

Information Management Functions of Joint Command: *Six Enduring Keys To Mission Success In A Changing World Environment*

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Abstract

Modern military commanders face an increasing information management challenge along with the traditional responsibilities of command. This growing challenge can be met by viewing the command and control process as six, workable functions. **Focusing, filtering, fusing, synchronizing, coordinating** and **assessing** information, with the right tools, enable efficient command and control, even in very complex environments.

Recent crises provide solid examples of the tools required to execute these functions as well as the benefits of their proper use. This six-function approach has permitted efficient staffs to master the control of information during operations as diverse as UPHOLD DEMOCRACY and DESERT FOX and can do much to improve operational effectiveness for contingencies in the future.

By using tools such as intent, synchronization matrices and measures of effectiveness, commanders can deal with the right information at the right time to make dominating decisions and positively control operations. In doing this, they will maximize effectiveness and minimize risk while accomplishing the mission at hand.

1. Introduction

Modern military operations have witnessed a tremendous increase in information processing requirements over the past twenty years. The number and variety of information stimuli confronting decision-makers have also expanded. Unfortunately, the ability of the human mind to assimilate and use information has apparently not increased in kind. Thus, the modern military commander faces a growing information management challenge along with increasing complexity in the traditional responsibilities of command.

Thankfully, these challenges can be met by breaking the information management process into six functions, each of which is manageable, so that the overall task of organizing and controlling information can be mastered by a commander with an efficient process. By properly using the correct tools, commanders can deal with the right information at the right time to make dominating decisions and positively control operations. In doing this, they maximize effectiveness and minimize risk while accomplishing the mission at hand.

The six functions of joint information management can be summarized as: **focusing, filtering,**

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fusing, synchronizing, coordinating and assessing.¹ Each of these functions has associated military tools that help commanders and staff-members perform more effectively. None of these techniques is really new, yet as a whole, their use and impact has not received appropriate recognition, and many commanders and staffs are still experimenting with less proven methods without creating the information flow they so desperately need.

2. The Information Challenge Explained

Raw data contributes little to military operations. To be of use to a commander, unrefined information must be translated into understandable terms and provided in a timely manner. In other words, staff effort must be focused, and a wide range of facts integrated and fused together in useful packages by the staff for so that it can be transformed into useful information and effectively used by decision-makers. Plus, this refined information must be delivered to the commander in sufficient time for decisions to be made and actions completed. These six activities are required of all effective staffs. Commanders share responsibility for proper management of information, for they must prioritize their needs, maintain situational awareness and transmit timely, adequate guidance to focus staff effort. Identifying the commander's mission-critical needs from all available information, and providing them in a timely fashion speeds decisionmaking, facilitates coordination, maintains a high tempo of operations, and most importantly, keeps the commander and staff proactive.²

2. 1. *Focusing – Illuminating the “Big Picture”*

As a first step, the surplus of information in the modern battlespace requires commanders to identify relevant information within the set of all available data. With many competing demands, commanders and their staffs must concentrate on what is truly important. Information gathering can be physically **focused** through a variety of techniques.³ Listing essential elements of information within a headquarters, announcing the prioritization of information requirements by phase or event, and displaying the requirements throughout the force all assist in focusing individuals on the critical issues. Yet, nothing has greater impact on operations or more influence over productivity than the mental concentration of all members of the force through a succinct **commander's intent**.⁴

¹These functions have been derived from an analysis of command and control lessons learned in recent joint operations in Somalia, Haiti and Bosnia, as well as observing a series of joint exercises conducted by the US Atlantic Command in the Joint Training Analysis and Simulation Center in Suffolk, Virginia.

²This approach is echoed in the Joint Staff's new conceptual template for the future, “Concept for Future Joint Operations: Expanding Joint Vision 2010” (Joint Warfighting Center, May 1997.)

³Information requirements include the traditional items categorized as essential elements of friendly information (EEFI), essential elements of enemy information (EEI), environmental data including weather and topography, and even factors of allied, national and civil importance which could have an important effect on the progress of a joint campaign.

⁴A clear, concise commander's intent, providing the framework for mission-type orders, should create a mental picture of success for every member of the force. Crafting intent can be a challenging task, because every word is important. The commander's intent normally states the purpose of the mission, specifies what must be accomplished, and defines success for the operation. Intent should determine endstate, and describe how that endstate sets conditions for success in future operations. Frequently, it also explains the degree of risk the

The **commander's intent** provides more than the endstate vision for the mission; it focuses effort to make decentralized execution a powerful magnifier of combat power. The opposite of fettering subordinates through top-down only communications and detailed, restrictive instructions, intent-based command permits subordinates to take maximum advantage of opportunities by giving them freedom to adapt to changing situations, while maintaining steady progress towards the commander's intended goal. For the purpose of this paper, intent allows a common sense approach to information requirements, acknowledging that staffs can never identify all unknowns, and focusing available effort on the highest priorities for decisionmaking. Good intent provides crystal clear guidance on what needs to be known, and what is to be done with minimal input on how operations must be conducted.

“The purpose of this campaign is to set the conditions for the return of democracy to Haiti. JTF-180 will accomplish this task through simultaneous air/land/sea operations to rapidly overwhelm and neutralize Haitian armed forces and police. Success in this campaign is US citizens and interests, designated Haitians, and third country nations secured; and conditions set for repaid transition to Civil Military operations and USFORHAITI. Once these conditions are established, JTF-180 will hand over to USFORHAITI and redeploy.”⁵

General Shelton's Intent for operation UPHOLD DEMOCRACY

For U.S. forces, long steeped in individual traits of initiative and trust of subordinates, intent becomes a very powerful tool. For example, joint force commanders (JFCs) rely heavily on the advice of their component commanders, the “experts” in Service force employment, to craft operational concepts matching both mission requirements and the unique capabilities of their Service forces. JFCs then develop synergy through the best possible combination of the effects of component force actions. Centralized command and decentralized execution make joint warfare more than the sum of all its parts. But, decentralized execution invites potential confusion and even fratricide in complex situations. Through its capability to focus effort and establish priorities, unifying intent is the first step toward proper management of these dangers. Intent facilitates coordination among supporting components by energizing the entire force with a single vision. Minimal control marks the essence of joint command, but calls for special tools to mitigate risk.

The commander also should have a **concept of operations** explaining how the intent will be carried out. This is the commander's description of mission execution, describing the overall scheme of operations, specifying key tasks, and the synchronization and coordination essential for mission success. The commander normally does not tell subordinates how to accomplish their missions, and should limit subordinate options only when such restrictions are essential for

commander is willing to accept in an operation. It also may include the commander's assessment of the enemy commander's intent, any significant constraints or restrictions on operations, and an assessment of where and how the joint force commander will accept risk during the operation.

⁵General Shelton's intent for Operation UPHOLD DEMOCRACY, where he was Commander, JTF-180. Cynthia L. Hayden, ed. *Operation Uphold Democracy, Oral History Interviews: JTF-190* (XVIII Airborne Corps, Ft. Bragg, NC.), 1.

coordination.⁶ Understanding the commander's intent and concept of operations helps subordinates concentrate on important issues and act in the absence of additional orders.

The greatest value of the commander's intent is its ability to focus subordinates on what is crucial for success even after the fog of war and the opponent's actions have required changes to the original concept of operations. The commander's intent gives subordinates both guidance and latitude to accomplish the mission, presenting the basic unifying themes for subordinate elements. The commander's intent helps subordinates to work together toward the desired endstate without further order, even when operations fail to unfold as planned. It accords the insight and latitude to recognize and seize upon the opportunities that occur in a fluid, chaotic, fast-moving combat situation. When all else fails, when the original plan becomes outdated, when contingency plans no longer fit the situation, everyone acts upon the commander's intent. Good intent helps everyone understand what information is important, thus focusing effort.

2.2. Filtering – Separating What's Essential from What's Available

Intent alone will not provide the commander everything needed to make effective, timely decisions. Several other tools and techniques exist to support the essential functions of command and control. Today, a process for **filtering** information is the next necessary tool for effective decision-making. Filtering out the essential from the non-essential in the huge amount of information available to modern commanders increases the speed and accuracy of decision-making.⁷

Some valuable filtering results from perspectives gained through military training and education: learning what is important for operational success and working together to reduce inefficiency. Additional selectivity can be produced by modern systems that increase information accuracy and reveal elements of dated information. The Global Command and Control System can display current force locations visually, rather than in written form, thus forming an instant picture of friendly force status. Newsgroups provide additional communications avenues within the Secret Internet Protocol Router Network (SIPRNET) community. Unfortunately training, education and modern systems have also increased the productivity of servicemembers, thus also adding to the amount of available information. The identification of the **Commander's Critical Information Requirements (CCIR)** gives the commander another method of mitigating these effects and properly filtering information.

Commander's critical information requirements are situation dependent, but normally include elements of the friendly and enemy situations, and factors of the environment immediately

⁶For example, limitations or restrictions are justifiable when they are mandated to prevent fratricide or limit risk to the entire force; constraints may be necessary to ensure maximized use of transportation assets.

⁷Each situation is different, but it is not uncommon for a three star headquarters to receive between one and two hundred peacetime messages per day. Commonly that number increases ten fold upon activation and the start of crisis action planning, so that the staff must wade through nearly two thousand messages per day, with less time available for the decision-maker to act. This is what some have called "the downfall of the systems approach" (see the Air-Land-Sea Application Center's *Tactics, Techniques and Procedures for Information Management*, p. 1-2).

affecting mission accomplishment. CCIR should be developed from the input of the entire force, reviewed for accuracy by key staff members, personally approved by the commander, and promulgated throughout the force. CCIR then become cornerstones of the information management process. Numerous, recent joint task force training exercises at US Atlantic Command's Joint Training Analysis and Simulation Center demonstrate that the effective use of information increases significantly when members of the staff remain cognizant of the CCIR and can forward changes in CCIR status immediately to the commander. This process of identification, prioritization, dissemination and constant review of critical information also speeds decision-making and force tempo.

Commanders will always need other, less critical elements of knowledge; they will necessarily change their CCIR when the situation requires. Still, if properly disseminated, CCIR will further concentrate the efforts of the entire force on specific requirements and filter the huge amount of information available, thereby increasing the rate of staff action and command decision-making, regardless of who, where or when, or by what method the information is obtained. Commander's critical information requirements are crucial to focusing the command and control organization and its support system on what is important, to understand "how much is good enough," and resist overburdening the staff. Used effectively, CCIR can accomplish one of the joint force commander's most important responsibilities: prioritizing effort.

2.3. Fusing – Creating Understanding

Once an information filter has been established to speed the right facts to the commander, an information integration process should be developed to assist the staff in its traditional functions.⁸ Integrating information properly reduces friction and uncertainty within the staff and furnishes the commander more complete knowledge of the situation. Information exchange must support the vertical and horizontal requests for input among commanders, staffs and forces. All levels of command must be able to pull needed information to support concurrent or parallel planning and mission execution.

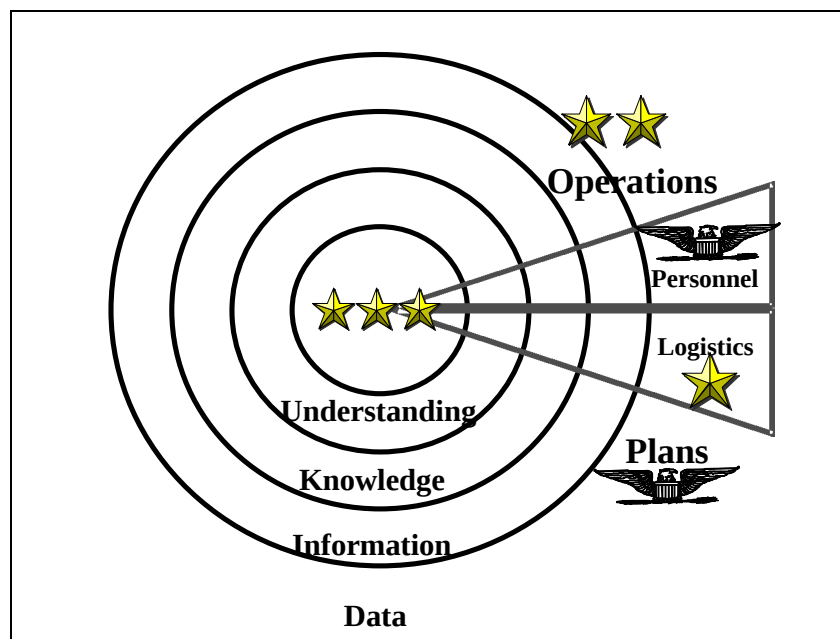
Liaison Officer teams give the commander one of the best methods for exchanging information. In every past exercise or operation, the effective use of liaison officers has been listed as a positive lesson learned. Liaison teams need to be mobile, capable of 24-hour operations, and must have both primary and back-up communications capability. In most cases, liaison officers should be chosen based more upon their familiarity with their own command and commander, than upon grade alone. Once joined within a joint headquarters staff, liaison officers must be supported logistically and given access to the joint commander. Liaison officers will be among the most involved and busy members of the joint staff, and should be among the most beneficial to the commander.⁹

⁸These staff functions include manpower, intelligence, operations, logistics, plans, command and control systems (including communications), fiscal support, and others as required by the mission. For joint forces, they must include coordination efforts with both higher headquarters and subordinate component staffs.

⁹General Carl Stiner has noted that liaison officers performed admirably during operation JUST CAUSE because they informed the JTF commander, conveyed a sense of the battle to their own units and represented the

Fused information, combined with situational awareness, produces the knowledge required for the commander to make decisions. Many sources provide useful information, in many different mediums, and often formatted in a variety of ways. **Fusion** is the logical blending of information from multiple sources into an accurate, concise, and complete summary. The goals of fusion are to reduce information to the essential facts bearing on those issues deemed critical by the commander, and process this critical information in light of the current situation, through situational awareness, to produce knowledge. Properly fused and processed information, at the right time and place, aids the commander in overcoming uncertainty and reducing risk.

As shown in the diagram below, fusion can be improved by organizing the staff with an eye towards properly developing information from raw data, to the judgement required for command decision-making. At the same time, the staff fundamentals of manpower, intelligence, operations, logistics, plans, communications and fiscal support must still be performed. The requirement to accomplish all these things simultaneously may result in a modification to the traditional staff structure and the development of a central battlestaff element to provide fused information, as knowledge level input, to the commander. Other staff cells remain to provide specialized support, yet they too are becoming increasingly integrated so that information sharing produces a more complete and useful product. This organization was used by General Zinni during Operation UNITED SHIELD, and other joint commands to include USACOM, USTRANSCOM and USSOCOM have slowly been moving towards similar structures over the last few years.



Another valuable way to mitigate the negative effects of too much information on staff processes is the development of a staff **operations rhythm**.¹⁰ This technique links the key activities of the

thoughts and capabilities necessary for decision making. See the Air Land Sea Application Center's *JTF Liaison Handbook*, p. I-1.

¹⁰In some commands this is known as "battle rhythm." This term was not used because it gives the

commander and staff and sets the pace for the functioning of command and control within the force. Determination of the **right** rhythm for a given staff and mission provides the key to successful commander and staff action.

“Operations rhythm” refers to the planned management of the timing and pace of key events within a staff. Every staff has a rhythm dominating the information management process; some commanders and staffs manage their operations rhythm; others simply fall victim to the affects of an unmanaged rhythm. Key among these scheduled events are the meetings, decisions, briefings and discussions invariably filling the daily routine of a staff. Commanders and key staff members will quickly find that they have too many meetings each day and too little time available for thought and decision-making. Establishing a process to schedule these events can help control and manage time and productivity.

A commander is pulled both from above, by requirements from seniors, and from below, by the needs of junior commanders. Staffs feel similar effects. These requirements must also be integrated into the schedule of events for a busy joint force staff. Video-teleconferencing (VTC) is now the preferred method of communication among many commanders, and typically the Joint Force Commander will conduct several video-teleconferencing sessions each day.¹¹ If the senior headquarters has an established operations rhythm, and therefore has a schedule of its key events, subordinate commanders can determine appropriate staff rhythms of their own to ensure they are kept current and can pass on critical information to their subordinates in a timely manner. In a recent training example of the effects of inefficient staff operations rhythm, the JFC had a morning update brief at 0700 and met with his senior commander using a VTC at 0800, but did not pass his newly updated perspective to his subordinates until a 1600 VTC meeting, hence producing an eight-hour delay in information currency for subordinate commanders.

2.4. *Synchronization*¹²- *Reducing Redundancy and Filling Seams*

Joint force commanders provide more than decisions and fused information to their seniors and subordinates; they also perform a crucial **synchronization** function for their component commanders. Several synchronization methods can be used to develop synergy among Service component forces by bringing key component strengths together in time and space. The **synchronization matrix**, developed during the course of action development process, serves

appearance that only warfighting requires such rhythm to be established. “Operations rhythm” carries the same meaning but applies to all forms of military operations.

¹¹During operation UPHOLD DEMOCRACY the CINC and JTF commander were able to communicate with the NCA and all supporting commanders via VTC during the crucial hours preceding the commitment of forces. This capability was key to a synchronized scheme of maneuver once the plan was changed in the final hour.

¹²Some may not perceive the difference between the synchronization and coordination functions within a joint force. Essentially, the difference is one of timing and granularity. Because joint operations are executed in a decentralized manner, by components with differing capabilities and doctrines, plans need to be synchronized and component staffs need to synchronize anticipated actions well in advance of execution to ensure optimum synergy is developed. Once actions are begun and the management effort shifts to current operations cells, the task becomes more coordination of ongoing actions, where minimal changes can normally be made by the joint force staff without some degradation of overall effectiveness.

during planning to portray critical actions that must be accomplished by multiple elements of the joint force. Once developed in rough during course of action development, the matrix is continually honed during course of action selection and execution planning until it represents the list of all essential actions to be executed by the joint force. Not limited to efforts such as the exchange of liaison officers and the addition of external support teams, the synchronization matrix also correlates those subsidiary tasks the joint force components must perform for each other – among these tasks are information sharing and propagation. Such matrices are vitally important if commanders are to understand who needs to know some bit of information and when they need to know it. With analysis, a staff can even determine critical periods of information flow and where gaps in understanding may occur in a planned sequence of events.

Synchronization Matrix					
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Threat Action					
Decision Point					
Command & Control	Res Augment Accept OPCON Assume JFACC Embark LnOs OPCON Theater	Deploy HQs Deploy HQs Deploy HQs Deploy HQs Deploy HQs			
Firepower	Show of Force	Prov Air Spt Conduct Air Ops			
Movement & Maneuver		Embark/Deploy Conduct SR			
Protection	Est CSAR Cap	Prov ADA Prov TAES			
Intelligence	Strat Recce Theater Recon	Pre Aslt Recon Track Targets Target Air Threats Cond SR			
Support	Est Log Base	Est Log Bases Est Log Bases Est Log Bases Est Log Bases			
Deception					
Components: ARFOR NAVFOR AFFOR MARFOR SOF					

A Synchronization Matrix under Development

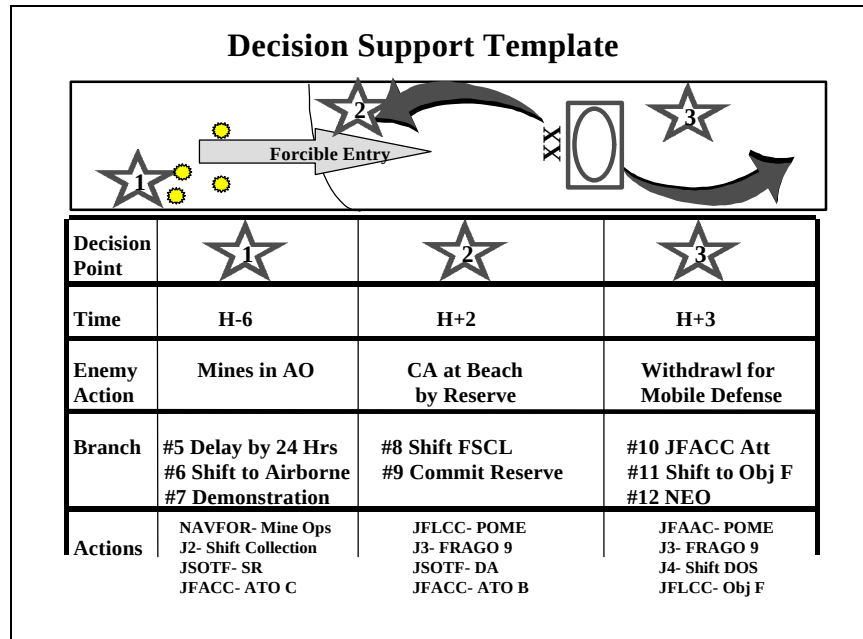
A second information synchronization tool is the **orders crosswalk**. This process is conducted after the development of a joint force operations order and after the components of the joint force have had time to develop their supporting operations orders. Once these actions are completed, key planners are brought together to walk through each phase of the operation from the component point of view, to ensure that critical timing and supporting actions have been integrated. This crosswalk of tasks gives added understanding to the joint force commander and staff by identifying areas of concern and potential seams in the overall joint concept of operations. It also provides subordinate commanders with their first, and perhaps best view of how the operation is planned and how their fellow commanders intend to execute. Some commanders have even conducted exercises, known as “rockdrills,” where representatives physically walk through every action of the operation on a small-scale model to illustrate spatial relationships.¹³

¹³During operation UPHOLD DEMOCRACY the CINC made fundamental improvements to his concept of the operation based upon a rockdrill he witnessed at Fort Drum, New York.

In addition to planning tools, the joint force commander employs a specific number of joint boards and centers to synchronize efforts on overarching themes of joint warfighting **during execution**. The Joint Targeting Coordination Board (JTCB) deals with one of the key rhythms of the joint force, the air tasking order cycle, to emphasize the need to identify and integrate effort on the use of firepower across the force.¹⁴ For maximum efficiency and flexibility of execution, the joint force commander's priorities are announced well in advance of the time required for all components to allocate firepower assets. The JTCB can then analyze any seams in execution, make all components aware of planned actions, and identify resources that remain available for use should critical planning factors change. For example, should the employment of the reserve be required, priorities for aviation assets might be shifted as well. The JTCB and other synchronization bodies work to anticipate requirements and to integrate the planning for future (24 to 78 hours minimum) activities. These boards do not micro-manage component efforts; they synchronize the efforts of all for the benefit of the entire force.

The requirement to anticipate enemy actions and reactions remains critical to success, particularly at the operational level of war. At the operational level, anticipation and synchronization, not supervision of ongoing actions, give commanders their most profound effect on success by bolstering of the strengths and mitigating of any weaknesses of component forces in a proactive manner. This requires focusing on future events; it also makes future planning tools and regular assessment of progress mandatory. One of these tools is the **decision support template** (DST). DST's give the commander and staff a method of maintaining situational awareness of the ongoing operation and identifying critical decision points where commander's action may be required to maintain force momentum.

¹⁴Hopefully, this board will soon be renamed the Joint Synchronization Board (JSB) or at least Joint Coordination Board (JCB), which more accurately describes its broad functioning – which is much wider than targeting.



DST's are derived from synchronization matrices and staff wargaming during course-of-action development.¹⁵ To form a decision support template, staff members map out the key actions identified as decision points for selection of branches and sequels and determine when and what decisions need to be made to execute each branch or sequel in a timely manner. The decision support template is designed to enhance the commander's ability to judge when decisions should be made well enough in advance to prepare the force and retain the initiative.

2.5. Coordination – Making Sure Everyone Who needs to Know Does

Synchronization efforts contribute to making plans and orders as effective as possible for transmitting the commander's vision of the operation prior to execution. Yet, no amount of planning can anticipate the actual requirements for coordination *during execution*, once friction, uncertainty and the will of the enemy inevitably combine to disrupt even the best of plans. **Coordination** therefore is another crucial function of the joint command and control and information management processes. This task is complicated by our current tendency to execute joint operations in a decentralized manner, which empowers subordinates to act but burdens the higher commander with a much greater coordination challenge.

Most commanders execute this responsibility and maintain some degree of decentralized execution through the formation of joint centers, like the Joint Operations Center (JOC), the Joint Movement Center (JMC), and the Civil-Military Operations Center (CMOC). These organizations work to carry out the synchronized plan created by the commander during execution planning. Although simply monitoring execution activities consumes much of the available time for a center,

¹⁵It is very important to reemphasize that synchronization matrices are planning tools – fog and friction in war invariably force changes to plans – decision support templates are used during execution to help commanders judge operational effectiveness and the tempo of operations.

coordinating responses to requests for information takes up much of their effort, and assessment of attained objectives and retention of a capability to adjust execution in the case of enemy surprise must be accomplished as well.

In recent Bosnia operations, both the Implementation Force (IFOR) and the Stabilization Force (SFOR) used numerous information processing cells to ensure that their subordinates remained well informed and that the message of the command was coherent.¹⁶ Of particular note, a Joint Information Coordination Committee (JICC) guaranteed internal coordination during planning and evolved over time to coordinate information with other supporting military and even civilian organizations as operations continued. This is an example of information coordination for the effective use of *information* as an instrument of power.

Such committees and cells are not new to warfare, but the pace of modern operations combined with the huge amount of information available has generated a significant increase in the number of coordination bodies within any force headquarters. The coordination function is vital – the manpower and effort associated with use of the cells is high; commanders must measure the costs and benefits as well as ensuring that cells are disestablished once their coordination function has been completed. During the initial phase of operation in Haiti, the joint task force commander created a movement control center to ensure adequate resourcing of all elements of the force. Once the logistics coordination had been completed the center was closed down and the people returned to their primary duties. Prudent commanders must also ensure these cells are integrated effectively into the battle rhythm of the force and that they add velocity to information flow, not slow it down.

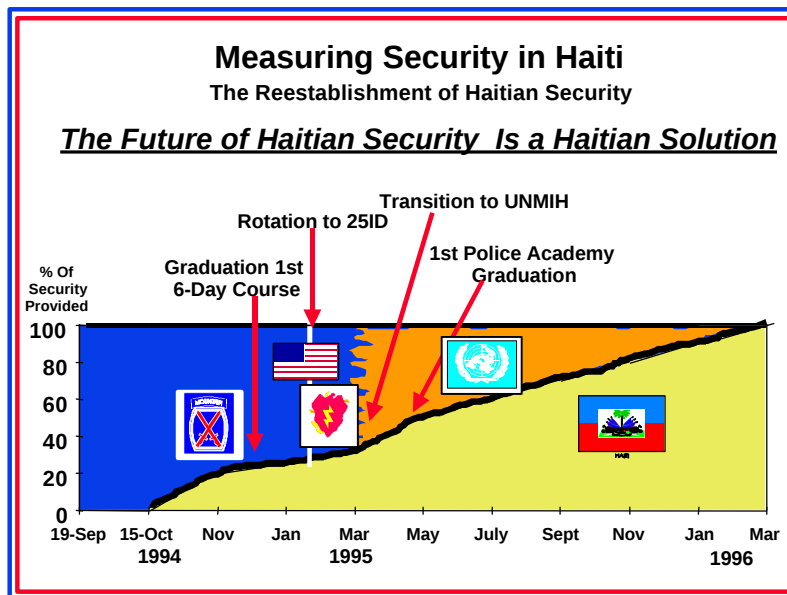
2.6. *Assessment – Understanding How Well*

Finally, no operation can work effectively without **assessment**. Assessment is not only required to gauge success, but also to manage mission creep and conflict termination. Assessment of military operations entails evaluation of current information and its relation to the planned accomplishments of the campaign or mission. Assessment includes not only deciding whether different actions might be necessary, but also how much of the mandated mission has been accomplished and when should military operations transition or stop. Proper assessment of the situation includes an understanding of the opponent's past actions and future goals, as well as a sense of the current plan's chances of success and some measurement of current effectiveness. Many commanders and staffs develop effective planning capabilities, but proper assessment remains a daunting challenge to all but the most capable staffs.

Two of the most potent examples of assessment during military operations come from completely different styles of war. The decision to stop the carnage on the Basra road and end operation DESERT STORM was captured in a photo showing General Colin Powell standing near President Bush and Secretary Cheney in the oval office talking to General Schwartzkopf on the telephone. Determining the appropriate match between destruction of the enemy force and the

¹⁶For additional information see Pascale Combelles Siegal's fine book *Target Bosnia: Integrating Information Activities in Peace Operations* (Institute for National Strategic Studies, Washington, DC), 1998.

endstate desired by the President took significant assessment judgement. In a very different operation, UPHOLD DEMOCRACY in Haiti, the assessment process was just as critical but had little to do with combat operations. In Haiti, measures of effectiveness were key for military forces to help the recovery of Haitian democratic functioning. General Zinni in operation DESERT FOX and General Clark in operation ALLIED FORCE have also seen the critical impact of timely and accurate assessment of operational effectiveness.



One method of Measuring Effectiveness during Operations in Haiti

Successful assessment tools have been rare, rather limited, and normally reduced to some abstract “**measure of effectiveness**” (MOE). MOE have traditionally been fraught with uncertainty – witness the extensive and contradictory assessments of bombing campaigns since World War II. Still, some gauge of success is mandatory if all components of a military force are to work effectively together as they prosecute a campaign and commanders must have some common capacity to measure progress. If progress can be measured and effectiveness assessed accurately, then the commander can adjust the efforts of the force to effect progress towards the endstate desired and execute the interagency conflict termination plan under positive control. Lack of such positive control has added fuel to the fire of mission creep and continuing “operation roll-over” in Bosnia, Iraq and to a lesser degree in Haiti.¹⁷

3. Operationalizing Information Management: Making Information Work during Operations

Effective information management enhances all operations; it is needed not only to communicate information and develop situational awareness of the battle but also to anticipate opposition

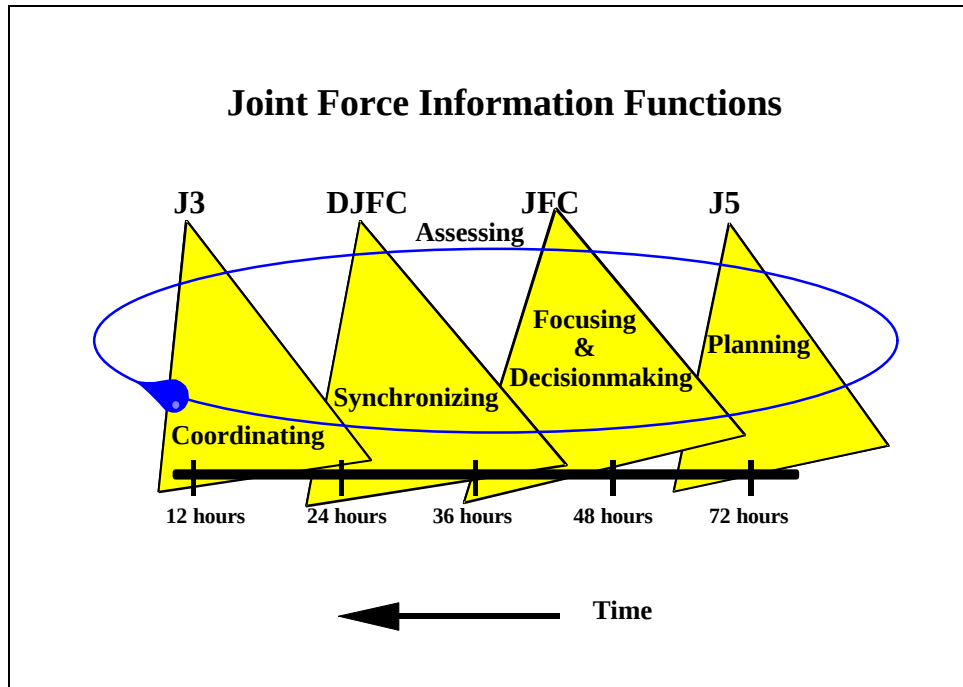
¹⁷By “operation roll-over” I refer to the practice of renaming operations in the same theater of war as objectives change to continue the use of force well after the initial military objectives were obtained, thus the series of operation names in Bosnia and Iraq.

reactions, measure progress towards endstate and keep all the components of the force on the right track towards conflict termination. Anticipation is particularly important in joint operations because joint force commanders execute at the operational level of war and have only minimal direct control over current operations.¹⁸ In a practical sense, this often means that joint force commanders must focus their decision-making efforts as far in the future as possible, but at least 72 hours in advance, in order to provide the guidance and synchronization needed by their subordinates. This formidable anticipation challenge can serve as an illustrative example for appropriate information management.

The information process begins with intelligence preparation of the battlespace, using, among other things, the Theater commander's assessment of the situation and the National Command Authority's determination of the decision to use force outlined in the warning order mission statement. These documents must be re-addressed to all subordinate commands in order to establish a common information baseline for the operation to follow. From these facts and an initial endstate goal, all the commanders can begin sharing information in a managed process as the course of action development and execution planning phases are completed. The pace of information sharing and decision-making only increases as D-day nears, and staff operations rhythm becomes critically important.

The figure shown below illustrates a division of labor used to permit the joint force commander and staff to manage the key information functions during the planning and execution of a contingency operation. The joint force plans division (J5) forecasts future operational requirements and supervises the development of branches and sequels (using a decision support template in order to identify decision points for the commander.) Typically, the J5 section forms a Joint Planning Group (JPG) to manage the planning information flow through the staff. All sections of the staff cooperate to ensure future requirements are identified and estimates of required resources are developed. In particular, the J2 section inputs enemy intentions and capabilities to begin continuous wargaming by the staff against all likely enemy actions. Liaison officers also participate in this forecasting effort to keep their commanders proactive. Liaison officer communications ensure actions are taken in a timely manner at all levels of command within the force – something of a shortcut for the flow of information.

¹⁸At the operational level of war, joint commanders and staffs do not normally control tactical operations; therefore they must anticipate and allow time for subordinate commanders to conduct their own detailed planning and execute while the joint staff synchronizes effects and coordinates component activities.



The joint force commander gives regular endstate guidance and decides on courses of action from among those developed by the J5. The deputy commander supervises the synchronization of planning efforts through required boards and functions, ensuring that synchronization has been completed, through rehearsals and back-briefs, prior to execution. With the receipt of the execution order, the pace of information transfer increases again. The same information management tools are utilized during execution, although they may be used in slightly different ways.

The focus of activity, and thus the focal point for information flow, shifts upon execution. The J3 coordinates component actions during execution and ensures that the commander and remainder of the staff remain aware of the current situation. The full staff supports these actions by participating in the joint planning group, synchronization boards and centers and coordination cells like the joint operations center – all of which assess progress toward the endstate objective, by phase, on a daily basis. The deputy commander retains the key role of focusing on the high-priority synchronization efforts of the force, for example the closing of any seams among component concepts of operations through the JTCB or other mechanisms.

Frequently, the staff officer responsible for operations plans, the J5, will still lead the Joint Planning Group, which continues to synchronize plan development for the future phases of the operation just as it did during course of action development. The J5 also coordinates with outside agencies and higher headquarters in the development and synchronization of future plan options, then passes these nearly-completed “branch plans” to the J3 for execution phase coordination. Many J3s organize their directorates into two sections, with one, operations plans, having responsibility for the refinement of the branch plans and the other, current operations, tasked with the coordination of on-going operations. Still, during execution, the J3 manages the Joint Operations Center (JOC), which coordinates information to manage daily operations.

Of course, even this construct will only improve information management if the commander and staff can maintain an efficient operations rhythm to accomplish these efforts over time. One successful pattern uses an early-morning update brief, followed by a commander's video-teleconference to confirm current information and project future requirements. Following the VTC, a future operations brief is conducted for the commander and guidance is given to the staff to support synchronization board efforts in the early afternoon. Anticipation of threat actions and planning for the following 72 hours remains the goal of the synchronization effort. CCIR are developed, approved and disseminated throughout the force. This same cycle is then repeated in the evening to pulse information through the entire force twice daily.

Filtering, fusion, synchronization and coordination tools serve to support the commander's decisionmaking process and facilitate the appropriate control of operations. Combined, these tools permit both commanders and staff to focus on the important issues and accomplish timely and effective actions within the battlespace. This information management construct permits the commander to focus effort on the control of future operations, after receiving frequent briefs on future plans. Accordingly, decisions can be made, staff action can be completed, and subordinates can be given ample warning for future tasks. This approach has been used successfully in operations in Somalia, Haiti and Iraq.¹⁹

4. Summary: The Information Management Solution

Prudent commanders can meet the growing information challenge by breaking the command and control process into six, workable functions, and mastering each in turn. Given the right tools, each of these functions is individually manageable, even in today's highly complex operational environments. Recent operations from JUST CAUSE and DESERT STORM to DESERT FOX and ALLIED FORCE have provided solid examples of the use of these tools as well as the benefits of their proper application. This management approach has permitted efficient staffs to master the overall task of organizing and controlling the critical information flow during the crises of the recent past. Learning this lesson can help others do as much during the contingencies of the future.

By using the correct tools, commanders can deal with the right information at the right time to make dominating decisions and positively control operations. In doing this, they maximize effectiveness and minimize risk while accomplishing the mission at hand. Military operations are all different, yet for centuries we have understood that certain basic principles provide a source of fundamental wisdom to commanders. The six functions of information management are also functions of command at every level. Like the principles of war, they are neither universally applicable, nor inflexible in execution, yet they should stand any commander and staff in good stead when faced with the challenge of managing the immense number of information sources

¹⁹General Zinni testified before Congress on January 28 saying, "Due to the destruction of key facilities and specialized equipment, we assess that Iraq's ballistic missile program has been set back one to two years. Several of Iraq's most sensitive security units suffered attrition and the Iraqi command and control network was disrupted, with some degradation remaining today. Regarding the success of Operation DESERT FOX, over 80 percent of the designated targets were hit and damaged. Additionally, every security unit attacked suffered damage."

within today's modern battlespace. Focusing, filtering, fusing, synchronizing, coordinating and assessing information should become familiar functions of command at all levels of war.