memory located at each node in the system, and the reliability of communications systems (mean time between failure, percentage time down, etc.) are simple system performance characteristics.

Information attributes deal with the quality of the information available in the system of command arrangements. They include such things as:

- completeness of the information;
- accuracy of the information;
- age of the information;
- consistency of information across nodes in the command structure;
- correctness of understandings;
- correctness of consequences predicted; and
- fidelity of the directives to the decisions made.

Note that "information" here means not only factual data, but also the capture, storage, selection, integration, and interpretation of information that supports the essential command arrangements processes.

The third level, measures of information value, is much more difficult to operationalize than the lower levels. Information value is measured in terms of its impact on the environment. The core measure is *effectiveness*, having the desired impact in the environment. The speed of the command arrangements versus the pace of change in the environment (*timeliness* of decision processes) must also be considered a measure of information value. Moreover, the *efficiency* of the process (what it costs to be effective) is also an overall measure of the system's performance, particularly in peace operations that must be

conducted under limiting fiscal conditions. Several other attributes should also be considered when assessing command arrangements from an overall perspective, including *user acceptance*, the *capability required* (experience, training, mental capacity, etc.) to operate the system, and its *security*, which is particularly critical in the Information Age when we need to protect our C2 from attacks. (See Hayes [1991] for a discussion of the full set of attributes that should be considered when assessing a system of command arrangements.)

As Figure 20 illustrates, these three levels of analysis are believed (hypothesized) to be related and the form of that relationship is assumed to be a positive correlation. That is, better system performance leads to better information, and better information leads to better decisionmaking. However, the relationships between these levels are not always well-understood and are certainly not simple linear patterns. For example, there are hundreds or thousands of relevant actors and platforms on a modern battlefield, but providing complete information about their locations and identities will overwhelm any human decisionmaker; so there is a level at which completeness becomes counter-productive. Similarly, understanding that multiple futures are possible does not mean that good command arrangements explore each and every one of them in detail—the workload would overwhelm the system.

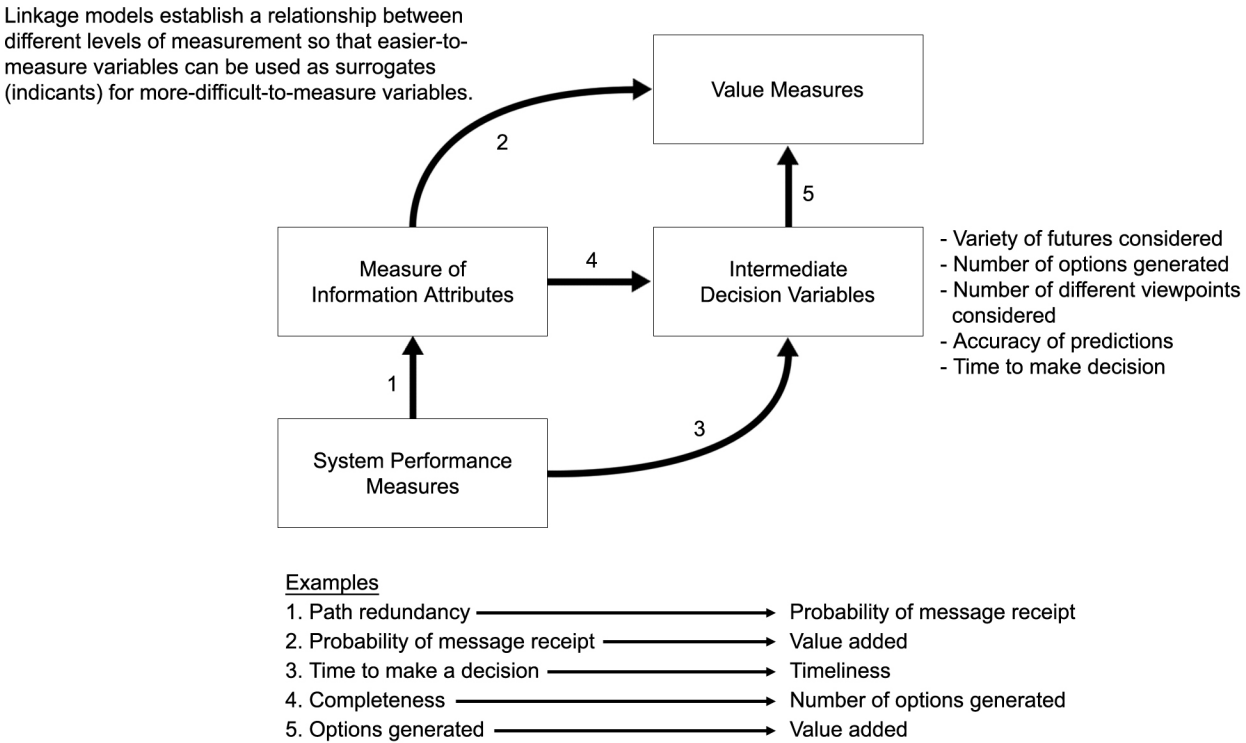
Note that *failure at any level makes success at the next higher level more difficult and only the highest level (value of information) reflects the utility of the command arrangements*. The lower-level measures (system performance and information attributes) are diagnostic—when top-level problems occur, they can almost always be traced back to lower levels.

Direct measurement of overall value is difficult, so intermediate decision variables are often used as surrogates for overall value (good decision process being assumed to increase the likelihood of good decisions), as diagnostics, or as cross-checks on the more abstract efforts to judge overall effectiveness, timeliness, or efficiency. Figure 21, adapted from Alberts (1980), illustrates this practice and also shows the linkages between levels in the assessment process.

Good decision processes correlate with good decisions. For example, organizations that believe there is only a single future possible and that they know what it is are very vulnerable to poor decisionmaking (see Dixon [1976] and Janis [1982]). This tendency has also been documented in U.S. C2 systems under a variety of conditions (Hayes, 1990). Hence, the number of possible futures considered, and particularly the number of decisions made where only a single future is considered, are indices of decision process quality worth monitoring. Other such indices include the variety of options generated for consideration, the variety of viewpoints entertained, and the accuracy of predictive statements about future developments. As is discussed in detail below, the time spent making decisions is itself a factor in making those decisions easier or more difficult, because slower processes force decisionmakers to deal with a greater range of uncertainty.

Measurement of Command Arrangements Quality

While system performance and attributes of information can be measured directly, the overall value of information—which is the true value of a set of command arrangements and the only way to compare alternative sets—is inherently multi-



Adapted from: *Alberts (1980)*

Figure 21. Linkage Models and Indicants of Value

dimensional, not always directly measurable, and will vary across operating environments.

These points are illustrated in Figure 22, which is also drawn from Alberts (1980). First, any system of command arrangements must be given an overall utility value (particularly in order to compare it with other alternatives) that is focused on several key attributes, including system-wide value added, system life cycle costs, and system flexibility and adaptability. Hence, there is no single dimension for evaluation. Given the vicious tradeoffs present in peace operations (costs versus military capability, etc.), this fact is particularly important for these analyses.

These key dimensions cannot be estimated from a single context, but rather must be seen across the range of situations (scenarios) considered relevant. Failure to take into account the wide range of situations where peace operations coalitions may have to operate or the pace of change within the context of any one such operation would fatally flaw the analysis. The inclusion of a range of experiences in this paper is an effort to ensure consideration of an adequate range of situations and the inherent dynamic patterns.

Equally important, direct measurement of value added is impossible. Good command arrangements can be recognized by a variety of indicants, or measures, that reflect good process but are not success in and of themselves. For example, good decisionmaking is associated with:

- reflecting the inherent uncertainty of situations that consider multiple possible futures;
- keeping the number of alternatives considered (futures assessed and courses of action considered) within the

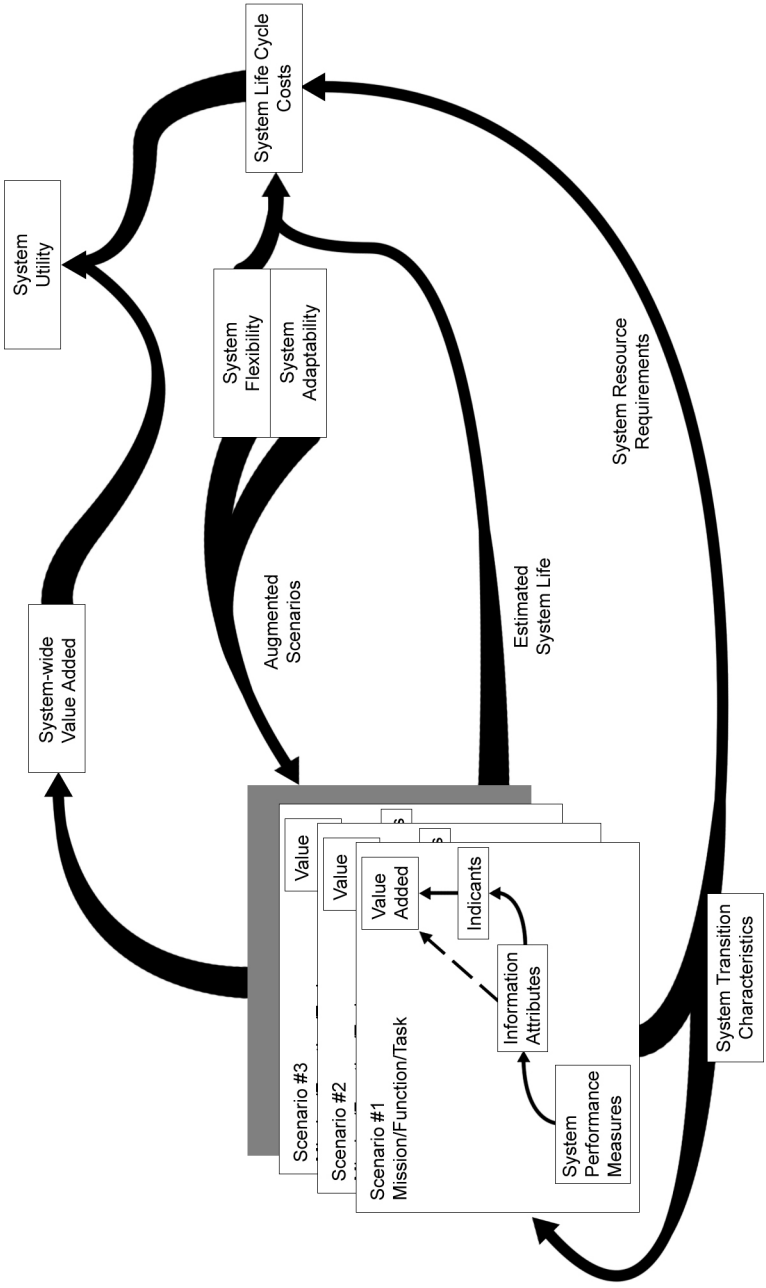


Figure 22. Determination of Systems Utility

cognitive limits of most participants: 3 to 7 alternatives at most;

- gathering information from, and involving in decision-making councils, all of the relevant actors; and
- looking ahead at potential counter-measures from opponents of any particular course of action, including coalition partners.

In essence, these types of measures are defenses against "groupthink" (Janis, 1982 and 1989) and other errors that creep into complex decisionmaking systems.

Value added is more directly measurable in terms of the effectiveness, timeliness, and efficiency of decisionmaking. Even here, however, measurement is a complex process. For example, plans that can be implemented within the contingencies built into them are desirable because they allow the entire force, organization, or set of organizations involved to work together according to "pre-real-time" decisions. Plans can enable a commander to achieve several different *levels of control* over the environment.

Reflexive control is achieved by command arrangements that provide such a rich understanding of the situation that the commander can predict and take advantage of adversaries' capabilities and actions. Cold War-era Soviet doctrine sought to achieve this level of control. The current advocates of information warfare maintain that this level of insight will soon be technically possible. Systems that seek this level of control are always risky because of potential errors in (a) their information and (b) their projections of adversary actions.

When in *adaptive control*, the commander understands that the battlefield is not fully predictable, but that the range of future

developments is limited. By monitoring the battle and understanding the situations that are emerging, the commander can design contingency plans to ensure success regardless of what actually occurs. While less efficient than reflexive control, adaptive control is also less risky because it takes into account changes in the environment, including alternative adversary courses of action. This level of control has been sought by U.S. doctrine since World War II and is necessary for successful peace operations.

Direct control occurs when the commander understands the battle well enough to exert pressure (moral and physical force), but has no clear sense of how much is required to accomplish the objective. Hence, the system seeks primarily to monitor the status of the battle and to ensure continuous application of force in the same way that a thermostat continues to signal for heat in a building until the preset temperature is reached. Because it lacks the capacity and flexibility to use alternative courses of action, direct control is inferior to adaptive control. In peace operations, direct control implies a lack of flexibility and agility, which threatens mission accomplishment.

Trial and error is what management systems do when confronted with novel circumstances and a limited understanding of the situation. It provides only minimal control. An ignorant system acts (or refrains from acting) on its environment, observes the consequences, then reacts. Often its initial actions take the form of the familiar, which is predictable to an adversary and inappropriate for novel situations. Predictable actions may be appropriate in peace operations where adversary uncertainty is dangerous. When challenged, the initial trial and error plan tends to fail rapidly and must be replaced. Over time, trial and error systems are replaced by direct control and even more advanced levels of control, but only if they survive enough

interactions to "learn" useful rules. This is the challenge facing many peace operations, particularly when their own initial success alters the basic situation to be controlled (as occurred in Somalia).

Finding ways to measure the effectiveness of C2 objectively was the most challenging aspect of the initial Headquarters Effectiveness Assessment Tool (HEAT) effort (Hayes et al., 1983a) to develop valid, reliable quantitative indicators of C2 quality. However, once the background research was completed, a very powerful answer became obvious. Since headquarters are supposed to create plans (in the form of directives) that work and since "working" means keeping the environment within anticipated boundaries, the key to objective assessment is to examine the degree to which the plan accomplishes its stated mission. The headquarters will abandon or modify the plan if it perceives that the plan is failing or will fail. Observers or analysts can recognize failure by the fact that the headquarters changes one or more of the basic elements of the original plan (missions, assets, boundaries, or schedules) beyond those contingencies explicitly built into that original plan. The *pattern* of interactions with the environment over time and across a series of decision cycles provides evidence of the typical level of control achieved. The greater the level of control achieved, the more successful the command arrangements become. HEAT research has also shown that success is contagious—effective performance in earlier periods is associated with success in later periods; success in some functional arenas is associated with success in others (Hayes et al., 1993).

Moreover, greater control also implies improved performance on other crucial types of performance: *timeliness*, *flexibility*, and *efficiency* of the system. Command and control systems have

generally been considered to be better when they are faster. John Boyd, drawing on experience in air combat, postulates that in order to be successful (i.e., effective, or win in battle), C2 systems need to be faster than the C2 systems opposing them. Using dogfights between aircraft as his metaphor, he argues that "turning inside the enemy's decision loop" is the key to success. Note that his position is not that speed is an unmitigated good, only that C2 systems that are faster than those of the opponent will be successful. Boyd's argument is consistent with HEAT theory, which postulates a decision and action C2 cycle in the context of a potentially hostile dynamic environment. This argument and some of its implications are reflected in Figure 23. They include:

- The impact of a command and control cycle does not *begin* until after battlefield events have been perceived, reported, processed into decisions and plans (which have to be issued and coordinated), and the subordinate units have time to do their planning and implementation.
- To be useful, the "vision" of the C2 system has to extend to the end of the period during which the plan will be implemented, not just to the beginning of that time.
- Headquarters that are fast and are supported by fast systems are able to establish control (take actions) with a shorter vision into the future. Hence, slow C2 systems face a double burden. Not only must they understand and predict further into the future, but they must also accept greater risk that the situation will have changed before their decision cycle can have an impact. Hence, there is a greater likelihood that their plans will fail.

Moreover, when plans fail and the headquarters must go beyond the contingencies built into them, the command and

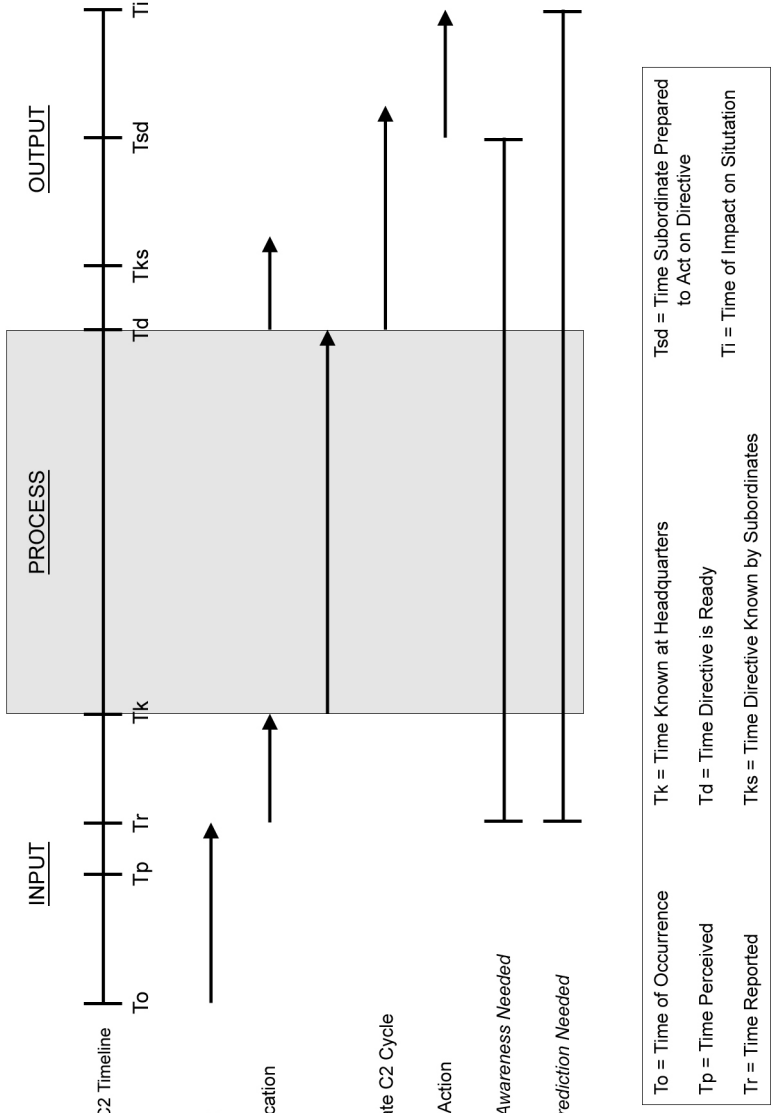


Figure 23. Impact of Speed on Command Effectiveness

control process must be repeated. This further slows the ability of the commander to control the battle and increases the workload on the C2 system. Hence, efficiency (the price or effort required to be effective) is lost when the command and control cycle is slow, all other things being equal.

However, things are not always equal. Boyd's formulation recognizes that the adversary's C2 systems vary in speed, which immediately implies that the C2 speed needed for success is not a constant. Equally important, but outside Boyd's original theory, is the fact that other features of the environment (such as the weather or the political context) can also affect the need for C2 speed. Finally, as the figure indicates, the ability to see ahead also changes the need for speed. Successful information warfare, which either immobilizes an enemy or provides clear indications that no immediate threat exists, provides time for performing more complex and detailed planning. Sometimes physical circumstances also help. For example, Eisenhower could take the time for inordinately detailed and complex planning for the invasion of Europe because he had the ultimate choice of when to initiate combat. Similarly, the U.S. and its allies were able, through a variety of political, military, and intelligence systems, to purchase time to prepare for Desert Storm. Both forces were able to select the crucial times and places for decisive combat and won because they followed the principle of the initiative.

Too rapid a C2 system can even be a disaster. The Japanese at Midway, for example, made a series of rapid decisions about whether they would attack U.S. land-based aircraft or aircraft carriers. These decisions were made so rapidly that the Japanese carriers were still in the process of rearming their aircraft to comply with the latest set of directives received when they were attacked and sunk by American aircraft. The Japanese

had effectively immobilized their own forces by giving a series of orders with no time between them to allow implementation. Similarly, had the U.S. felt impelled to engage Iraq as soon as it had forces in the Kuwaiti theater, Desert Storm would have been a very different conflict. Hence, speed is not always an unmitigated good in C2 systems. However, speed is an important element in C2 systems:

- Controlling the pace of battle (choosing the time and place for decisive action) so that it is advantageous is always good.
- The ratio of the pace of battle (how fast the situation changes) to the speed of the C2 system (how fast the organization can recognize situational changes, grasp their meaning, decide what [if anything] to do about them, and cause its forces to react) is crucial.
- When a military organization is surprised (its current plan is infeasible and must be changed beyond the contingencies built into it), speed becomes an almost unmitigated good.

Under any circumstances, however, rapid C2 systems that do not generate high-quality decisions and plans have little value. Indeed, they ensure rapid failure.

Integrated Measurement of Command Arrangements

Given the multidimensional nature of evaluation, the fact that a variety of situations must be considered, and the fact that the important evaluation dimensions are somewhat related to one another; structured analysis is important. Key structural issues for such analysis include:

- relationships between and among the three levels (system performance, information attributes, and information value) should be explicitly mapped;
- attributes should be weighted for relative importance;
- a selected range of scenarios (environments for analysis) should be weighted; and
- assessment should be based on achieving a balance among the key dimensions, not just the highest score on one index.

This last point is worth emphasizing. A wonderful set of command arrangements that is so expensive that it cannot be bought, fielded, or maintained is not as useful as a good system that can be counted on when needed.

Generating the evidence for such analyses is a major challenge in itself. As a first approximation, analysis of current experience (such as that offered in this book) is the only valid way to proceed. However, real-world experience is always analytically messy—atypical situations, personalities, and circumstances predominate. Initial findings can be refined and improved in a variety of different ways, each with some very real imperfections in terms of generalizability or validity. Ranging from most to least realistic and costly, the set of sources for research, development, and system refinement include:

- field exercises;
- test beds with detailed environmental and adversary replication;
- command post exercises;
- seminar war games;
- expert opinion focus groups;

- man-in-the-loop simulations;
- formal modeling and simulation; as well as,
- theory and analysis.

As greater control and replicability are achieved (the analysis is made more reliable), losses in validity occur. As validity rises, so do the costs of information collection. A healthy program of research and development will use a range of these approaches, not relying on one or two. Only in this way can validity and reliability be achieved cost effectively.

CHAPTER 8

CONCLUSIONS

Military forces are blunt instruments. Peace operations involve subtle missions. This fundamental mismatch between the classic functions of military forces and those required for successful peace operations makes the careful design of command arrangements an essential step toward achieving effectiveness.

This book has reviewed (a) the unique demands and requirements for successful command arrangements in peace operations, (b) a range of U.S. experience in recent coalition warfare and peace operations, (c) the state-of-the-art knowledge of alternative approaches to command arrangements, and (d) the approaches necessary to assess alternative command arrangements. A variety of important, cross-cutting conclusions emerge from these analyses.

GUIDELINES FOR FUTURE PEACE OPERATIONS

At the most general level, a few key guidelines emerge. First, military plans and operations need to be segregated from, but informed by, the other activities associated with the peace operations—political activities, humanitarian activities, etc. Hence, the rich set of command arrangements needed are in addition to the military C2 system required.

Second, the use of military force needs to be controlled at the adaptive level; that is, the set of actions to be taken needs to be thought through and coordinated (politically as well as militarily) in the form of contingency plans to be triggered by recognizable actions or patterns of action. While this implies considerable C2 capacity and prior planning, it is the only realistic way to take timely military actions in peace operations. Whenever possible, standards for equipment and doctrine should be created to facilitate real-time interactions.

Third, the command arrangements must be connected effectively to the military C2 systems and processes, which means functional communications systems, opportunities for the exchange of information, and exchanges of liaison personnel. Wherever possible, open meetings of the broad set of entities associated with the peace operation should be encouraged. The value of information and the importance of exchanging it need to be stressed when dealing with NGOs and PVOs.

Fourth, time-tested techniques and approaches should be used to simplify the command arrangements in coalition operations. Assignment of missions based on capability, assignment of separate physical space to different commands, use of coordination teams, and exchange of liaison officers should be coupled with the creation of networks that permit informal communications among the coalition members and those working with them. Mission-type orders will be necessary because of the diverse nature of the forces involved and the inherent decentralization of their tactical organization.

Fifth, the principles of peace operations are fundamentally different from those of warfighting. They include:

- Unity of purpose, not unity of command;
- Consensus planning, not hierarchical decisionmaking;

- Simplicity, particularly where multinational operations are involved;
- Adaptive control, rather than initiative; and
- Transparency of operations, rather than surprise and security.

Balance among these principles is needed at all levels (strategic, operational, and tactical) and in all types of command arrangements (political as well as military, coordinated as well as hierarchical, etc.).

Sixth, adequate capacity needs to be created and functions separated so that each level of command has a clear role and the necessary personnel, experience, linkages, information, and information-handling capacity to succeed. Where needed, this implies communications systems, computers, command transportation, translators, and liaison personnel.

Seventh, because of the inherently decentralized, slow, and reactive command arrangements in coalition peace operations, commanders must use mission-oriented directives, and military command structures should limit the number of subordinate organizations reporting to key commanders. Prior investments are needed to facilitate these interactions, including:

- establishment of standards for all aspects of peace operations related to interoperability: communications systems, computer systems, operational language and procedures, levels of equipment and training for force elements contributed to peace operations, and so forth;
- development and publication of international doctrine for peace operations, including key issues such as rules of engagement (ROE) and contingency planning;

- seminars, war games, and exercises involving commanders, staffs, political advisors, NGOs, PVOs, international organizations, and force elements likely to be involved in peace operations;
- creation of prepackaged communications systems; networks for exchanging information within and among different agencies, governments, force elements, and other actors; and computer systems for processing information; and
- contingency plans for individual peace operations that are unambiguous enough to act as guidelines for action when the peace operation is challenged.

Failure to deal with these issues before deploying forces greatly increases the risks of mission failure and unnecessary casualties among peace forces and those they are trying to protect.

Eighth, except when U.S. military presence is considered essential for symbolic reasons (e.g., Golan Heights or Macedonia), U.S. forces are far better employed in peace enforcement and peace imposition missions than peacekeeping. U.S. forces are trained for combat and must be retrained for any peace operation. They are best used where the possibility of their employing overwhelming force is realistic. Moreover, the powerful symbolism associated with the U.S. in general and the U.S. military in particular often makes it difficult for parties to a conflict to perceive U.S. forces as impartial. Finally, U.S. policy and U.S. force activities are subject to micro-analysis in the media, which can complicate peacekeeping and sometimes requires constructive ambiguity and selective "non-perceptions."

Finally, valid and reliable assessment of command arrangements is essential if they are to be improved. This means

taking the time and trouble to apply existing methodology and measurement systems both to past experiences with peace operations and to the most realistic set of war games, laboratory experiments, simulations, and exercises available. Measurement needs to be made not only at the level of system performance and information attributes, but also at the higher-order levels of indicators of decision process quality and overall performance. Key dimensions such as value added, life cycle costs, and system adaptability must be assessed across a range of relevant scenarios.

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As President and founder of Evidence Based Research, Inc., Dr. Hayes specializes in multidisciplinary analyses of command and control, intelligence, and national security issues; the identification of opportunities to improve support to decisionmakers in the defense and intelligence communities; the design and development of systems to provide that support; and the criticism, test, and evaluation of systems and procedures that provide such support. His areas of expertise include crisis management; political-military issues; research methods; experimental design; simulation and modeling; test and evaluation; military command, control, communication, and intelligence (NII); and decision-aiding systems. Since coming to Washington in 1974, Dr. Hayes has established himself as a leader in bringing the systematic use of evidence and the knowledge base of the social sciences into play in support of decisionmakers in the national security community, domestic agencies, and major corporations. He has initiated several programs of research and lines of business that achieved national attention and many others that directly influenced policy development in client organizations.

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