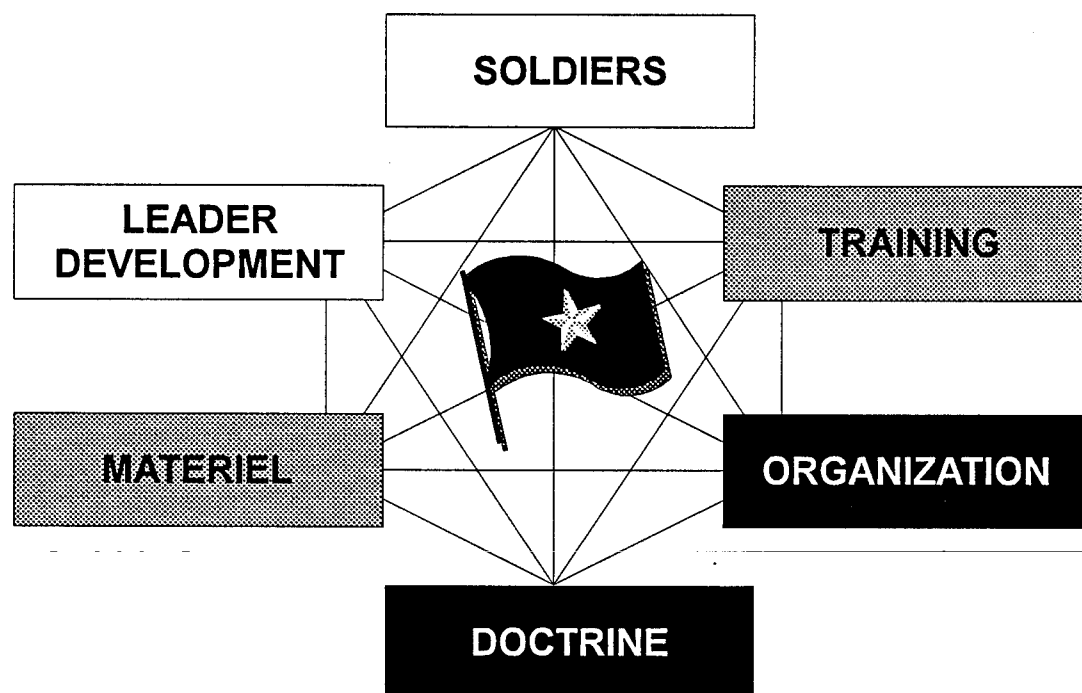


Staff Organization and Processes for the Digitized Division



**FY 95 Mobile Strike Force
Battle Command Experiment**



19960401 130

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Introduction

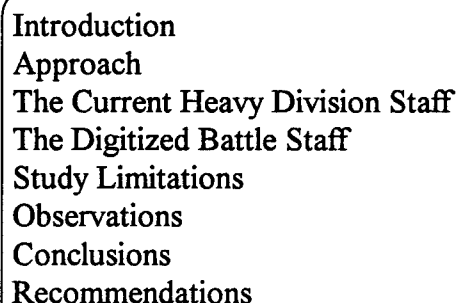
Purpose

This paper presents observations and recommendations concerning division staff processes and the Digitized Battle Staff (DBS) organizational concept developed by EER Systems, Inc., for the Battle Command Battle Laboratory - Leavenworth (BCBL(L)). Observations were based on the partial implementation of the DBS concept in the Mobile Strike Force (MSF), a notional division-sized force used by the Army for investigation of Force XXI issues. MSF operations were observed during the 1995 Battle Command Elective (BCE), taught by instructors from the U.S. Army Command and General Staff College (CGSC), and the 1995 Prairie Warrior (PW) Exercise.

Focus

The Training and Doctrine Command (TRADOC) Analysis Center (TRAC) addressed staff organization and process issues as part of the overall analytical support to the Fiscal Year (FY) 95 Mobile Strike Force Battle Command (MSF/BC 95) Experiment, a subordinate study of the Prairie Warrior/Mobile Strike Force 1995 Advanced Warfighting Experiment (PW/MSF 95 AWE). The Operational Test and Evaluation Command (OPTEC) provided direct analytic and observation support to TRAC for the MSF/BC 95 experiment and for the PW/MSF 95 AWE.

The original intent was to compare an updated division headquarters staff design with a lot of information technology and automation added to the basic current division staff design. However, at the last minute (December 94) the DBS concept was introduced and adopted for use in the MSF. Based on this change the focus of the study effort shifted to primarily looking at the DBS concept as implemented and try to assess the organizations ability to implement the concept and identify strengths and weaknesses with the concept. The DBS concept reorganizes the division staff to achieve horizontal integration of functions and organize the staff around information and information technology.



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Conclusions
Recommendations

Figure 1. Contents

The outline for the paper is shown in Figure 1.

Approach

Experiment Context

The intent of BCBL(L) was to explore elements of information operations (IO) and future battle command in a Battle Command Training Program (BCTP) seminar-like environment. To provide this framework, the MSF/BC 95 Experiment was designed within the context of two activities associated with CGSC. These activities were the BCE, a course (A308) developed

jointly by BCBL(L) and CGSC, and the PW student exercise which was conducted by the college in May 1995. Seventy-three CGSC students enrolled in A308 were assigned command and staff roles of a division-sized MSF, both for the BCE exercises and in PW. An active duty general officer, Brigadier General Geoffrey D. Miller, served as the MSF Commander. The exercises were conducted using the Corps Battle Simulation (CBS) as the exercise driver. Principal activities during the MSF/BC 95 experiment are shown in Figure 2. Through the

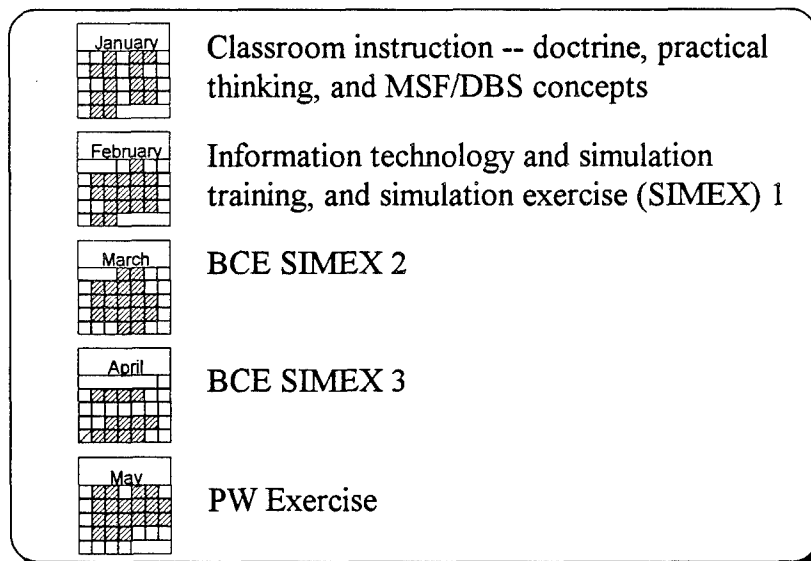


Figure 2. MSF/BC 95 Experiment structure

use of a good idea cutoff date and experiment nomination review process, the PW/MSF 95 AWE Study Director attempted to fix the organizational, conceptual, and technological influences on the experiment. While there was much more stability in the exercise context than in PW 94, the introduction of the DBS concept just one month prior to the beginning of the BCE had a profound effect on an already demanding training schedule for the MSF, given a new warfighting concept, new combat systems, and new information technologies.

Analysis Support

The observation teams were organized and oriented to conduct SIMEX observations and static comparisons of staff structure and collect observations of the DBS organization to identify inconsistencies in the DBS concept and opportunities to improve DBS staff processes and organization. In order to better understand the extent of implementation of the DBS concept in the MSF, members of the TRAC study team attended each of the BCE instructional classes, guest lectures, and other events, and, with OPTEC support, observed each of the SIMEXes and PW. Special training sessions were held for the OPTEC observers to improve their knowledge and understanding of the DBS concept and the automation hardware and software available to the MSF, since resource constraints precluded their attendance at all MSF training events. Because there was no readily observable baseline staff organization to observe for comparison, the TRAC and OPTEC observers observed the MSF in action and made assessments based on the DBS doctrinal concepts presented during training.

The Current Heavy Division Staff

Doctrinal Guidelines

Understanding the basis for the DBS concept requires a review of current command and staff relationships and functions. Doctrinal publications, such as Field Manual (FM) 101-5,

Command and Control for Commanders and Staff, Final Draft, August 1993, provide detailed explanations of current and future command and control (C2) doctrine, tactics, techniques, and procedures. The following is a macro-level review of enduring command and staff precepts.

Commander's Functions. Commander's functions fall into two broad categories, the art of battle command and the science of control. The art of battle command includes the means and techniques commanders use to motivate and discipline their forces, assess the condition of their organizations, guide the activities of those organizations, and formulate their continuing estimate of the situation. The broad category of the science of control consists of the generally empirical and pragmatic activities by which commanders engage in planning their forces' actions, assessing the progress of their forces against their vision contained in their plans, and changing their plans and/or their forces' actions in response to the mandates of unfolding reality. Of the two functions, the staff focuses the vast majority of its efforts in supporting the commander's exercise of the science of control.

Staff Functions. According to FM 101-5, a staff supports the science of control in four primary ways. First, it provides information to the commander and shares that information internally in the HQ and with other organizations, both vertically and horizontally. Second, a staff makes estimates of the sets of actions required to achieve a purpose and recommends to the commander the most preferred sets. Third, based upon the commander's decisions, a staff prepares plans and orders. Fourth, a staff measures organizational behavior against planned requirements and, in the name of and as authorized by commanders, controls organizational behavior.

Staff Processes. To perform the four types of support, staffs engage in four sets of inextricably intertwined activities, each termed a "staff process". Figure 3 depicts the relationship between staff functions and staff processes. The first process is the gathering, analysis and exchanging of information on the status of their own, their supporting, other friendly, and adversary forces and/or organizations. This process, which permeates and is essential to the other three, occurs continuously, before planning, during planning, during operations, and subsequent to them. Its objective is synthesis of a relevant common picture (RCP)

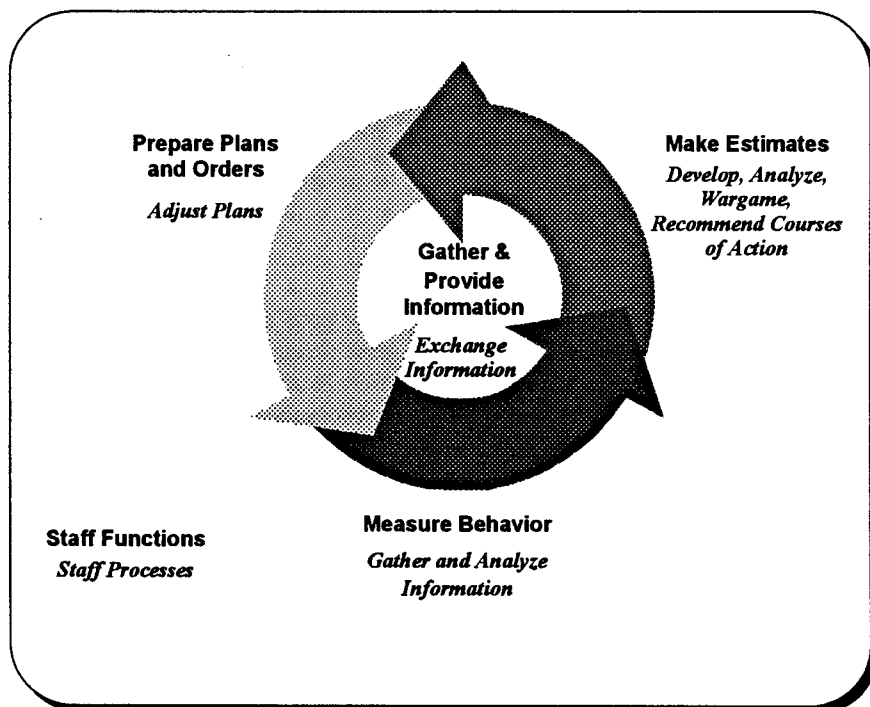


Figure 3. Staff Functions and processes

of friendly and enemy situations and status. The exchanges must occur both internally (among the vertically integrated, functional stovepipes that are major components of today's division and corps staffs) and externally with subordinate forces, higher echelons, adjacent organizations, and other organizations, such as non-Department of Defense U.S. government agencies, non-government organizations and/or private, volunteer organizations involved in an operations other than war environment, whose activities may have an effect on the commander's battlespace. Second, staffs engage in the process of making staff estimates; developing, analyzing, wargaming, and then recommending courses of action (COAs). The third process is the development of operations plans and orders. During the later part of this process adjustments are made to the current plan (and/or the plan for the next operation) and associated force actions to reflect reality as the current operation picture unfolds. The fourth process, is the measurement of behavior or operational outcome. Here, again, the gathering and analysis of information for updating the relevant common picture is performed. Friendly and enemy situations and status are analyzed so that new directions can be set for the organization.

Division Staff Organization

Figure 4 illustrates the notional organization of a current heavy division HQ, consisting of 437 personnel. The coordinating staff provides functional leadership and integrating support in the following areas:

- | | |
|--------------------------|-------------------------|
| G1: Personnel | G4: Logistics |
| G2: Intelligence | G5: Civil Affairs |
| G3: Plans and Operations | RM: Resource Management |

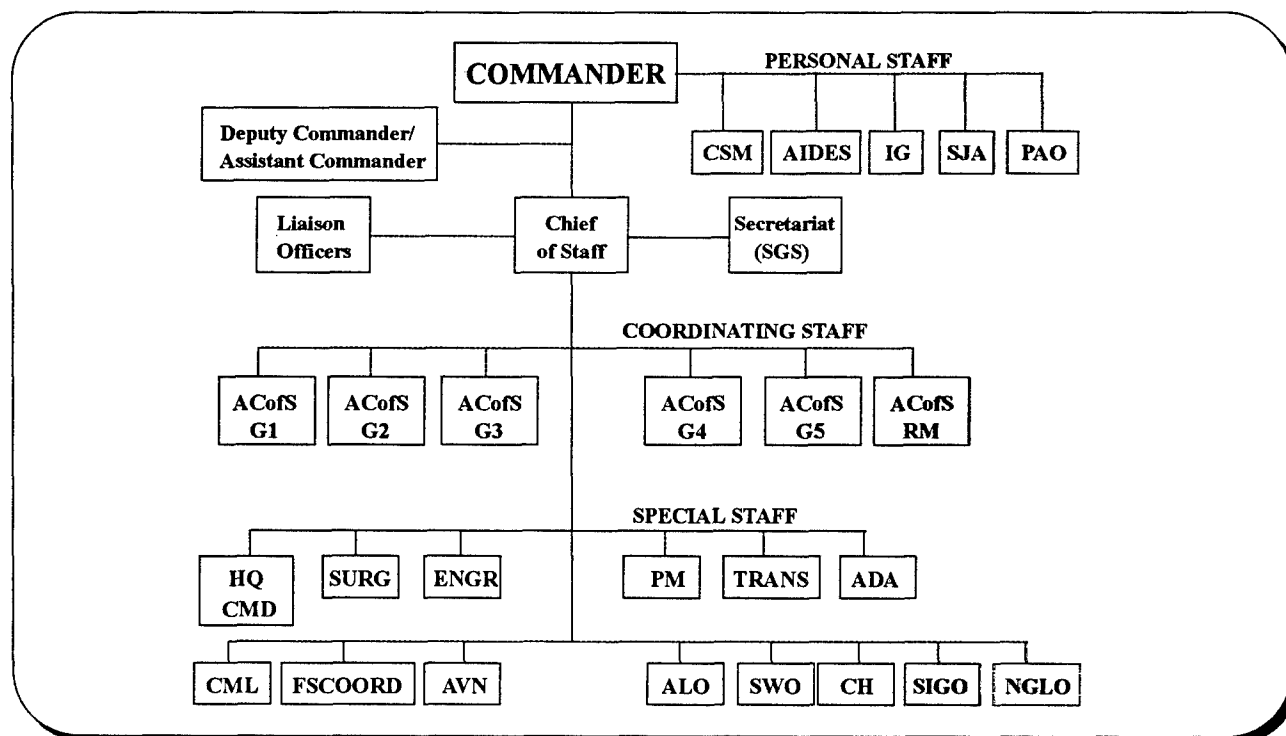


Figure 4. The current heavy division HQ

The special staff provides leadership, integration and coordination support in the specialized areas of medical, engineer, provost marshal/military police activities, transportation, air defense, chemical, fire support coordination, Army and Air Force aviation, Air Force weather, chaplain, and signal support.

The personal staff provides direct support to the commander in areas of enlisted personnel morale and training, personal affairs, inspector general investigations and reporting, legal advice and public affairs support.

Division Staff Processes

The processes used by today's division commanders and staffs have been developed and refined over many years. The principal decisionmaking process is depicted in figure 5. The

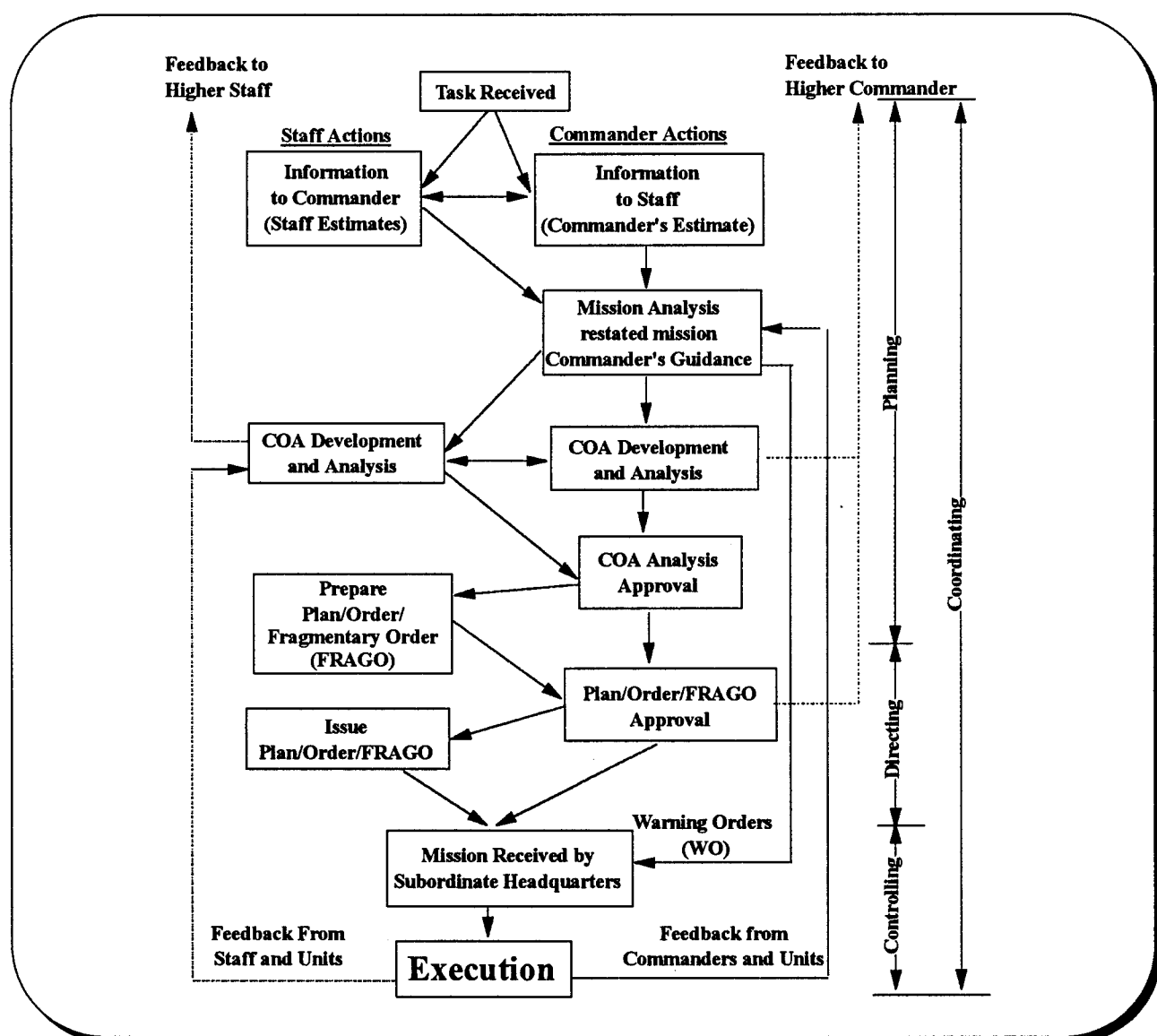


Figure 5. The deliberate decisionmaking process

deliberate decisionmaking process is used when there is sufficient time to look at a broad range of situations and possibilities. The combat decisionmaking process, which is an abbreviated, time-constrained action is used when there is very limited time to look at options and make a decision. The concept, planning and preparation, execution, and assessment (CPEA) process reflects the continuous cycle in the combat decisionmaking process. Figure 6 illustrates how all these processes fit together regarding time constraints and experience level of the staff.

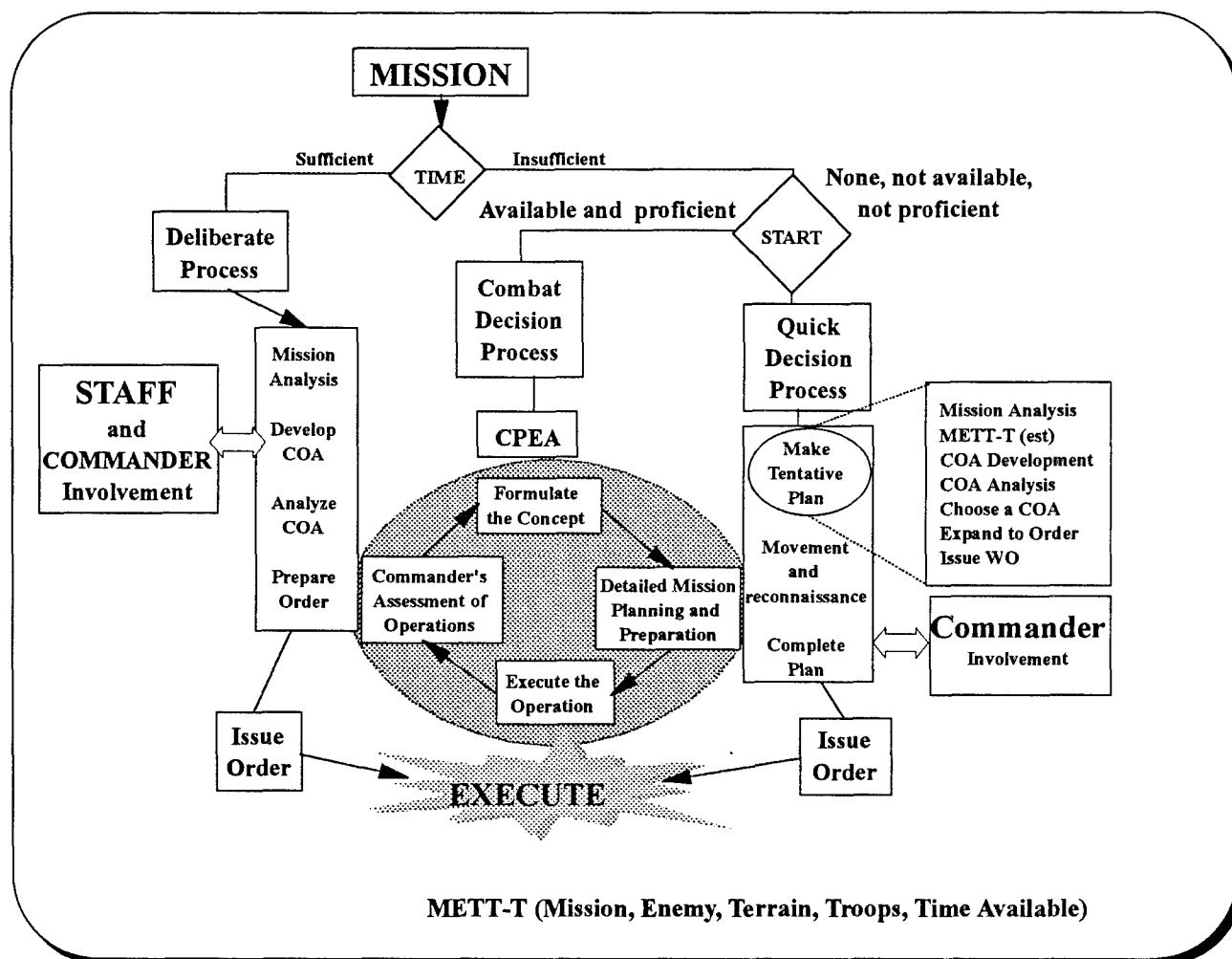


Figure 6. How the tactical decisionmaking processes work together

Challenge of Command and Staff Relationships

The ideal staff relationship, internally and with the commander, is comparable to that of an organism existing for a single purpose upon which it expends all its efforts and resources. General Eisenhower said it this way: "The teams and staffs through which the modern commander absorbs information and exercises his authority must be a beautifully interlocked, smooth-working mechanism. Ideally, the whole should be practically a single mind." In reality, however, the typical staff is fragmented (Figure 7). It is made up of a large set of functionally oriented stovepipes that create an enormous requirement for horizontal information hand-offs. Examples of fragments are deep, close, rear; strategic, operational, tactical; Assistant Chief of

Staff (ACofS) G1, G2, G3, G4, and G5; and the battlefield operating systems, various battlefield functional areas, and battlefield mission areas. The special staff (up to 29 in a corps or division HQ) is another example of stovepipes; each special staff office has its own vertical coordination dimension.

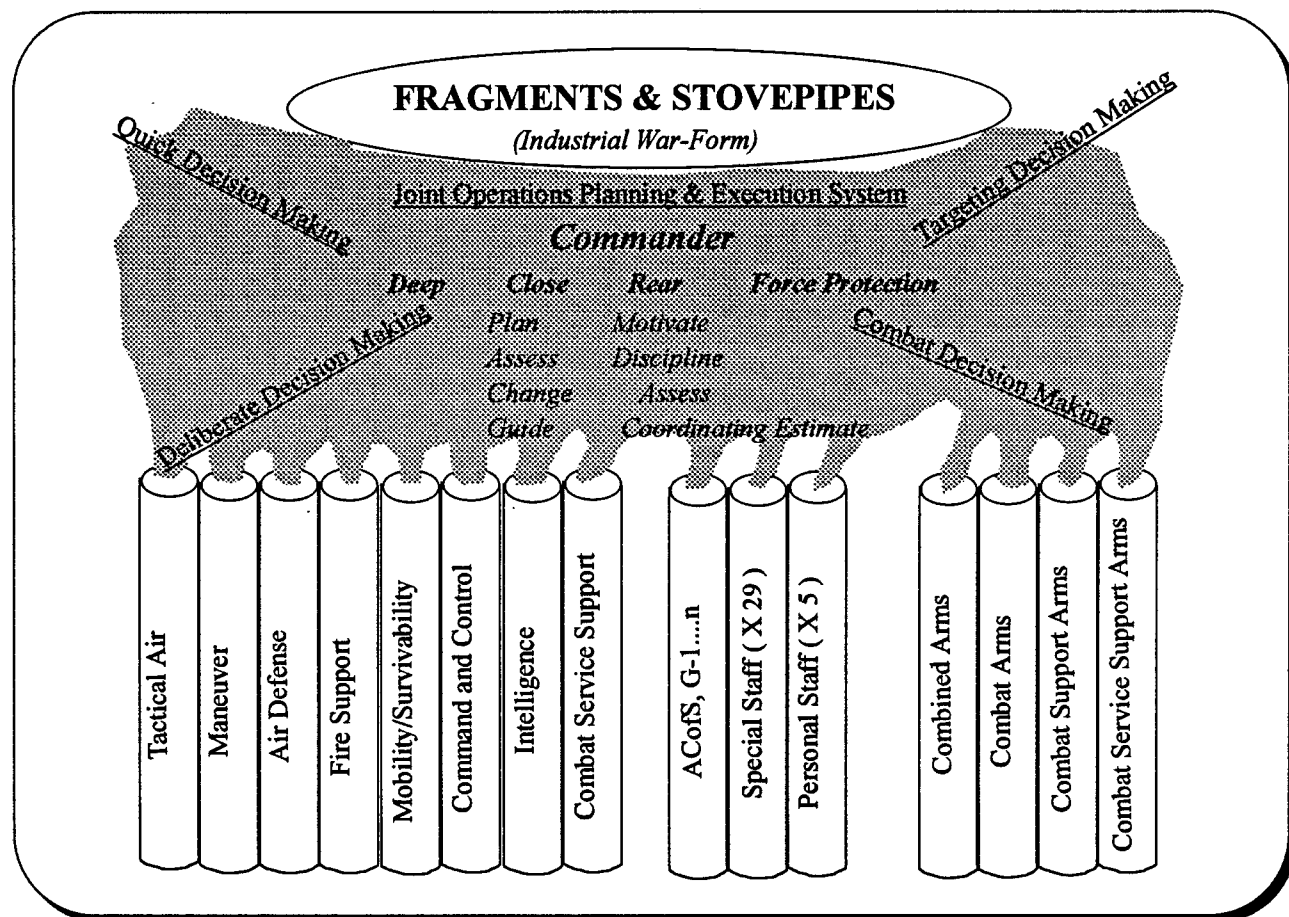


Figure 13. Fragments and stovepipes

These functionally oriented fragments and stovepipes cause the unnecessary consumption of large amounts of time. Time is not replaceable or renewable, nor is it necessarily exchangeable with other resources. The DBS concept proposes that the fragments and stovepipes directly cause a substantial decrease in the commander's ability to control an operation's tempo, and result in lost information. This further results in an increased need for staff personnel resources, systems and management layers because of the perceived increased requirements to exchange (or to hand off) information.

With the emphasis on optimally functioning, specialized fragments and vertical integration (itself not yet perfected), commanders and staffs have found it necessary to invent another, fifth, process -- horizontal integration. This occurred primarily as a way to overcome the limitations of fragments and stovepipes. But, because the horizontal integration process tends to reinforce the existence of fragments and stovepipes, it compounds the consumption of the vital resources of time, tempo, people, and information. Thus, there is a major underlying principle of the DBS concept: horizontal integration must be a natural result of staff activities that does not require

explicit attention. It must not be a separate process in which the staff engages and to which the staff diverts any of the commander's vital resources of time, tempo, people, and information.

The Digitized Battle Staff

Background

The DBS concept was a follow-on effort by EER Systems, Inc. based on earlier work they had performed for the BCBL(L) development of the *Concept for a Knowledge-Based Commander with a Process-Oriented Staff* under the *Battle Command Assessment* project. The DBS focuses on providing optimal support to the commander. The basic premise of the concept is to leverage technology to achieve cross-battlefield operating system (BOS) functional integration; to improve the commander's ability to manage time and control tempo; to reduce staff layering; and to enhance information exchange, analysis, and processing. The anticipated positive results of employing the DBS include dramatically enhanced integration, synchronization, and information exchanges across all BOSs and functions, thereby reducing the staff size and bureaucracy.

The DBS is based upon three major operating and organizing assumption outlined below.

- ♦ Horizontal integration must be a natural result of staff activities, that does not require explicit attention; it must not be a separate process in which the staff engages and to which the staff diverts any of the commander's vital resources of time, tempo, people, and information.
- ♦ Reducing fragments and stovepipes to a minimum provides commanders with an enhanced ability to control tempo and use time to their advantage, with a lean and agile staff, and with an enhanced ability to have and share an RCP.
- ♦ The single most important qualification for membership in the DBS HQ staff is possession of the ability and skill to perform and achieve success in multiple functions.

The DBS concept also recommends the addition of a fifth staff process to the existing set. This fifth process is support to subordinates. This is intended to occur in one of two ways. First, a staff pushes support to subordinates. It can do this by physical presence, e.g., staff representatives go forward to a subordinate organization command post (CP) to assist in detailed rehearsal and/or other preparations for an operation and, as appropriate, to assist in control of the operation, providing the perspective of the developer of the plan. A staff also can support subordinate staffs via nonphysical presence, e.g., electronic transmission of information. Second, a staff pulls support. It can guide the staff of a subordinate organization in their search for information, directing subordinate inquiries into areas that may have been overlooked. Both staffs benefit from the resulting information which would otherwise have been missed. Whether this represents a significant departure from existing processes is questionable. One might argue that this process is subsumed under the existing processes of gathering and analyzing information, and exchanging information.

Organization

Figure 8 illustrates the major subordinate staff elements of the DBS concept. The shaded areas indicate sections/elements that were not portrayed or examined at all during the BCE or PW 95. The other sections were portrayed at least partially. By comparing figures 5 and 8 it is readily apparent that the DBS represents a major paradigm shift from organizing along functional, specialty and hierarchical lines toward an integrated organization centered around information operations and technology. The DBS, in concept, is a lean HQ organization geared toward supporting the commander in fulfilling his mission and following his intent.

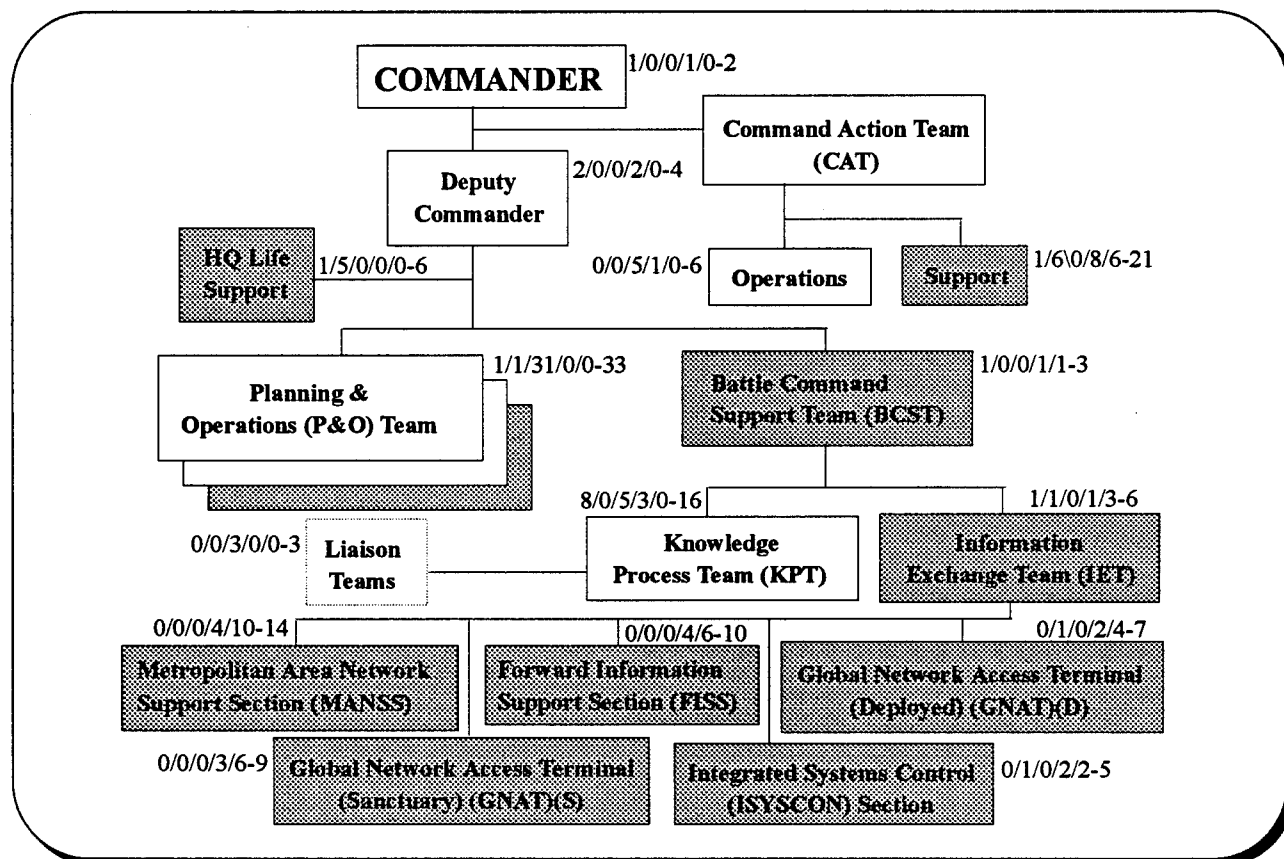


Figure 8. Organization of the DBS

Figure 9 provides a comparison of the major assets, in particular personnel, that are available to the current division and recommended for the DBS organizational concept. The major differences in personnel reflect the shift of activities that can better be performed in functional areas to their respective organizations such as fire support to division artillery (DIVARTY), G-2 to the Military Intelligence (MI) Battalion, the G-1 functions to the division support command (DISCOM) Personnel Support Company, and the G-4 functions to the DISCOM. The differences also reflect potential savings that may be attained by changing from manual to automated systems for such things as maintaining a current situation map. This seemingly simple process requires several people to query units for their locations and post them continually to a paper map with overlays. This can be done automatically in the future.

through the medium of computer graphics generated from automated unit location feeds from Global Positioning System (GPS) equipment mounted on each piece of equipment in the organization. Status information will also be automatically fed into the force level database and be available to those staff organizations using it for planning, coordinating and monitoring the operations of the unit.

Current Heavy Division Headquarters TAC/ Main/Rear		Digitized Battle Staff Concept	
Personnel	437	Personnel	220
Wheeled Vehicles	89	Wheeled Vehicles	81
Tracked Vehicles	7	Tracked Vehicles	12
Helicopters	0	Helicopters	3
Plus Reserve Components Augmentation Signal not included		Includes Signal Support	

Figure 9. Comparison of current division HQ versus DBS

Although the number of wheeled vehicles remains about the same there is a shift from large five-ton trucks with expandable van shelters on them to smaller High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) cargo trucks with shelters on them. This is proposed as a way to greatly enhance the mobility and deployability of the HQ.

The change in the number of tracked vehicles reflects the proposed need for increased protection for the forward deployed commander, his Command Action Team and the operational Plans and Operations Team, and for providing the capability for C2 on the move. The helicopters may provide the commander with greater flexibility and mobility within the extended battlespace envisioned for the future battlefield.

Staff Processes by Organizational Element

Since the DBS concept is a new and dramatically different staff concept, it will be presented in a greater level of detail than the current division staff, to describe the portions examined in the BCE/PW 95.

The Command Action Team. The Command Action Team (CAT) provides the commander with information (knowledge), decision support, and force-level control connectivity, and physical mobility. The CAT has assigned operations assistants, supported by other staff elements, to ensure that the commander:

- ♦ Is connected to the staff for ongoing decisionmaking support to include connectivity needed to ensure the commander can personally develop, define, and refine the commander's critical information requirements (CCIR);
- ♦ Has access to the *common, relevant picture* of the battlefield that responds to the CCIR;
- ♦ Has immediate availability of a quick planning capability;
- ♦ Has access to the information and other support needed for development and evolution of the commander's independent, continuing estimate of the situation; and
- ♦ Has the required connectivity to the force-level control system.

The commander's aide, pilots, and drivers ensure the commander is able to be at the decisive place at the decisive time by:

- ♦ Providing air/ground mobility;
- ♦ Providing personal protection; and
- ♦ Providing focus preservation.

The Deputy Commander. The deputy commander is second-in-command in the division as well as being the senior staff officer and senior command information manager. The deputy commander is responsible for assuming command of the division if the commander is disabled or not available; for synchronizing IO in the division; and for maintaining the focus of the DBS on supporting the commander's exercise of battle command.

Life Support. Under the direction of the deputy commander, the life support element selects and lays out the site, and coordinates the defense of the DBS HQ. It either provides or coordinates unit-level logistics support (except signal, electronic and automation equipment maintenance [including both hardware and software]) as well as unit-level administrative, personnel, and finance support.

Planning and Operations (P&O) Teams. The commander's access to decision support services and exercise of force-level control is based on three P&O teams. Each team gives the commander operationally and functionally integrated support for the complete decisionmaking process and follow-on execution of an operation. The commander's requirements guide each of the teams in planning, adjusting, and exercising staff control over the execution of an operation. In this process, the teams function as entities associated with the three operations in which the DBS HQ is simultaneously involved: the *current* operation (Mode C); the *future* operation (Mode B) (during which a team coordinates an operation in detail, including detailed coordination of any deep operations aspects, and adjusts the plan for the future operation to reflect the realities of the evolving current operation); and the *sequel to the future* operation (Mode A) which the team begins by assisting the commander in conducting mission analysis and developing/refining the concept. Each team begins with an operation envisioned by the commander and plans the operation, adjusts the plan to the reality of events as they unfold, and then executes the operation which they planned and adjusted -- each team, in short, exercises "cradle to grave" staff supervision over an operation. Figure 10 illustrates the P&O teams' "cradle to grave" perspective on planning and execution modes over time. Therefore there are three different operations occurring simultaneously, each in a different mode.

The major challenges in execution of the successive operations and modes concept is the transition from one P&O team to another and the change in modes within a team. The more difficult will undoubtedly be the P&O team transition. The commander must set the conditions and establish criteria for the mode and P&O team transitions in terms of the commander's five dimensions of battlespace (width, depth, height, time, and electronic spectrum) and then ensure the staff addresses these transitions during their planning and decisionmaking process.

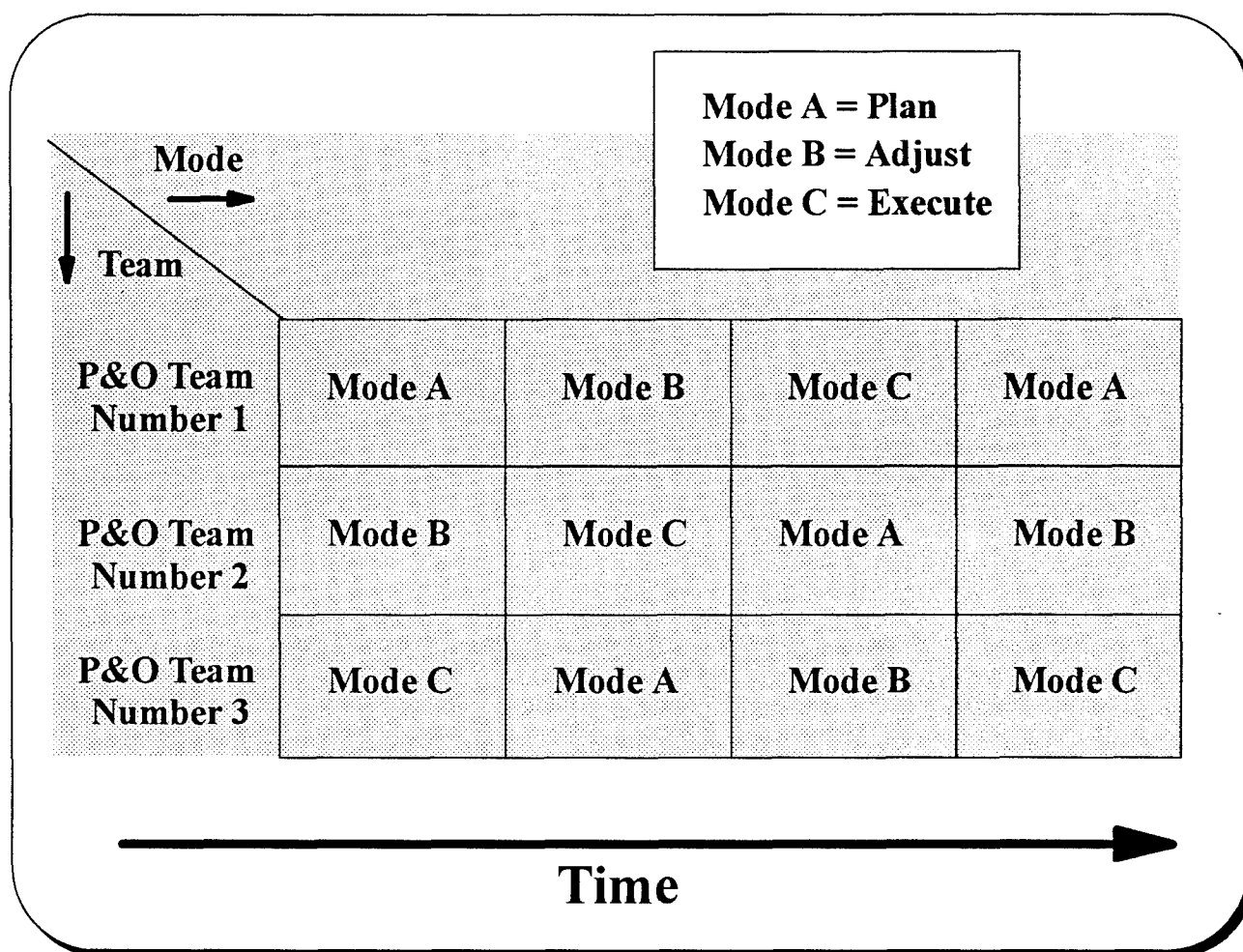


Figure 10. P&O teams' perspective on modes over time

Battle Command Support Team. The battle command support team (BCST) develops, operates, and maintains the force-level information (knowledge) system to support the commander and all other elements of the DBS HQ. It supports the knowledge systems of lower echelons and interfaces with those at higher echelons and adjacent forces. The BCST employs two subordinate elements--the information exchange team (IET) and the knowledge process team (KPT). The BCST HQ directs, integrates, and synchronizes IET and KPT actions and serves as the senior, force-level knowledge base systems manager.

The IET provides the commander and the force with the means to digitize the battlespace and share intent, knowledge, orders, and a common, relevant picture. On a noncompetitive basis, the IET operates an information super transport system that provides the required networks internal to the deployed DBS HQ and the external connectivities both to the division's component of the area common user system (ACUS) or to division units in sanctuary. The team has the primary mission of reducing the time required to transport information within the commander's battlespace. The IET also furnishes the BCST with the capabilities to effect C2 protection for the DBS HQ and to involve the DBS HQ in conduct of C2 warfare (C2W). Elements constituting the IET include a HQ, an integrated system control (ISYSCON) section, three global network access

teams (GNAT), two metropolitan area network support sections (MANSS), and a forward information support section (FISS).

The IET HQ directs and controls the DBS HQ information exchange system (manages information flow); ensures integrated network operations; and provides unit-level signal, electronic, and automation equipment maintenance (including hardware and software). The ISYSCON section controls systems for the DBS HQ automation resources. The GNATs operate in two environments--sanctuary and deployed. While the GNAT in sanctuary noncompetitively supports the DBS HQ from the force projection platform for split-based operations, the two deployed GNATs establish the DBS HQ linkage to the global command and control system (GCCS) and to the sanctuary, as well as providing for other gateways and range extension for the DBS HQ, as required. The MANSS operate the DBS HQ metropolitan area networks and local area networks (LANs) to ensure both internal connectivity within the DBS HQ and external connectivity with the division's component of the ACUS.

The KPT anticipates, plans for, and satisfies information requirements (via collection management including tasking subordinate and supporting organizations). Responding to information requirements the commander identifies, the team acquires, integrates, and synthesizes information into a force-level knowledge base for the commander and the three P&O teams. To do this, the KPT supports and participates in development of CCIR and conduct of intelligence preparation of the battlefield (IPB). Based upon the CCIR and other parameters the commander identifies, the KPT develops, maintains, and, via the information supertransport system, shares a common, relevant picture, and supports the knowledge needs of subordinate echelons. Responding to the CCIR (and supporting requirements that the P&O teams identify and develop), the team collects and assesses information, and then rapidly processes, analyses, and refines information into knowledge. Via the IET, the KPT distributes knowledge throughout the commander's battlespace to subordinate and supporting forces, to higher echelons, and to adjacent forces. Additionally, the KPT provides and accepts liaison to and from external forces, government organizations, and non-government organizations.

C2 Facilities and Systems

Figure 11 depicts the typical C2 facilities that are provided for the DBS HQ and a possible configuration of those facilities. This in no way should be construed as an absolute solution to the employment of the facilities, but is just one of many possibilities.

The DBS concept calls for the following primary equipment systems to be provided for these staff sections:

- ♦ High Mobility, Multipurpose Wheeled Vehicle (HMMWV) (or the commercial utility cargo vehicle [CUCV]) in various configurations as cargo carrier, personnel carrier or shelter carrier. This will be coupled with the tents, workspaces, environmental conditioners, and other features envisioned in the standardized, integrated, command

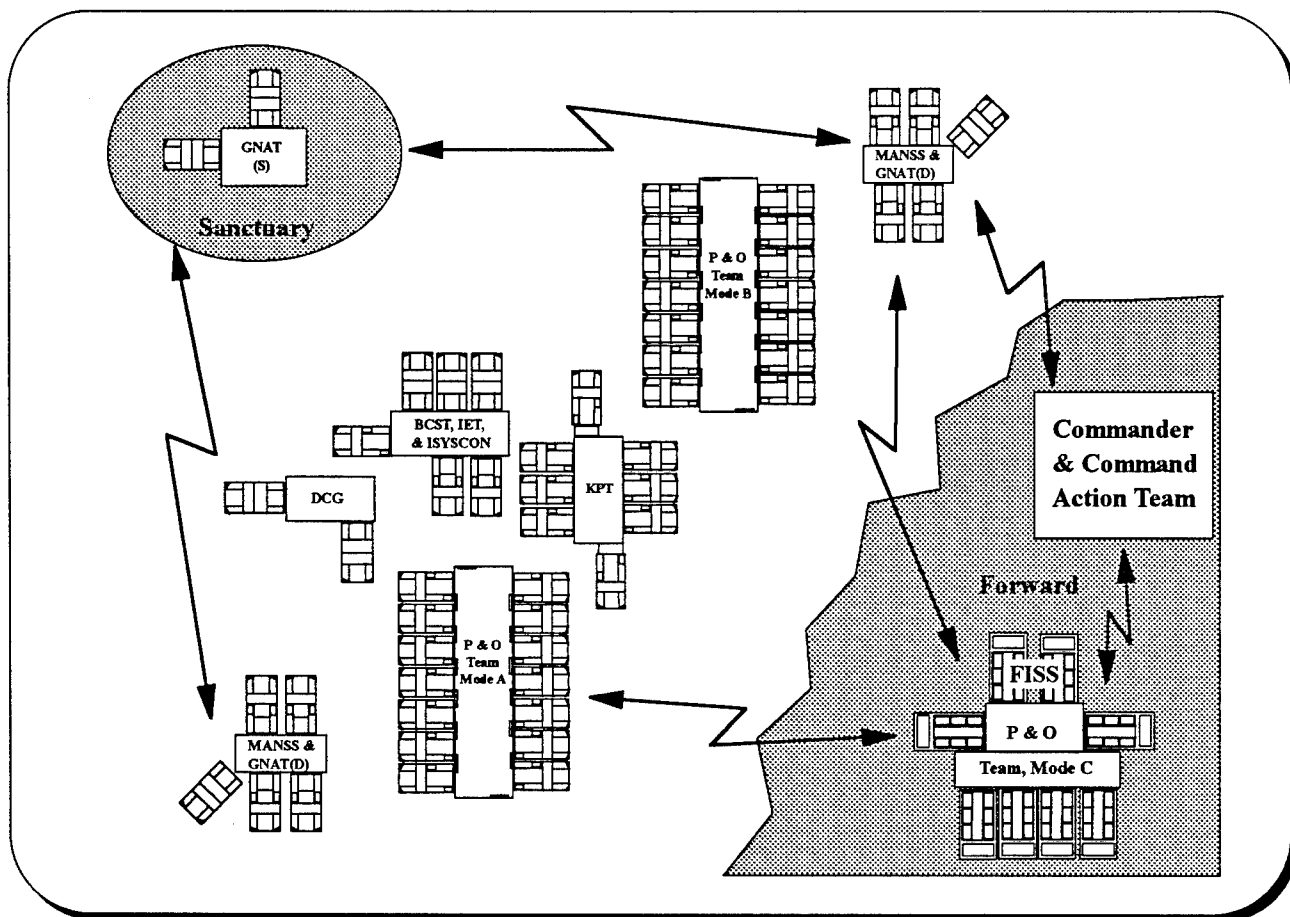


Figure 11. DBS deployed for operations (sanctuary-rearward-forward)

post (SICPS) program to provide flexible modular configurations that meet the commander's needs.

- ◆ **Command and Control Vehicle (C2V).** This is a multiple launch rocket system (MLRS) chassis configured with a staff workspace shelter. This will also be coupled with the SICPS program features to provide flexible modular configurations for the forward deployed command group, CAT and P&O team. This system will also provide the forward deployed elements with the capability to perform C2 on-the-move, and increased survivability.
- ◆ **Automation and communications equipment consisting of:**
 - A force-level control advisor in two variants, one focusing on the commander's requirements and the other focusing on the staff requirements to support the commander. The commander's variant will function as an interactive, intelligent agent that provides situation assessment, status reporting, electronic messaging, and real-time collaborative tools to provide for quicker situation assessment and expedited, effective mission planning and execution. The staff variant will also provide the detail expansion necessary for staff support to the commander in such areas as automatically completing straightforward, detailed sections of

- plans, and assisting the staff in tracking events that support identified decision points and/or synchronization matrices.
- Large screen, flat panel displays which will significantly enhance intra-staff communication as well as mental functioning and serve as a replacement for the currently ubiquitous map board.
- High-capacity satellite communications terminals that will provide the range extension and split-based operations capabilities envisioned in the DBS documentation as well as connectivity to the Defense Information Infrastructure (DII).

Study Limitations

Background

From January through May 1995, 73 CGSC students participated in the BCE course and culminating PW exercise as members of the MSF. The students attended classes of instruction and participated in SIMEXes aimed, among other objectives, at developing an understanding of how to function under the DBS concept. Staffing shortfalls, organizational turbulence, and limitations of prototype information technologies were three principal conditions limiting the achievement of that objective. These effects are discussed below, followed by observations about the DBS organization, staff processes, and equipment.

Staffing Shortfalls

The basic makeup of the staff for the MSF was determined based on experience from the previous year's battle command experiments. The decision on the makeup of the student participants as far as number and branch was made well in advance of, and therefore without regard to, the decision to try to exercise the DBS concept. Therefore, the student staffing more reflects attempts to correct discrepancies noted in the previous year's exercise than a staffing to examine a new C2 concept. The student makeup of the MSF command and staff by branch and quantity are shown in figure 12 below.

AR / 5	FA / 13	MI / 13	QM / 4	AG / 1	USMC/1
IN / 7	AD / 3	SF / 1	OD / 4	MS / 2	USAF/3
AV / 6	EN / 5	SC / 2	TC / 2	PAO / 1	TOTAL 73

Figure 12. Branch and service distribution of the MSF students

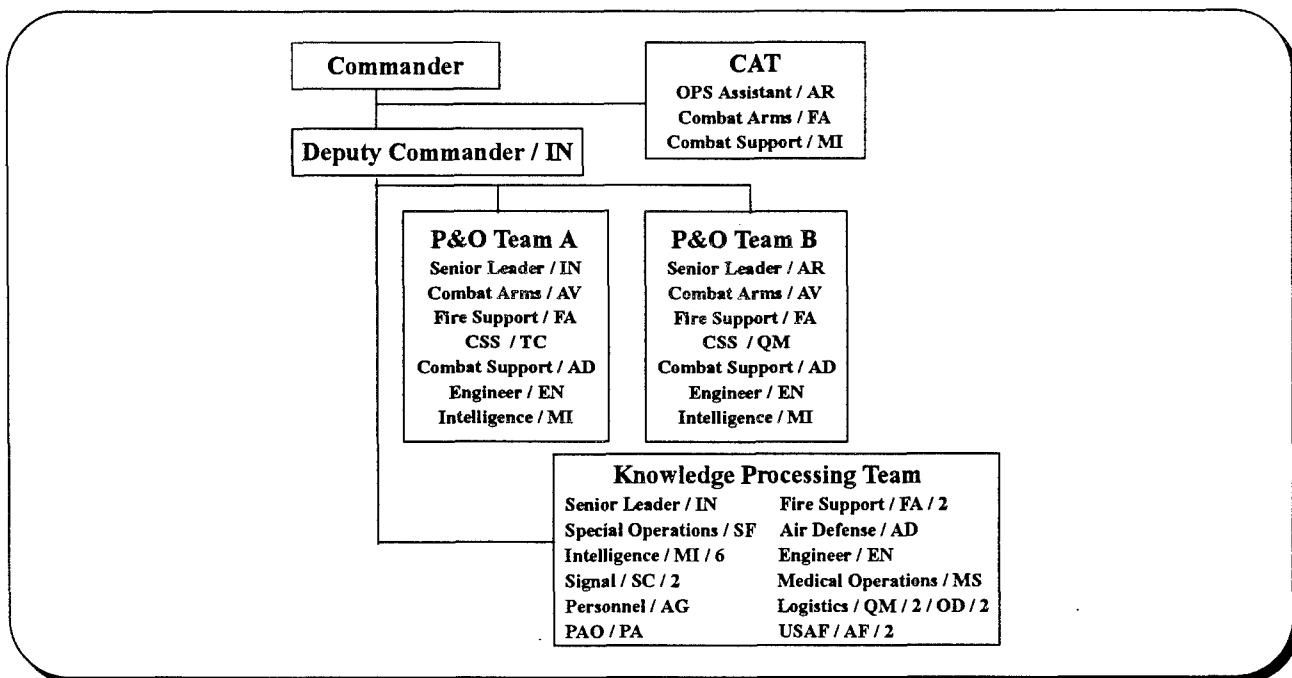


Figure 13. MSF HQ staff organization by position and branch

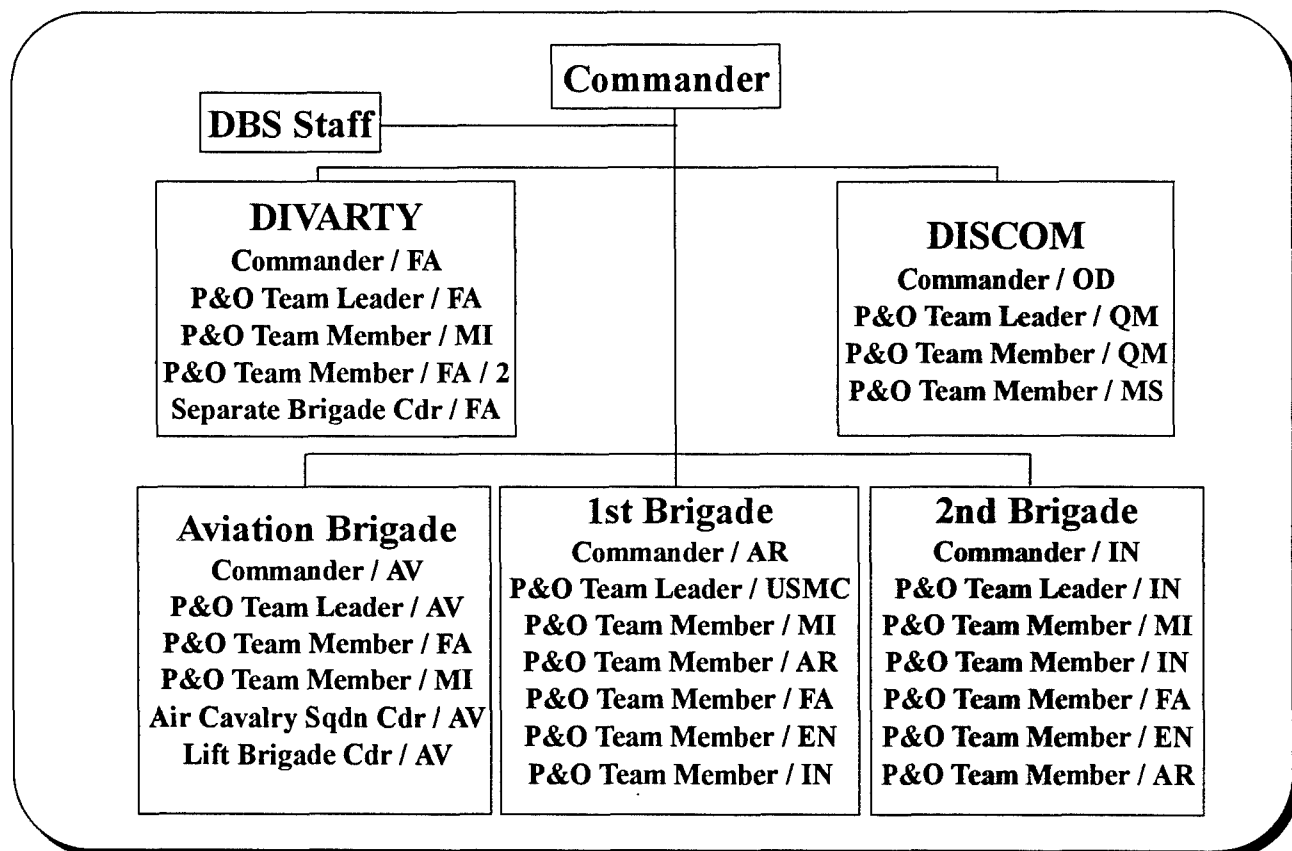


Figure 14. MSF subordinate organizations by position and branch

The organizational structure of the MSF commanders and staff as implemented in the MSF/BC 95 Experiment is reflected in figures 13 and 14. Even though the aim was to examine and exercise the division level DBS concept, the requirements of CBS, as the simulation driver, and the exercise itself dictated that at least 30 of the students represent the subordinate command and staff organizations (DISCOM, DIVARTY, Aviation Brigade, Heavy Brigade, Light Brigade) as shown in figure 14. Also some support organizations were associated with the KPT just because there was no other functional organization or subordinate headquarters present to represent that functional area or activity (i.e., AD, EN, SC, MI, MS, USAF). In particular, the association of the Intelligence group with the KPT was a significant deviation from the concept, as that group was attempting to replicate the functions of an Analysis and Control Element (ACE) which could be located with its parent MI battalion. The real purpose of an MI element in the KPT is to perform collection management (which was performed by two of the six available MI officers) by tasking subordinate and supporting organizations to focus intelligence assets toward satisfying CCIR, priority intelligence requirements (PIR), and friendly force information requirements (FFIR).

During the PW exercise the MSF staff was augmented with approximately 100 CGSC students, but the bulk of these went to the maneuver brigades and subordinate logistics organizations. The Commander, CAT and P&O teams only received augmentation in the form of two Sergeants Major from the Sergeants Major Academy. Additionally all migratory systems which were available during the BCE and PW came with a dedicated operator (i.e., Advanced Field Artillery Tactical Data System [AFATDS], All Source Analysis System [ASAS], Forward Area Air Defense Command Control Intelligence [FAADC2I] System, Terrain Evaluation Module - Obstacle Planning System [TEM-OPS], Log Anchor Desk [LAD], Unmanned Aerial Vehicle - High Resolution System Simulator [UAV-HRSS]). Most of the migratory systems were located in the KPT and the other subordinate elements of the MSF. Based on the number of systems available this made for an additional 15 to 30 personnel, but not in the MSF HQ itself.

Organizational Turbulence

The DBS organizations were modified as the MSF began going through the SIMEXes and encountered problems with information systems (Phoenix, AFATDS, LAD, Operational Logistics [OPLOG] Planner, etc.), in terms of access and operational availability; as a work-around, some activities were colocated for better information exchange. For example, there were not enough Phoenix systems available for each position (person) to have a workstation and the logistics systems did not work until PW. So, to alleviate student frustrations with underutilization and a minimal role in the exercise, personnel were shifted to try to maximize their training experience. For example:

- ♦ The medical operations personnel and three of the four logistics personnel were moved from the KPT to the DISCOM, because there was no functional logistics C2 or planning system available. This provided better support to the maneuver brigades and to DISCOM activities including managing the maneuver, fire support and aviation assets made available to the DISCOM to handle the "rear fight".

- ♦ The USAF section was moved to the aviation brigade in order to merge with that staff, provide better response to air mission planning requirements, and assist with airspace management. Although the USAF players were initially isolated from the brigade, better integration was achieved after the MSF Commander emphasized the importance of Army Airspace Command and Control (A2C2) and the logic of joint sharing of responsibilities in the Aviation Brigade to enable the MSF to maintain positive control of its multi-dimensional battlespace and its freedom of maneuver.
- ♦ In the KPT the Fire Support team merged with the Intelligence section to act as the Field Artillery Integration Office (FAIO) and provide rapid response to targets for deep fires missions. This section is not identified in the concept but the association occurred by the circumstance of collocation of equipment.

Prototype Information Technologies and C2 Systems

The only prototype information technologies and C2 systems actually examined in the MSF/BC 95 Experiment were:

- ♦ Four C2V mockups with four Phoenix workstations and one large screen (TV) display
- ♦ One airborne C2 mockup with four Phoenix workstations
- ♦ The local telephone system, local area computer networks available within the National Simulation Center (NSC) and on Ft. Leavenworth, and hand-held Motorola "brick" radios were the bulk of the communications equipment and facilities used. No tactical communications equipment was used.
- ♦ C2 and functional area software programs which mostly ran on commercially available SUN SPARC 20 workstations or military tactical operating environment (MILTOPE) computers. This equipment was arranged on tables in a rough office type setup. These systems included:
 - Phoenix
 - AFATDS
 - FAADC2I
 - ASAS Warrior
 - Terrain Evaluation Model-Engineer operations (TEM-OPS)
 - LOG Anchor Desk (LAD)
 - Knowledge-Based Logistics Planning System (KBLPS)
 - OPLOG PLANNER (PC based)
 - Logistics Processor Medical Module (LPX MED) (PC based)
 - Network Evaluation Tool (NET) (PC based network planning tool)

Other than the C2V and airborne mockups there were no other "field operating facilities" such as HMMWVs, CUCVs, SICPs shelters or tents replicating an operating field environment for the MSF command and staff organizations.

Most of the information systems that were brought to the BCE and PW did not interoperate with each other, or were limited in terms of information elements or direction of interaction. This reinforced the existence of separate, somewhat disjointed, stovepipe processes. This appears to be a normal outgrowth of functionally-oriented hardware and software systems that were developed to support current operations and not designed with the idea of full integration of capabilities and data compatibility. The use of prototypes aggravated the situation, as there were developmental challenges associated with many of the systems without regard to connectivity. When information becomes the central focus around which a unit is formed, it is natural to at least initially gravitate toward those systems that provide the information required for the BOSs and functional areas. This can lead to some ad hoc organizations that may be highly questionable in size and cross functionality in terms of future organizations and structures, but are driven by the piecemeal capabilities of current information systems. If and when the Army can arrive at an integrated set of software modules that will support all functional areas and BOSs with full data sharing and compatibility on a common set of hardware, many of the problems associated with structure, organization, functionality and disjointed processes can be alleviated.

Observations

Integration of Planning Information

In spite of the identified staffing shortfalls, organizational turbulence, and information technology limitations, the DBS concept as employed by the MSF staff in the MSF/BC 95 Experiment facilitated the hand-off and horizontal integration of information from a BOS and functional area perspective. Each P&O team, although short in staffing, had a multifunctional flavor by being staffed with officers from the major BOS areas, though the staff officers were not each necessarily multifunctional in their individual skills. There was input from each BOS to the division plan as the subordinate components were developed in a parallel fashion. However, the complete input process was sometimes quite lengthy, with a BOS by BOS sequence and a good deal of interaction. With input from each of the BOSs readily available from within the section, the need for outside meetings with other staff sections or organizations to try to coordinate activities was greatly reduced. If and when coordination was required it only took one staff officer to contact his BOS or branch related organization to gather the information or effect the coordination required. This created an environment for detailed planning prior to the beginning of operations. Unfortunately, the planning process itself was not supported with innovative digital planning tools, so the enhancement in information sharing and planning were limited to those achieved through collocation of multiple BOS representatives.

This integration of information was not as smooth during execution of the plan, and this is thought to be due in part to the effects of insufficient staffing levels in the P&O teams (seven instead of eleven officers per shift), and to inadequate means of distributing combat information from lower echelons. These concerns are discussed in greater detail in subsequent paragraphs.

While the DBS staff was specifically dedicated to "cradle to grave" planning and operations, there was no requirement for the brigades to organize in the same manner. However, in both first and second brigade, the staffs attempted to mirror the concept. Modifications which were explored there may be useful in extending the concept. In 1st Brigade, a successful modification involved the use of core assets for planning, core assets for execution, and roving personnel to transition between the two groups. In this manner, the familiarity with the use of planning tools versus execution tools could be strengthened in the core individuals, while the familiarity with the plan could be carried forward to execution by the roving personnel. This concept worked very smoothly in 1st Brigade. In 2nd Brigade, while variations were explored, the staff reverted to the use of a small group dedicated to planning, with the bulk of the staff involved in execution. Transition to the next operation seemed to be more difficult for 2nd Brigade, and more modifications to 2nd Brigade operations occurred during execution, although this may be due in part to the nature of air assault operations and the difficulty of setting conditions for employment.

Multifunctionality Requirements

The DBS concept contains the premise that the single most important qualification for membership on the staff is possession of the ability and skill to perform and achieve success in multiple functions. Considering current training processes and expectations, it will be difficult to achieve this objective. Relevant considerations include: (also see TRAC Monograph: *Mobile Strike Force Literacy Assessments: Implications for Force XXI*)

- ♦ The Army has not formally trained officers to be multifunctional, i.e., having equivalent and adequate competency in multiple branches. They are trained in one specific functional area and may become versed in another area through operational assignments, self development, or to a limited degree, institutional training.
- ♦ Most officers are confident in their knowledge of their major functional area but are not highly literate in other branches nor are they comfortable operating outside that realm.
- ♦ For many of the branches and functional areas (e.g., intelligence, signal, engineer), there is so much specialized information, it may be difficult to become totally knowledgeable just in the primary branch, let alone multiple functional areas.
- ♦ Reliance on multifunctionality as a means of reducing staffing requirements may leave an organization at greater risk with the loss of a single individual.

However, a factor which will tend to increase the multifunctionality requirement for future officers was also observed in operations of the MSF staff. Execution of nonlinear, noncontiguous operations meant that commanders of support units were responsible for the maneuver and protection of their battlespace -- for example, the DISCOM Commander was provided artillery, intelligence, aviation, and infantry assets to protect the sanctuary area, in a concept termed "asymmetrical packaging". This practice will heighten the requirement for future commanders to expand their knowledge of functional areas other than their primary branch.

As exercised in the MSF, each P&O team had only seven members, portraying one shift of an operation. This represents very austere staffing compared to the proposed DBS concept, which calls for 33 people on each P&O team, and assumes a 3-shift operation. During the last days of PW the two P&O teams were brought together to prepare for resetting and rerunning the fight. The collective team was more than one deep in the BOSs and some functional areas. This made a definite and positive change in the functioning and operation of the group. More ideas were exchanged on how to go about achieving the goals and objectives, particularly since the executing P&O team was augmented by individuals who had spent several days planning branches and sequels to the current operation. Alternatives were wargamed and worked out much quicker. An unknown is whether this was a staffing issue (too few people to begin with), a depth issue (needed broader knowledge within each functional area or more people with multifunctional skills) or a familiarity issue (influenced by the recent intensive involvement of the second P&O team in branch and sequel planning). An alternative approach to the three shift operation, using the same staffing level, would be a two shift operation with 16 members per shift. This might enhance the generation of ideas and the horizontal integration and coordination of plans and activities. However, since task descriptions were not developed in detail when the DBS concept was implemented, the staffing estimates may be only rough cuts. Any firm recommendations on staffing must be based on a clear, articulated statement of tasks to be performed.

Functional Leadership

The organization of the MSF staff along the lines of the DBS concept created some confusion at first among the students. However, over time the MSF commander resolved the issues that arose and clarified staff element responsibilities and functions. Every student had the opportunity to meet with the Commander and discuss issues regarding their own staff element. Additionally, the Commander reinforced the expectations for each staff element through key leader staff meetings, which occurred on a daily basis at the end of every SIMEX day. Some student leaders were more effective than others at relaying the Commander's guidance, though, and a few students showed little interest in understanding the staff concept, despite the available information. Thus, it is a certainty that some students ended the experiment without truly understanding the implementation of the DBS concept even after five months in the BCE and PW. As mentioned previously, a deviation from the DBS concept was the collocation of a simulated ACE and other combat support (CS) and combat service support (CSS) functional area information systems within the KPT. This was done primarily as a matter of convenience rather than organizational design. Since there was no MI battalion with which to associate the ACE, it was included in the KPT. The KPT basically served as a collection point for the gathering of computer information systems introduced in the BCE and PW exercises. This also created confusion for new observers who came to the PW exercise without the experience of the BCE SIMEXes, or having seen the MSF in operation for five months. The new observers were confused over who was in charge of various functional areas, and tried to relate the DBS to the G-staff concept where the G2 is in charge of all intelligence activities, the G3 is in charge of all operations and planning, etc. It was difficult for most observers to transition to the idea of a staff organization made up of multifunctional teams. One of the many reengineering notions associated with the information age is that information connectivity will allow flattening of the organization, and creation of non-hierarchical structures. This is exactly the premise of the DBS. The person

in charge was the MSF Commander, and one of those multifunctional staff teams was in charge of the current operation, but their authority was transitory with the handoff of an operation. Most of the functional area responsibility for providing information to the Commander and staff was resident with the subordinate supporting commanders, or designated by the MSF Commander, as in the case of the intelligence functional area to the mini-ACE section of the KPT. There were other gaps in the representation of subordinate functional area commanders, such as ADA; this situation similarly confused students and observers. These functional area subordinate units must be adequately represented in future exercises to preclude confusion regarding functional leadership and diversion of resources from execution of DBS tasks. However, regarding planning, synchronization, integration, and monitoring of all division-level activities, responsibility resided with the P&O teams and the Commander. Small group dynamics appeared to play a major part in the ability of the teams to perform their tasks through a cooperative spirit to achieve team goals.

Implications of Automating Existing Processes

Typically, the Army, as stated in FM 101-5, *Command and Control for Commanders and Staff*, "uses computer equipment to automate existing manual procedures and exploit discrete technologies." This statement unfortunately accurately represents the way the Army has approached the use of computers and digitization of the Army. This methodology is how commercial enterprises started out using digitization. Then, as they became familiar with digitization and what it could and could not do they slowly restructured the way they viewed computers. They now tend to structure themselves around information and computer equipment. Many of their business processes have not changed, as many of the Army's basic processes will not change, but the separate techniques and procedures that go into making up the processes have changed drastically, as will the Army's. As a simple example: companies previously dedicated many people and much time to gathering sales data to identify hot sellers and slow-moving items; it also helped them with inventory control. Now they still collect the same basic data but the procedures they use are different. Now they use significantly fewer people and computer information management systems to collect, collate, and analyze sales data in near real time versus the days and weeks it had taken. Also, much of the data collection for large chain stores is now done from remote locations via telephone communications links or computer networks.

Likewise the Army still collects enemy intelligence information as a part of the continuous IPB, COA analysis and planning processes. However, with state-of-the-art and future intelligence collection systems, the collection process, previously conducted via human eyes and soldiers on the ground, is relying to a greater extent on remote sensor systems linked via digital broadcast media to analysts with computers to assist in transforming the sensor input into processed intelligence information. That processed information will be transmitted to many units and people simultaneously, using wide area and local area computer networks.

The Army is just beginning to scratch the surface in this realization of what computer technology can really do and how to best use and apply the technologies and how to organize to take advantage of the technologies. This is very apparent when examining the DBS concept. The concept does not reflect the capabilities and impacts that can be realized through the use of

distributed databases and a thorough understanding of how information might be shared on the future battlefield. There is still an appearance of a lot of "people-intensive" procedures going on that really are not needed, such as some information packaging. This appears to be an evolutionary process that companies/organizations have to go through rather than a revolutionary process that can be picked up on and directly applied. Much of that is most likely caused by the evolutionary nature of concepts rather than computer hardware and software. The Army might want to reexamine the way it thinks about digitization and how to apply it to achieve the Force XXI objectives within the next fifteen years.

The best example of this is in the KPT where there is a process that is defined as putting together the common relevant picture. The duties and responsibilities of the KPT call for it to collect information to build a force-level knowledge base (database) for the commander and P&O teams. This corresponds with the definition of the term *common relevant picture (CRP)* which has been proposed in the DBS concept as the "single, synthesized picture of friendly and enemy forces that is provided to the commander, other elements of the DBS HQ, to subordinate forces, to adjacent organizations, and to the knowledge base of the next higher headquarters." This is a mind-limiting phrase and definition. It implies that there is one single map, picture, overlay, etc. that everyone will look at and work off of. This is not the case. As illustrated in figure 15, there is a force-level database that contains the sum total of all information, or data, for the force. This may be a very large, distributed, dispersed database. That database is built by the BOSs and functional area elements of the force (intelligence, maneuver, fire support, engineer, logistics, etc.) and users of that database pull from it a *relevant common picture (RCP)* which is a slice or the

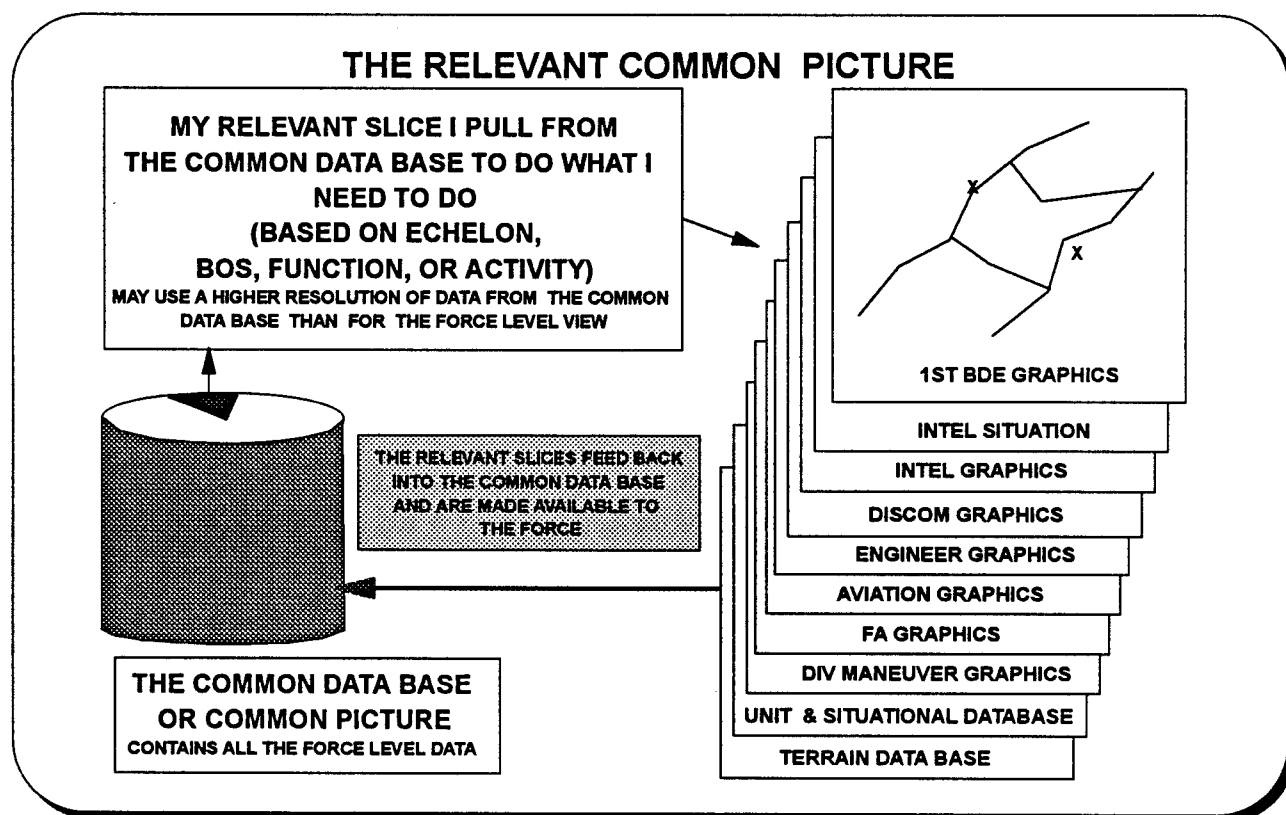


Figure 15. Visualizing the Relevant Common Picture

slices of the force level database that they need based upon their echelon, BOS, function, or task on which they are working. What commanders and staff portray at any one time will vary based upon the needs they have at that particular time and the job they are trying to perform. This may seem like semantics but the CRP concept establishes a sense of incorrect protocol --- "I do not pull info from the force level database to build a RCP I need to do work, instead I rely on the KPT to give me all info I need in one picture (which is the same picture everyone else is using)." During the entire BCE and PW exercises this one definition (CRP) created a major source of confusion among the MSF student staff about the aim of the information environment.

If a staff member is connected with the force level database and the other members of the force via a LAN/WAN then why does he need a KPT to act as an intermediary? This would seem to defeat the purpose of the connectivity. What is more likely needed is a force level database manager to oversee the system, perform database management functions, monitor what is being input to the database and what the outputs are -- someone to act as an information management officer (IMO) or director of information management (DOIM).

Information Connectivity versus Mobility

The mobility equipment with which the DBS is equipped is an area that needs examination. In changing from the current division staff to the DBS the number of wheeled vehicles stayed the same, 81. All that changed was the size of the vehicles from 5-ton cargo trucks with expandable shelters to HMMWV or CUCV vehicles with shelters on them. There are several concerns with this change:

- ♦ This configuration only supports one C2 workstation per C2 vehicle and a crew of two or three people. A 5-ton expandable van can support 4 to 6 workstations and 6 to 8 crew members. Crew transportation will still require other vehicles.
- ♦ The DBS configuration imposes essentially the same vehicle maintenance burden to the unit as the old unit does. In some areas the maintenance burden will greatly increase: three potential areas are generator maintenance, heating and air conditioning maintenance, and large screen display maintenance.
- ♦ The DBS configuration greatly increases the LAN connection and configuration difficulty due to the requirement to connect each separate vehicle and its C2 system into the LAN. A larger question becomes who, and where, is the LAN manager? In a larger grouping such as in an expandable van, all systems within the shelter can be continually connected as a work group and LAN management can be simplified.

Thus, although the 5-ton expandable van does not provide the deployability or mobility to the DBS that the HMMWV or CUCV can, it does enhance information connectivity.

The changes in the number of tracked vehicles reflects the desire to have the commander and P&O team in the current operations mode (C) deployed well forward and provided with some level of ballistic protection. Although this is a very desirable feature it also places the P&O team

concept in a real dilemma when the time comes to change over from their HMMWVs to the C2Vs. Although not specifically addressed in the concept it appears that the set of C2Vs is an additional floating set of hardware. Each P&O team has HMMWVs and just migrates to the C2Vs when required by METT-T. This physical relocation may be the biggest transition challenge of the concept and does not appear to support C2 on the move. With the other teams bound to a group of 14 HMMWVs or CUCVs it may be very difficult to perform their functions on the move or transition from their planning mode to the current operations mode and do an equipment change with the current operations team. It seems appropriate that all teams should be equipped the same. If mobility, deployability and survivability are all important considerations, serious investigation should be made into the possibility of fulfilling all requirements with an armored vehicle variant. That way any team is ready to take charge of operations at any time without the need for a major hardware change and an organizational reconfiguration. Keeping in mind that we fight the way we train/train the way we fight, it will be very difficult to transition from training (planning) in a configuration with HMMWVs/CUCVs to fighting (executing) in C2Vs and not expect to have some major problems affecting synchronization of battle command activities.

Organizing Around Information

The DBS concept attempts to organize the command and staff structure around "information" and the information technology that will be available in the future. But it still reflects current day thinking, or possibly a lack of understanding of, the nature and capabilities of those future information systems. For example:

- ♦ As discussed above, a force-level database may well be a dispersed, distributed database, but it will be accessible by those who need the information within it to plan, coordinate and monitor operations through local area and wide area computer networks. A force-level database does not have to be and most likely will not be a single entity operated and maintained at a single central location. Therefore the need to the KPT to collect information and build a CRP is questionable. Each BOS/functional area should feed information pertaining to their BOS or functional area into the force-level database so users may pull the information they need to plan, coordinate and monitor execution of organizational missions. With the KPT performing as an intermediary in the information food chain, its functionality becomes questionable and should be reexamined.
- ♦ With current day separate stovepipe systems (i.e., Phoenix, AFATDS, ASAS, FAADC2I, etc.) it is very difficult to organize around just information because the technology systems are what provide the information. Thus, there will for some time be a requirement to organize around or at least use the current stovepipe technology. This will result in redundant, overlapping and/or segregated systems being positioned in the same staff sections and cells so that staff members can have the functional connectivity needed but this will not provide the informational connectivity needed by each staff member or cell. This can create a false picture of facility and personnel

requirements that hopefully will be overcome by better, integrated software and hardware in the future.

- ♦ There should not be a need for separate systems dedicated to each separate functional or BOS task on the battlefield. An integrated set of software, with a common core of functions and specialty application software, can permit the organization to perform any functional area or BOS task (C2, communications, engineer, fire support/direction, logistics, air defense, etc.) from any workstation within the organization. Queries can be made of the database, which also should reside on a compatible hardware platform. These design actions will reduce or eliminate the need for separate systems for separate functional areas. It will also provide redundancy in numbers of available systems, to far surpass any current or other future proposed system, reduce the need for separate systems support equipment, repair parts and procedures and much more. This will help to decompartmentalize information and make it available to all those who need it.

Effects of Technology Limitations on Staff Processes

The integration of the stovepipe systems used in the MSF to put together a relevant common picture fell to humans, the students. Where systems could share or ship data to each other, the systems provided some of the information integration. Where the systems did not share data or could not do so in a reasonable time or without extraordinary effort by system operators (generally the students), swivel chair, sneaker net, and face-to-face human transfer techniques were prevalent. As in most environments the necessity to "get the job done" took precedence.

There was one major experimental notion that hampered the MSF commanders and staffs. The idea of the paperless tactical operations center (TOC) led to equipping the staff with information technologies but no hard copy output devices (no printers). There were also no paper maps or acetate overlays. While this sounds like a good idea, i.e., everything can be called up on the computer screen and handled that way, and the large screen displays will replace the large map boards, it was proved false. The Army is not able to go without paper at this point. Being able to pull information up on a computer screen is good, but for large documents, for instances where reference material is needed to perform some task, to compare reference information with information on the screen, or when data is lost or destroyed in the computer system, paper is essential, at least as a backup. On at least four occasions, information (primarily operations orders and associated graphics) was destroyed or lost in the Phoenix system due to human error (and not necessarily student error). As there was no paper hard copy all information had to be recreated from student human memory. This accounted for at least 200 manhours worth of work being lost and having to be recreated from scratch. Several students learned early and began preparing separate copies of the basic information they had prepared in the Phoenix system on personal notebook computers. This at least provided them with a backup copy of their work in case something happened. Future C2 attack and Electronic Warfare (EW) operations could potentially result in similar information loss.

As for large screen displays replacing paper maps, the current state of the art does not support the presentation of the same information in the level of detail available from a paper map.

The view seen on the large screen is the same as the one on the 14 or 15 inch computer monitors that are associated with the large screen. Therefore the large screen just provides a bigger picture of the small screen. In most cases the level of detail that needs to be displayed is beyond the pixel identity/differentiation capability of the small screen and that detail is in turn lost on the large screen also.

Even the structure of the exercise posed challenges for the students under the new DBS concept. For example, CBS is structured to exercise current G-staff organizations and equipment; it requires equipping of those elements with particular work stations and is not easily reconfigurable to respond to the needs of the DBS concept and organization. For CBS to support the DBS concept, the current CBS configuration would require many more CBS work stations to provide the multiple capabilities needed at many of the staff cells. There are not enough CBS assets nor enough student players and support personnel to support this type of reconfiguration. Also such ballooning of equipment and personnel requirements would appear to be diametrically opposed to the DBS concept of reducing the size of the division level staff. Hopefully this will change. What may be needed in the future is a simulation system that can accept input from the C2 and functional area information systems and provide output back to those systems as if they were actually performing their operational function. That will permit the Army to exercise its digitization systems in a train-as-you-fight methodology.

Other roadblocks or stumbling blocks that need to be addressed and overcome include communications (the only communications equipment available were a hard wired LAN, the local telephone system, and Motorola "brick" radios), data and file management protocols and file naming conventions. Although the future vision of military communications is that of a seamless connectivity, this has yet to be effectively demonstrated. There has been no participation of current or developmental "military" communications hardware or capabilities in the BCE or PW exercises. It has been all civilian and commercially available capabilities. Data and file management protocols and file naming conventions were not firmly established nor enforced. This is both a system development problem and a staff training and education problem. Because there were rather loose protocols and conventions data base files were sometimes over written or destroyed (not just by student users but also by software development contractors) and frequent database mismatches occurred. These events greatly increased the frustration levels of the students and were a detriment and an overall impediment to operations.

Staff Processes and Procedures with Potential for Change

During the MSF/BC 95 Experiment the major staff processes used by the MSF staff were essentially the same as those currently practiced. The one process that did change was the decide, detect, deliver process. This was modified as shown in figure 15, to reflect the continuous tracking of targets from the time they are identified through the conduct of battle damage assessment (BDA). This activity reflects the fact that targets may be detected well before they are engaged and therefore need to be tracked to ensure that resources are at the right place at the right time to engage the targets. The need for BDA reflects the reality that targeting and weapons systems are not perfect and that assessment of the damage inflicted on the enemy must be

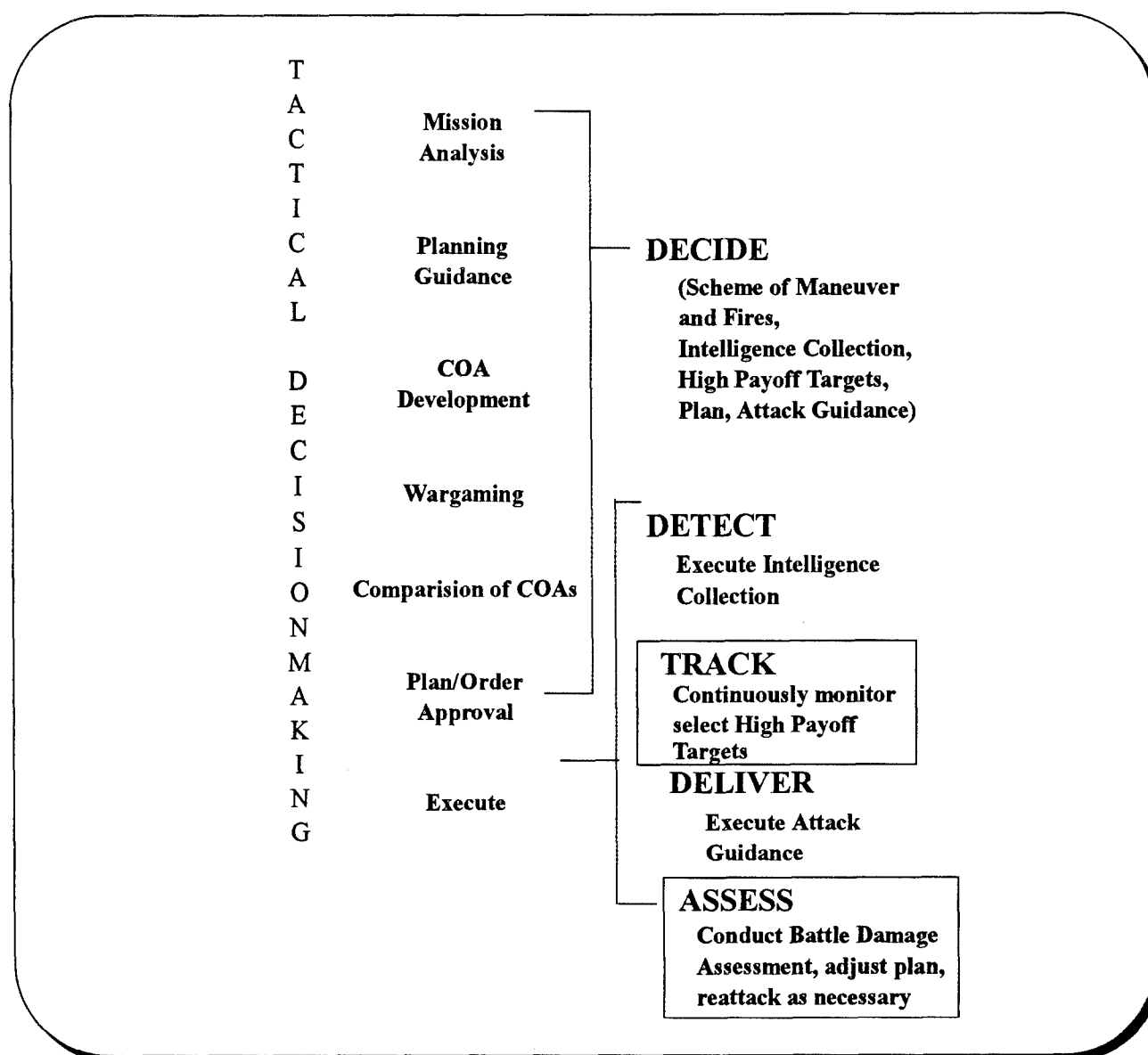


Figure 15. Decide, detect, track, deliver, assess (D2TDA) process

conducted when the damage criteria are tied to key decisions the commander must make. If engagements are highly successful the unit may proceed with engaging other targets. If engagements are unsuccessful they may need to reengage the target, reassess the plan, and possibly modify the plans to account for the identified deficiencies.

What really changed through the experiment were the tactics, techniques, and procedures (TTP) that support the processes. Appendix A contains copies of the eight TTP the MSF commander and staff developed on how to conduct key activities that supported the MSF/DBS decisionmaking and planning processes:

- ♦ Counter Reconnaissance
- ♦ Precision Reconnaissance
- ♦ Deep Strike

- ♦ Precision Strike
- ♦ A2C2
- ♦ Targeting
- ♦ Air Defense
- ♦ Maneuvering Logistics

These eight TTP reflect the attempt of the commander and staff to change the way the staff and subordinate units conduct business based upon the information technologies available and the information they provided. These TTP also reflect the impacts of digitization on the DBS by requiring them to reorganize around information and information technology. The most significant areas of insights from these TTP are:

IPB/Precision Reconnaissance. A new approach to the collection planning was the use of a graphic collection plan that gave a pictorial view of what assets were going to be used where to look for what. Although this was done on the Phoenix system and worked fairly well to communicate what was to be done to address the commander's CCIR, more thought needs to go into refining the procedures and possibly developing a planning tool (possibly integrated with the A2C2) so that the collection efforts can better support the commander's intent and scheme of maneuver and provide the flexibility to shift assets based on changes identified in enemy disposition and actions.

A2C2. The first venture into this area rested on Air Force personnel with limited Army participation. However, with the realization of the number of separate systems and the volume of traffic for those systems through the five dimensional battlespace of the MSF (width, depth, height, time and electromagnetic spectrum), the MSF Commander realized the need to exercise positive control of the airspace. He established a high density air control zone (HIDACZ) that extended over the entire MSF operational area and up to 30,000 feet (100,000 feet in PW). While some of the control problems were addressed by means of altitude separation there was an inability to accurately and effectively manage the entire airspace with the technologies available. This is not surprising considering the number of systems that are available to operate within MSF airspace: tube artillery, rocket artillery, missile artillery, surface to air missiles (low, medium and high altitude), Army attack helicopters with multiple rocket, missile and cannon systems, UAVs, Air Force aircraft (high and low altitude) with multiple rocket, missile, bomb and cannon systems or sensor packages, Army airborne intelligence collection assets, and Army lift helicopters. With all of these systems conducting simultaneous mission operations, A2C2 management and airspace deconfliction can be a monumental task using today's techniques and equipment. What is needed is an A2C2 planning and operations tool (computer software package) that will permit planning and monitoring of the MSF airspace in all five dimensions. It should also include an automated assistance to airspace deconfliction (clearance of artillery fires) to reduce the sensor to shooter timeline and provide for the rapid servicing of targets within narrow windows of opportunity. Does a human really have to do it all? During the PW exercise the MSF staff initially had a problem clearing deep fires targets in a timely manner. Part of this was caused by the need to coordinate with multiple players between the artillery, Army aviation and Air Force aviation. This timeline was so long in some instances, by the time the deconfliction was worked, the target was no longer at the target location and when the mission was fired there was minimal, if any, effect

on the enemy. Later as the targeting priorities and selection criteria were modified and work-arounds for deconfliction were developed, sensor to shooter time lines were reduced, in many instances down to the 40 seconds to 2 minute time range. This was primarily accomplished through removal of a wall panel that physically separated the aviation brigade and Air Force LNOs from the DIVARTY so the two groups could conduct rapid face-to-face coordination. In reality such coordination would not occur because of the physical separation of the groups. For real timelines to become this short for targets requiring coordination, an automated planning, operations and deconfliction tool will be essential.

Fire Support. As with A2C2 above there must be a coordinated and synchronized integration of fire support planning and operational execution with the other activities that use the MSF airspace. Although a prototype of AFATDS was available and came with dedicated operators, the system software is not advanced, user friendly, or flexible enough to truly provide the necessary level of fire support planning and operational control. The procedures tend to be an automation of the formerly manual process (all the same things that were done by the human but some are now done on a machine). The system is a stand alone stovepipe. If it was designed to take an intelligence feed from a system like ASAS and use that as direct input to the targeting procedures, it was not apparent to the observers or students. A human still has to enter the data into the machine and execute necessary operations. Each separate fire mission must be manually entered into the system; even if it is a repeat of the same target, all the same information must be input again.

Planning and Graphics Integration. The logistics systems available for the experiment (LAD, KBLPS, OPLOG PLANNER, etc.) were mostly ineffective as planning and forecasting tools in support of the MSF. These were stand alone stovepipe systems that were not integrated with the other C2 systems, could not provide accurate current logistics status of units in a readily identifiable and comprehensive manner, and could not assist with predictive logistics. The logisticians had to build their own databases for the system they did use (OPLOG PLANNER); most systems were not operational until the PW exercise. This left the logistics players doing a lot of "stubby pencil drills" and relying on CBS output in order to develop even a minimum level of input to planning and operations. The maneuver logistics procedures, in particular the force protection piece for the sanctuary forces, was a challenge the DISCOM handled fairly well. The DISCOM commander had responsibility for all of the logistics operations of the MSF, and he also directed ground maneuver, artillery, and aviation forces in fighting rear area type operations in the logistics sanctuary locations. The terrain analysis tool, TEM-OPS, provided excellent terrain data and analytical capabilities needed by all elements of the organization. However, again, this is a standalone system. Even though it was determined that data could be shared from the TEM-OPS to the Phoenix system, the process was quite involved and took an excessive amount of Phoenix computer time, hardware memory and storage space. Most students were impressed with the level of detail available in TEM-OPS and the analytical capabilities provided. Although it was never practiced in the DBS and is not identified in the concept, there ought to be one person on the staff who brings together all of the plans and graphics and "stacks" them on top of each other for review and synchronization. With complex planning and operations going on all at the same time, this technology can provide the opportunity for detailed review and oversight of the entire operation, resulting in improved integration.

Conclusions

It is premature to make a decision to implement the DBS concept. The minor part of the organization that was examined in the MSF/BC 95 Experiment was insufficient to support such a decision. However the experience did provide a rational foundation for further development of the concept and exploration of its potential.

The DBS concept as presented and as examined in the MSF/BC 95 Experiment shows potential as a viable alternative to the current G-staff organization and structure. The positive aspects about the organization and structure of the DBS are:

- ♦ The DBS does enhance the integration and synchronization of separate BOS and functional area activities during planning.
- ♦ The DBS has the potential to eliminate or offset the vertical functional area stovepipes and fragments.
- ♦ The DBS does reorganize the staff around information and information activities.
- ♦ The DBS has the potential to reduce the size and resources of the division level staff.

Some negative aspects of the DBS concepts must be addressed:

- ♦ The DBS concept and the prototype information technologies were not an integrated package. The concept did not describe the means to take full advantage of combined, integrated computer information and communications technologies and the potential power of the integration of information. Thus, the MSF students were unsure how to pursue this capability.
- ♦ Multifunctionality requirements are probably overstated in the concept. Positions and tasks must be defined in greater detail so the magnitude of the multifunctionality training requirement can be addressed.
- ♦ The term "common relevant picture" confused players and misguided them as to what their job was. Clarity in the terminology is critical.
- ♦ The functionality of the KPT, under a force-level data base concept, is questionable.
- ♦ The use of multiple small vehicles to achieve deployability may undermine operational connectivity, ease of operating mode transition, survivability and logistics supportability.

Basic processes will remain pretty much the same. Basic TTP that make up the processes may change dramatically. Many new ones will be developed and old ones discarded or set aside. Review of the changes as implemented in this experiment must be caveated with the

understanding that approximately 31 CGSC students attempted to execute a concept that called for 220 personnel. It would be a far stretch of the imagination to expect the student organization to function effectively, all processes and procedures finely honed, when a large portion of the conceptual parts are missing. Much work is yet to be done and to a high degree is dependent upon the technology developed (hardware and software) to support the DBS concept. Functionally-oriented hardware and software systems that were developed to support current operations and not designed with the idea of full integration of capabilities and data compatibility do not necessarily provide the support required to exploit the potentially positive aspects of the DBS concept.

It is hard to expect a unit to operate as a well oiled machine when it is missing most of the parts.

Recommendations

It is recommended that the DBS concept be examined further with particular emphasis on:

- ♦ Fuller manning of the organization.
- ♦ Improved information technologies - providing the required functionality in an integrated set of software packages on a common hardware platform- in sufficient quantities for the staff.
- ♦ Review and revision of the DBS concept to eliminate the problem areas identified.
- ♦ A review of the procedures that make up the battle command processes in light of the desired and real world capabilities of the C2 hardware and software, resulting in across the board integration of information requirements, functions and capabilities.

Evaluation of tactical communications capabilities, and C2 vehicle requirements.

Appendix A

Excerpts from the Mobile Strike Force Standing Operating Procedures: Battle Notes

Chapter 13

BATTLE NOTES

The Mobile Strike Force Battle Notes outline and describe the tactics, techniques and procedures (TTP) used by assigned and attached units during critical missions and tactical operations. These battle notes are intended to supplement and compliment the operating procedures identified in chapters 2 - 11.

Annexes:

- A - Counter Recon**
- B - Precision Recon**
- C - Deep Strike**
- D - Precision Strike**
- E - A2C2**
- F - Targeting**
- G - Air Defense**
- H - Maneuvering Logistics**

COUNTER RECON BATTLE NOTE

TASK	Neutralize Enemy Surveillance and Recon (SR) assets in the Battle Space.
PURPOSE	To dominate Battle Space, neutralize enemy recon and win the Counter Recon battle
CONCEPT	Deny unobstructed maneuver of Orangeland recon forces while minimizing use of MSF ground maneuver forces. Through the use of precision reconnaissance, lethal and nonlethal fires, facilitate freedom of maneuver within the MSF Battle Space in order to maintain the initiative.
EN TTP	Orangeland forces will recon and target cbl maneuver Bdes while tracking, & as required, attacking with fires, and direct action units, MSF high value targets ie. Target Aquisition, Aviation, MLRS & Logistics.

METHODOLOGY TO COUNTER RECON PLANNING

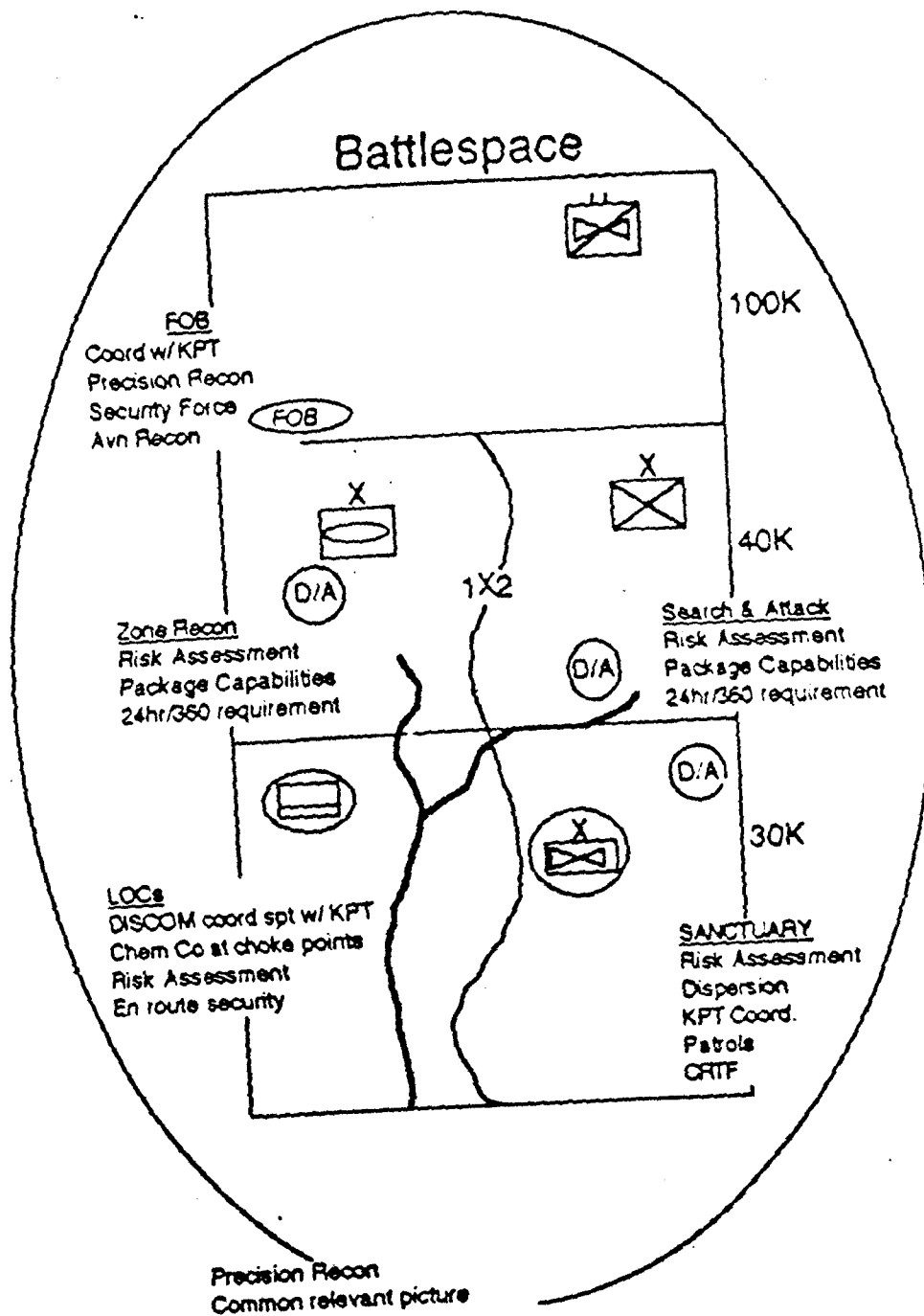
Proactive	Integrating precision reconnaissance TTPs to confirm along or adjust pre-mission IPB analysis. Detected Orangeland forces are targeted and neutralized before they identify and report on forces in the MSF. The habitual use of aggressive patrolling, UAVs, attack aviation, the chemical company, remote sensors, jamming and AC-130 aircraft will set the conditions for success in the pre-mission detection and destruction of Orangeland recon forces. Mission priorities will require commanders to analyze where risk of detection and protection will be assumed, and what assets/units will receive priority of protection.
Reactive	The combination of the Division collection plan and subordinate elements R&S plan will focus assets in areas considered to be high threat to the tactical current, future and logistical operations. The use of combat and combat support units to aggressively locate, track, & neutralize threats to the MSF is critical to risk reduction. Pro actively using counter reconnaissance is a base for deciding on the sequence of neutralizing the threat. Infantry, Military Police, UAV, target acquisition, Army aviation or AC-130 aircraft will be the primary assets used to detect, confirm, neutralize or to destroy acquired targets and provide BDA.

BATTLE SPACE MANAGEMENT

DEEP	The Division will establish the collection plan, synchronize the MSF recon and surveillance plans, and the observation plan. The division will prioritize assets for the deep fight IAW the precision recon methodology and the current and future fight. Orangeland forces will be focused on locating and destroying our FOBs.
MBA	The Brigades execute their portion of the division collection plan and synchronize battalion counter recon and surveillance operations. Orangeland forces in this part of the battle space will primary be targeting Arty, FARP's, other MSF HVTs for indirect fire engagements.
SANCTUARY	The division will provide a counter recon task force (CRTF) to support the units located in this portion of the battlefield. Sanctuary units will conduct aggressive patrolling & defensive operations. Coordination for escort, route reconnaissance and smoke to cover log moves will be coordinated by DISCOM through the KPT and P&O team. DISCOM will coordinate with the supported unit for support from the Brigade rear boundary, forward. Orangeland forces in this part of the battle space will be primary targeting logistics and aviation units for indirect fire engagements

TACTICS, TECHNIQUES AND PROCEDURES

LOCs	Prior to the use of MSRs, DISCOM will coordinate through the KPT for collection and observation of routes. Targets collected will be tracked and attacked using precision munitions. Attack aviation or by maneuver. The MSF Chemical company can use its smoke platoons to cover departing convoys and obscure choke points to enhance survivability of convoys. UAV, Army Avn, AC-130 will provide detection and protection until link up with forward combat brigades.
SANCTUARY	Assets occupying the MSF sanctuary will utilize dispersion to assist in their protection. Coordination with the KTP for Intel collection and early warning will be ongoing. Force protection through aggressive patrolling, the integration of remote sensors and situational awareness for the conduct of site defense is critical. The sanctuary will be augmented by a CRTF. The Avn Bde will also support the sanctuary by planning for the use of Avn for reconnaissance, lift and attack assets. Commanders must ID where risk will be assumed in priority. Command and Control of the Counter Recon effort is the responsibility of the DISCOM Commander. Elements occupying the Sanctuary will coordinate with DISCOM for employment of the CRTF. Priority of effort for the CRTF is established by the Commander MSF and the DISCOM commander.
FOB	The unit charged with the establishment of an FOB will often receive priority of the MSF intelligence effort. Prior to it's establishment detailed precision reconnaissance, & destruction or neutralization of selected enemy units/assets will be conducted. Precision attacks and fires will be followed by UAV overflight to confirm enemy destruction. The security force committed to the FOB will conduct aggressive counter reconnaissance of the most likely avenues of approach and use remote sensors to cover secondary avenues of approach. A continuous collection effort combined with UAV overflights will identify potential threats to the FOB site. These threats will be destroyed or neutralized based on the concept of operation.
HVY BDE	Coordination through the KPT for collection and observation of routes prior to movement. Identified enemy SR assets will be neutralized prior to movement. Targets are destroyed by precision munitions, Attack aviation or maneuver. Smoke platoons will be used to cover and obscure choke points thus enhancing survivability. UAV, Army Avn, Thermal optics, and scouts will provide detection and early warning of enemy SR assets and can be used to direct target destruction/neutralization.
LT BDE	Similar to the FOB TTP, the LT Bde will receive priority of collection support prior to it's deep commitment. Targets identified will be destroyed by precision munitions and attack aviation. An aggressive counter recon and patrolling activity will enhance the Bde & Divs electronic collection effort & enable the Bde to target and destroy enemy SR teams in the Bdes AO. The brigade will coordinate the counter recon efforts within it's AO. In general, the Bde will use constant patrolling and precision mortars to defeat the dismounted threat.



Here are some example Sensor/Shooter packages for employment consideration within the MSF Battle Space. Consider these capabilities when planning/executing the Counter Recon fight

TTP #1: Sanctuary/LOCs

<u>SENSORS</u>	<u>SHOOTERS</u>
Dismounted Patrols/OPs	CRTF
REMBASS	Dedicated Lift
PRD-12	Military Police
UAV	Chemical Company
GBCS	1 section 120 mm Mort
	155mm HOW
<u>C2 CELL</u>	Avenger
<u>BN TF HQs</u>	CAS
	UAV EC

TTP #2: FOB

<u>SENSORS</u>	<u>SHOOTERS</u>
Dismounted Patrols/OPs	Security as assigned
EH-60	CRTF
RAH-66	1 section 120 mm Mort
PRD-12	AH-64/RAH-66/CAS
UAV	Chemical Company
Guardrail	Stingers
TAQ-37	CAS
GBCS	EC UAV, EC-60
<u>C2 CELL</u>	
<u>BN TF HQs</u>	

TTP #3: Light BDE

<u>SENSORS</u>	<u>SHOOTERS</u>
Dismounted Patrols/OPs	CRTF
CAV Troop	Dedicated Lift
REMBASS	CAV Trp, LOSAT, AGS
PRD-12	1 section 120 mm Mort
UAV	155mm HOW
TAQ-37	Chemical Company
GBCS	Avenger
<u>C2 CELL</u>	CAS
<u>BDE HQs</u>	UAV: EC

TTP #4: Heavy BDE

<u>SENSORS</u>	<u>SHOOTERS</u>
Dismount/Thermals	CRTF
CAV Trp	CAV Trp, M's, M2s
REMBASS	1 section 120 mm Mort
PRD-12	155mm HOW
TAQ-37	Chemical Company
UAV	Avenger
GBCS	CAS
<u>C2 CELL</u>	UAV EC
<u>BDE HQs</u>	

INFORMATION REQUIREMENTS

KPT

Critical Information needed from others

1. e-mail messages (spot reports) from MSCs
2. R&S plans from MSCs (update every 12 hours)
3. Location & activity of MPs/ chemical company
4. Intel assets employed

Information to be provided by the KPT

1. Maintain Common Relevant Picture(CRP) throughout battle space
2. Consolidate/synchronize MSC R&S plans & put out changes as needed

PLANS & OPERATIONS TEAM

Critical Information needed from others

1. Threats to the MSF battle space
2. Location/status of CRTF
3. Direct action atks by PLT or larger units against HVTs: ARTY, AVN, CLIII(B)

Information to be provided by the P&O Tm

1. The OPORDs, picture of enemy threat
2. Collection plan
3. IPB of battle space

DISCOM

Critical Information needed from others

1. CRP from KPT
2. IPB from P&O Tm of sanctuary portion of battle space
3. Location / status of CRTF
4. Location of known by-passed forces PLT sized or larger

Information to be provided by the DISCOM

1. Convoy routes, departure times to KPT, P&O Tms and MSCs
2. Sanctuary threat from enemy- to the P&O, KPT

CAT

Critical Information needed from others

1. CRP
2. Direct action attacks by PLT or larger forces at HVTs: Arty, Avn, CLIII (FLASH)

Information to be provided by the CAT

1. Cdr's guidance

INFORMATION REQUIREMENTS (Continued)

1st Brigade

Critical Information needed from others

1. CRP
2. Status / location of support assets from DISCOM
3. Changes to Cdrs guidance / orders
4. Requested movement of friendly units / elements through Bde AO

Information to be provided by the 1st Bde

1. R&S plans
2. E-mail (spot reports) to KPT
3. Protection / support for convoys through AO- to P&O, KPT, DISCOM
4. Threat evaluation in Bde AO- to all
5. Designate / form CRTF if required to support DISCOM

2nd Brigade

Critical Information needed from others

1. CRP
2. Status / location of CRTF assets from DISCOM (for log support)
3. Changes to Cdrs guidance / orders
4. Requested movement of friendly units / elements through Bde AO

Information to be provided by the 2nd Bde

1. R&S plans
2. E-mail (spot reports) to KPT
3. Protection / support for convoys through AO- to P&O, KPT, DISCOM
4. Threat evaluation in Bde AO- to all
5. Designate / form CRTF OPCON or Attach to support DISCOM

AVN Brigade

Critical Information needed from others

1. CRP
2. Threat evaluation throughout battle space
3. Request for Avn support

Information to be provided by the AVN Bde

1. R&S plan
2. Air routes
3. E-mail (spot reports)
4. Status / location of lift assets for CRTF

What do we need Phoenix to do / provide for us that its not currently doing?

-Auto feed of enemy units from CBS to Phoenix when we are in direct contact with them. We want to stop having to send E-mail messages to the KPT and manually inputting unit locations.

TASK	PRECISION RECONNAISSANCE
PURPOSE	To dominate the battlespace the MSF must achieve and maintain the initiative on reconnaissance of the battlespace. This will be achieved by focusing organic and supporting intelligence capability to identify, locate, and track the enemy force with the precision necessary to support the attack and destruction of the target.
INTENT	MSF will use precision reconnaissance as the base to dominate battlespace by establishing a reconnaissance and surveillance (R&S) plan that layers organic and supporting intelligence systems to track the enemy force. The intelligence assets will be layered to ensure increasing levels of clarity and fidelity as the target(s) maneuvers to the engagement areas established to bring the force to decisive combat within the conditions established by the MSF. Precision reconnaissance will set the conditions that support the shaping of the battlespace for simultaneous attack of the target.
RECONNAISSANCE PLANNING:	
The current doctrinal processes that establish dominance of the battlespace by reconnaissance remain valid. The commander's intent, critical information requirements, and priorities will focus the reconnaissance at each level of the unit. The division will develop a collection management plan that includes considerations from the brigades R&S plans. Brigades will develop R&S plans that are integral portions of the division plans and establish precision reconnaissance within the brigade's battlespace. A key element of the synchronization of the reconnaissance plan is the establishment of the key events timeline and the latest time information is of value (LTIOV) to support the commander's decision points for simultaneous attack of the target by the focused combat power of the MSF.	
INTELLIGENCE SYSTEM PRIORITIES:	
The intelligence priority will focus on locating and tracking division targets with a task organized package. Areas of operation will be apportioned to establish "intelligence handover" points that support timely collection and analysis within the MSF battlespace. Intelligence assets will be packaged in a combination of general support and direct support missions in support of division PIRs and brigade priorities. Packages will be established to ensure redundancy, flexibility, cross cuing, dynamic retasking, and accuracy required to support the establishment of battlespace dominance. Brigades will be tasked with intelligence acquisition tasks appropriate to their capabilities.	
TACTICS, TECHNIQUES AND PROCEDURES	
IPB	As a result of the IPB, hot, cool and cold areas for reconnaissance will be established throughout the battlespace.
HOT	Several systems should be tasked for reconnaissance, some of which will be Corps or EAC assets. As the target moves closer to the engagement area, the MSF will pick up tracking with high fidelity systems such as UAV or the reconnaissance squadron. LRSD can also provide high fidelity intelligence.

COOL	Fewer systems will be tasked for reconnaissance of cool areas, though the overall division collection plan must allow for adequate coverage of these areas, with the flexibility to surge or retask systems when a key target is identified in one of these areas.
COLD	The IPB process will identify areas where the enemy is not likely to be. These cold areas will still be covered by area search systems or early warning systems such as JSTARS, GRCS or REMBASS.
SYSTEMS	
GBCS	Normally GS to the MSF. Not held in reserve. Can net with AQF, PRD-12 and the UAV SIGINT package. Can be tasked to support an MSE priority without repositioning. Tasks supported: IPB, targeting, situation development.
AQF	Normally GS to the MSF. Can be surged at critical times on short notice. Normally the best platform for jamming. Can net with GBCS, PRD-12 and the UAV SIGINT package. Can be tasked to support an MSE priority. Tasks supported: IPB, targeting, situation development.
LRS	Normally GS to the MSF. Insertion/extraction/risk are key considerations in planning. Require approximately 24 hour notice prior to insertion. Tasks supported: targeting, situation development, force protection.
UAV	Normally both DS and GS systems. Best used as a confirming sensor rather than a search system. Specific mission will drive packages for each mission. Flexibility to respond to changes. Easily cued by other reconnaissance assets. Tasks supported: IPB, targeting, BDA, situation development, force protection.
PRD-12	Although organic to the DS Co (Light), can be used for GS missions as well. Can net with GBCS, AQF and UAV SIGINT package. Tasks supported: targeting, situation development.
REMBASS	Although organic to the DS Co (Light), can be used for GS missions as well. Best used to provide early warning, especially in restricted terrain or during periods of limited visibility. Tasks supported: Force protection, situation development.
RECONN SQDN	Normally GS to the MSF. Best used to provide fidelity after being cued by another system. Tasks supported: targeting, situation development, BDA.
CORPS AND EAC ASSETS	JSTARS and GRCS will provide priority of support to MSF upon request. Range capabilities of higher echelon system must be used to complement the MSF systems. Tasks supported: IPB, targeting, BDA, situation development.

INFORMATION REQUIREMENTS

KPT

Critical Information needed from others

1. E-mail messages (salute reports) from MSCs
2. R&S plans from MSCs to include updates for each change
3. Requests for collection coverage or emphasis by priority from CAT, P&O teams and MSCs
4. BDA information
5. Higher headquarters intelligence estimate and collection plan

Information to be provided by the KPT

1. Maintain relevant common picture for the enemy situation. Provide graphic INTSUMs on an hourly basis.
2. Synchronize MSC R&S plans and provide feedback on Division collection coverage and priorities.
3. Inform MSCs of any gaps in collection coverage or shift in priority that may impact on their plans.
4. Provide answers to PIRs and IRs. Ensure information in support of DPs is provided NLT LTIOV.

PLANS & OPERATIONS TEAM

Critical Information needed from others

1. E-mail messages (salute reports) from MSCs
2. Intelligence collected by MSC sensors, and assessment by the MSC intelligence officer
3. Relevant common picture for the enemy situation, with graphic INTSUMs on an hourly basis
4. Higher headquarters intelligence estimate

Information to be provided by the P&O Team

1. IPB in support of the plan.
2. Initial collection requirements during the planning process, and adjustments to collection in support of changes to the plan as it is executed.
3. Completed Decision Support Template
4. Intelligence Acquisition Tasks (IAT) for MSCs

CAT

Critical Information needed from others

1. Relevant common picture for the enemy situation, with graphic INTSUMs on an hourly basis
2. Intelligence to support DPs

Information to be provided by the CAT

1. Cdr's guidance.

1ST AND 2D BRIGADE

Critical Information needed from others

1. IPB in support of the plan.
2. Relevant common picture for the enemy situation, with graphic INTSUMs on an hourly basis
3. IATs from the P&O Team

Critical Information to be provided

1. Intelligence in response to IATs to KPT, CAT and P&O Team as required
2. E-mail messages (salute reports)
3. BDA information to the KPT, CAT and P&O Team as required
4. R&S plans with changes as they occur to the KPT

AVIATION BRIGADE

Critical Information needed from others

1. IPB in support of the plan.
2. Relevant common picture for the enemy situation, with graphic INTSUMs on an hourly basis
3. IATs from the P&O Team
4. Enemy ADA picture

Critical Information to be provided

1. Intelligence in response to IATs to KPT, CAT and P&O Team as required
2. E-mail messages (salute reports)
3. BDA information to the KPT, CAT and P&O Team as required
4. R&S plans with changes as they occur to the KPT

DIVARTY

Critical Information needed from others

1. IPB in support of the plan.
2. Relevant common picture for the enemy situation, with graphic INTSUMs on an hourly basis
3. IATs from the P&O Team
4. Targeting information from the KPT

Critical Information to be provided

1. Intelligence in response to IATs to KPT, CAT and P&O Team as required
2. E-mail messages (salute reports)

DISCOM

Critical Information needed from others

1. IPB in support of the plan.
2. Relevant common picture for the enemy situation, with graphic INTSUMs on an hourly basis

Critical Information to be provided

1. R&S plans with changes as they occur to the KPT
2. E-mail messages (salute reports)

What do we need Phoenix to do/provide for us that it is not currently doing?

Collection planning/management tools to include graphic display of the collection plan and an intelligence synchronization matrix.

TASK	PRECISION RECONNAISSANCE
PURPOSE	Employ all available reconnaissance assets throughout the depth of the MSF battlespace to provide the MSF with situation awareness (Common Enemy Picture), key information for decision making (Priority Intelligence Requirements) and to locate, identify and track High Payoff Targets (Precision Targeting).
COMMON ENEMY PICTURE:	
Using ASAS, the KPT will analyze raw data from all sources to develop a common enemy picture covering the entire MSF battlespace. The KPT will disseminate analyzed data to Phoenix users as the analysis is conducted. Periodically, the KPT will also distribute the analyzed picture to all Phoenix users in the form of a graphic INTSUM. The graphic INTSUM will provide current locational information as well as enemy strengths, capabilities, intentions and courses of action. Major Subordinate Commands (MSC) will use direct inputs from ASAS and organic assets to update the common enemy picture in their assigned battlespace. MSCs will provide their updates to the KPT for inclusion in follow-on graphic INTSUMs. MSCs will also provide updates to the CAT, P&O Teams and other MSCs. As required, the P&O team intel representative will conduct audio conferences of the most current common picture. The alternate briefer will be from the KPT.	
PRIORITY INTELLIGENCE REQUIREMENTS:	
PIR provide focus for MSF and MSC precision recon. PIR should be tied to specific decisions the commander must make. In some cases, MSCs will be in the best position to answer MSF PIR directly relating to their employment. For example, if a PIR is related to the trigger event (target crosses PL) that will launch a Bde attack and the Bde has the recon assets to detect and track the target, the Bde can be tasked with the responsibility for tracking the target (answering the PIR). In this case, the Bde, in coordination with the P&O team, would recommend to the MSF commander when the conditions for the attack have been met and the MSF commander will make the decision to attack (or not).	
PRECISION TARGETING:	
ASAS enables the MSF and MSCs to simultaneously receive near real time targeting data. Effective use of the HPTL, TSS and AGM can serve to streamline the deliver phase of the targeting process. For example, the ASAS analyst can set alarms pertaining to targets on the HPTL. As these targets come up the ASAS analyst correlates the new data with existing information to develop the best targeting information. If the target meets the TSS, the ASAS analyst can pass the target to the targeting system IAW the AGM. If the HPT is to be attacked at a later time, the ASAS analyst can track the target and provide periodic updates to the commander.	
RECONNAISSANCE IN DEPTH:	
All MSF organizations must be prepared to conduct precision recon throughout the depth of MSF battlespace. The MSF commander will normally allocate recon assets to MSCs. However, MSCs should consider all assets, whether combat, CS or CSS when planning for precision recon.	

BATTLE DAMAGE ASSESSMENT:

BDA, as well as tracking requirements, must be planned for during the decide portion of the targeting process. BDA should only be required on targets whose BDA is tied to key decisions the commander must make or when essential in determining the success of the attack. For example, if the commander's decision to launch the ground attack is tied to the destruction of 50% of the enemy artillery able to range the breach site, BDA on enemy artillery is essential. A typical BDA mission could follow this sequence of events:

1. Targeting team approves target and requests BDA.
2. KPT/MSCs incorporate target into recon/collection plan.
3. Sensors detect target, begin continuous tracking and report to ASAS.
4. ASAS analyst correlates with other data and triggers attack IAW AGM.
5. Weapons system attacks target and reports battle damage (INFLTREP, etc.)
6. Sensors continue to track target and report to ASAS.
7. ASAS analyst correlates available battle damage information and forwards to KPT.
8. BDA analyst in the KPT performs assessment and reports to commander.

RECONNAISSANCE/COLLECTION PLANNING:

MSCs will develop recon/collection plans designed to provide situation awareness, answers to PIR and precision targeting within their battlespace. MSCs will forward complete recon/collection plans to the KPT for inclusion in the MSF level recon/collection plan. The KPT collection manager will use GS assets, MSC assets, and requests to higher to ensure that all MSF battlespace is adequately covered by precision recon assets. The KPT collection manager will work with the current and future operations P&O Teams to develop recon taskings for all units and systems such as Division Cav, etc. The KPT Intel Chief and collection manager must ensure that recon/collection planning is synchronized with MSF operations.

TASK	DEEP STRIKE - AVIATION
PURPOSE	Set the conditions for decisive combat.
INTENT	Engage the enemy throughout the depth of the battlespace. Prevent them from introducing combat power into our battlespace. Attack the enemy at the time and place of our choosing. Be able to continuously attack the enemy with "surgical precision" in order to create opportunities for exploitation by the MSF or other elements. Set the conditions for sequels and future operations.

METHODOLOGY FOR DEEP STRIKE PLANNING:

(A) PROACTIVE. The Aviation Brigade along with the precision reconnaissance and long range fires can be used to "shape" the battlefield well before the enemy enters into our "close" battlespace. The intent is to limit his freedom of action by destroying his high value targets before he can bring them to bear against BLUE Forces. This also serves to "set the conditions" for exploitation by the MSF or other BLUE Forces. We want to keep the enemy "guessing" as to where we will attack him next. We have the options to keep constant pressure on him, or attack him anytime and anywhere we want, and still be able to "surge" combat power against any key opportunities for decisive action anywhere in the battlespace.

(B) REACTIVE. The inherent flexibility, speed, ability to integrate other fires, and freedom to maneuver over virtually any terrain makes the Aviation Brigade ideally suited to react to unforeseen situations, however this is a less desirable situation for their employment. If the MSF's collection plan is thoroughly tracking the enemy then "reacting" to a tactical situation should be "the exception" and not "the rule".

BATTLESPACE MANAGEMENT:

(A) A2C2. The MSF will control the airspace (up to 30,000' AGL) above their zone of action. The A2C2 element in the Avn Bde will be the executive agent for A2C2-management. Their job is to ensure the synchronization of the attacking assets (Army, USAF, lethal/non-lethal fires) and clearance of the non-attacking assets.

(B) JOINT ATTACK WITH USAF. The Avn Bde will also plan for the integration of AI, CAS, TAR, and EC in order to optimize the employment of these systems. All deep strikes should be planned to include USAF assets. Employment without, should be "the exception" and not "the rule". A standard "package" should include: Comm Jam (EC-130), Radar Jam (EF-111), and Radar Atk (HARM shooter).

(C) AERIAL MANEUVER & SIMULTANEOUS LONG RANGE FIRES. The Avn Bde should have enough of a "maneuver box" that will allow them freedom to maneuver 360 degrees around the target in order to take advantage of terrain and their standoff weapons systems. A rule of thumb would be to give them @10km around the target area for aerial maneuver. The target area will be attacked with WAM, FA fires, USAF, EC, smoke, and Avn fires. The Avn Bde Cdr will normally be the key planner in determining and controlling the distribution of fires against the target in order to optimize the different systems and achieve the desired effects. (See fig 1.)

TASK ORGANIZATION AND MISSIONS:

RECON & SECURITY FORCE <u>Task Org</u> UAV "emitter" UAV "collector" Ferret acft (RAH/AH) UAV "jammer" RAH-66 Scouts	T: Defeat enemy AD systems (UAVs and Ferret acft) P: Enable Attack force to reach the target area unimpeded T: Locate / confirm targets (RAH-66 Scouts & UAVs) P: Provide targeting info to Atk force T: Screen Atk force (RAH-66 Scouts) P: Provide early warning / protection to the atk force
ATTACK FORCE <u>Task Org</u> AH64D Co UH60 CSAR	T: Destroy HPTs (AH64D Co) P: Allow for the accomplishment of the MSF mission statement T: Conduct CSAR (UH60) P: Immediate pick-up of any downed aircrews
EXPLOIT <u>Task Org</u> AH64D Bn RAH66 Recon Trp UAV sec	This is a likely organization to be the "RESERVE" for the Avn Bde and / or the MSF. They would have "Be Prepared" msns such as: - Block counterattacking forces - Respond to Level III attacks - Disrupt/destroy/delay withdrawing enemy forces
SUSTAIN <u>Task Org</u> CH47D Plt Svc & Spt Plt Lt In Plt	T: Install a 4 pt FARP P: Allow for the immediate turnaround of aviation assets T: Screen P: Provide early warning and protection to the FARP assets during ops

TACTICS, TECHNIQUES, AND PROCEDURES:	
RECON & SECURITY FORCE	The R&S force "clears the way" for the Atk Force using the UAVs to locate and target AD systems for destruction/suppression along the routes and in the target area. The force also tracks and determines the final location for the atk by the Atk force. The R&S Force should seldom ever have to go "looking" for the enemy. The "common relevant picture (CRP) should allow them to track the target before the Atk Force leaves the AA.
ATTACK FORCE	The Atk Force will attack the target along with the integrated fires from FA, USAF, WAM, smoke, and EC. They should not have to stop anywhere along the route in order to allow the scouts to go forward and gain contact with the enemy. They should have the "targeting info" (CRP from the KPT) before they take off. The Avn Bde Cdr will plan and control the fires against the enemy. He will ensure the optimal employment of all the attacking assets to avoid dual kills and "misses".
EXPLOIT	An attack helicopter company will normally constitute the standard size force to conduct the exploitation of any opportunities. This must be carefully managed to ensure that the force is available at the critical time and place. The Avn Bde Cdr will do this by balancing the unit against the threat (fighter management). Additional forces can be placed OPCON to the brigade (In co, CH47 plt, FA bty...) as necessary for the mission. The Avn Bde can serve as the force HQ for the exploitation mission.
SUSTAIN	There are two aspects of sustainment that must be addressed in TTP. The sustainment of the brigade as a whole, and the sustainment of forward forces with a FARP. The brigade base of operation will be set up in the division "sanctuary". The Avn Bde will be part of the C-Recon effort protecting the sanctuary. Dedicated acft (lift, scout, atk, and EW acft) as well as flights in and out of the sanctuary will be part of the C-Recon effort. A FARP will be established whenever the situation requires a quick turnaround of forces to get them back into "the fight". FARPs must be mobile and protected in order to survive. One concept for a "silent" (or "throwaway") FARP involves using 3xCH47Ds to bring in @ 8,000 gals of fuel, a FARE system and enough CL V to turn a bn of AH64Ds two times. An infantry plt would provide local security. Upon mission completion, the remaining assets could all be backhauled in one CH47. FARPs out in [REDACTED] should have a plan to move about every hour in order to survive.

ENEMY TERRITORY

INFORMATION REQUIREMENTS

1. *What the Aviation Brigade needs:*

- a. The target array (situation template) (from the P&O team).
- b. The air defense sit temp of the target area and along the ingress / egress routes (P&O).
- c. Enough maneuver space around the target area to allow for freedom of aerial maneuver. At least 5 kms of maneuver space around the target area (P&O).
- d. A QUICKFIRE channel for immediate calls for fire (DIVARTY).
- e. A common relevant picture with the KPT to allow for a positive "handover of target information" in order to confirm or deny the situation / enemy COA.
- f. A "success statement" from the MSF Commander that determines success for the attack and a clearly defined "trigger" for the commencement of the attack.
- g. Any taskings of any of the Avn Bde's assets such as the ARS or UAVs (CAT or P&O Teams).

2. *What the Aviation Brigade will provide to others:*

- a. Their ingress / egress routes, and scheme of maneuver (to the P&O and DIVARTY).
- b. Any requirement to establish a FARP outside the Avn Bde AA or forward of the FLOT (P&O).
- c. Access to videotapes for BDA for intel purposes (KPT, P&O).
- d. The plan for the integration of FA, USAF, WAM, smoke, and EC (P&O Teams).

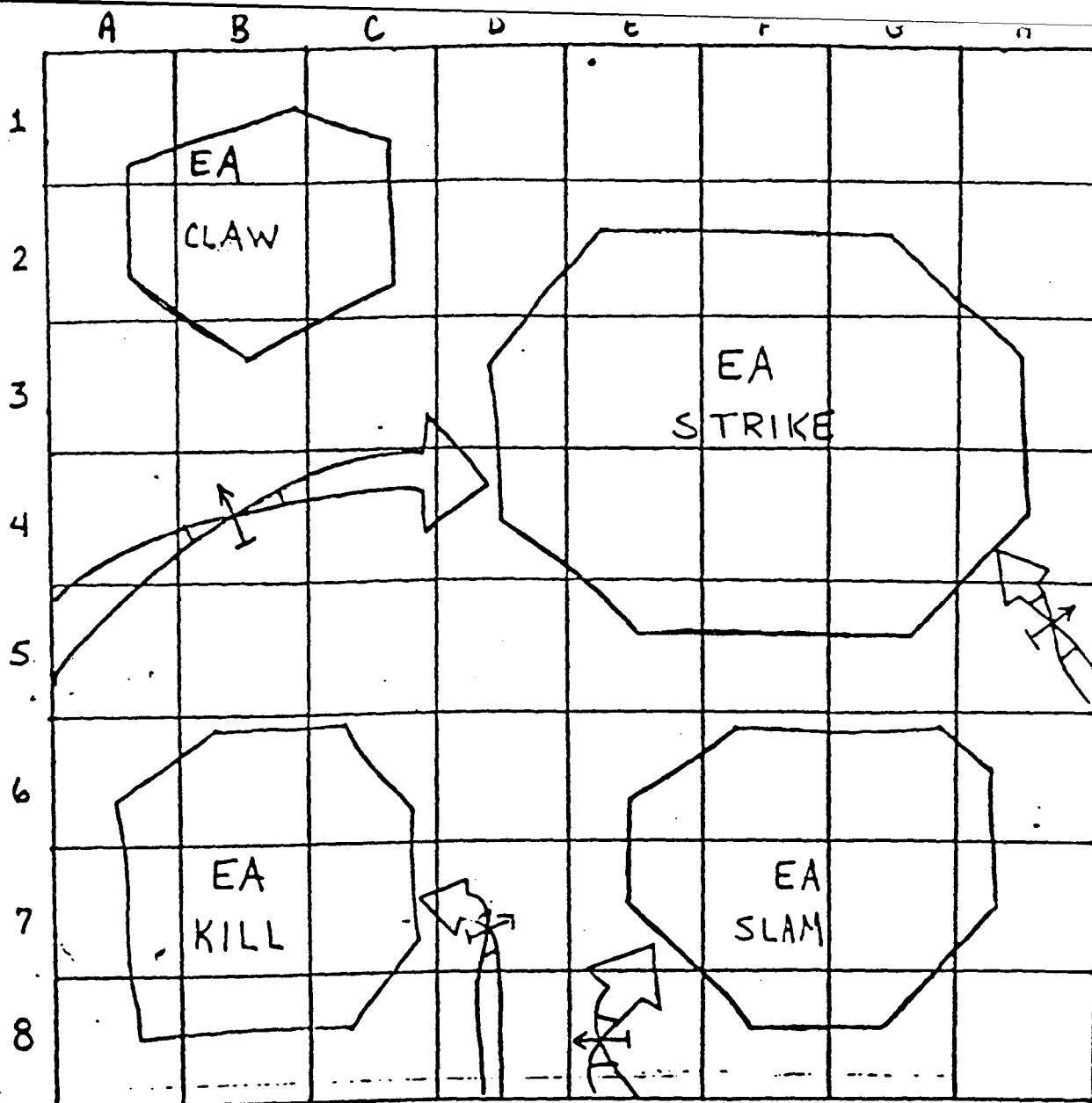


Figure 1

In order to allow for synchronization of aerial maneuver, along with fires, a "grid matrix" can be established. This can be a 5x5, or 10x10 km (depending on the map scale) "grid box" that can be identified through a letter/number combination. These "aviation maneuver lanes" and "fire lanes" can be used to separate the forces (with a function similar to that of an ACA) by time, space, or altitude so we can attack or support by fire simultaneously. The precision navigation equipment used by aircraft and fire control systems should allow target areas to be identified, or separated by map grid lines instead of having to depend on identifiable terrain features.

PRECISION STRIKE	
TASK	Prevent enemy unrestricted maneuver and destroy high payoff targets.
PURPOSE	To disrupt, delay, destroy HPTs and provide continuous pressure throughout the commander's battle space and set conditions for future operations
CONCEPT	Attack the threat in depth to deny him the ability to rapidly bring combat power to bear on friendly forces. The MSF will use its precision munitions to attack enemy HPTs at standoff range with lethal and nonlethal fires. Precision fires provide flexibility and freedom of maneuver within the MSFs Battle Space for friendly units
DEEP FIRES PLANNING METHODOLOGY	
DECIDE	The objective of attacking targets deep on the battlefield is to delay, disrupt or destroy enemy forces, facilities and high payoff systems which could interfere with the MSF's measure of success. The decide phase provides the focus and priorities for the collection management and fire planning. It is focused by the intelligence estimate of the situation, the commander's mission analysis, wargaming, and knowledge of the enemy's most probable COA(s) to our operation, and the decision regarding options to deny enemy interference. The decide phase must tell us what HPT to look for, when and where they are likely to appear on the battlefield, who can locate them, and how the targets should be attacked
DETECT	The detection phase is accomplished by ensuring that the appropriate sensor(s) are in position at prescribed times and in search of designated, specific enemy targets. As specific targets are located they are communicated to the KPT and/or DIVARTY for confirmation of the decision to attack, or directly to a fire support system at brigade or division as a precision strike trigger event.
TRACK	Once the HPT is detected, it is critical that procedures are in place to maintain an accurate track of that target. The KPT must use what limited MSF's collection assets to track the HPTs to support targeting and attack of the enemy, and to provide the situational awareness required for the commitment of maneuver forces. The enhanced SPEC2/ASAS capabilities, coupled with decreased sensor to shooter timelines provides the MSF with more precise planning, execution and evaluation of attacks

DELIVER	Timely, accurate delivery is the culmination of synchronization of fires. The delivery is executed rapidly by having designated fire support systems immediately engage the previously decided target based on sensor detection of trigger event or projected target activity.
ASSESS	Following the attack of the target, collection assets should assess if the desired effect has been achieved or if further engagement is required. Depending on CDR's intent and attack guidance, we may conduct BDA. As a general rule we will not conduct BDA. BDA, if required, will be on the most critical HPTs. Limited assets will not permit BDA on every target engaged.

BATTLE SPACE DOMINATION

DEEP	The MSF conducts deep operations primarily through the separate or simultaneous use of deep maneuver, deep fires, and C3CM. Deep maneuver by the MSF is accomplished by airborne, air assault, attack helicopter, or artillery units. Continuous and aggressive reconnaissance and surveillance by our collection sensors and air and aviation platforms to provide information on the enemy disposition will be key to early warning and accurate targeting. The MSF will conduct deep fires operations through the employment of organic and supporting field artillery, attack aviation, and Air Force AI. The deep fires concept is to assist the MSF in controlling the velocity of closure and achieving decisive combat in close operations, concurrently, while denying the enemy freedom of maneuver and the ability to concentrate combat power by attacking follow-on forces at depth. This will deny the enemy the opportunity to influence the theater's tactical operations. The use of C3CM in concert with fires can deny the enemy commander the means required to effectively concentrate the combat power of his force. The MSF's C3CM process is an integrated, balanced, and complementary employment of a combination of lethal and nonlethal attacks. The focus is to disrupt enemy target acquisition, intelligence gathering, and C2 systems while simultaneously protecting our own C3 systems. The MSF C3CM operations must be planned by the Targeting Board and incorporated into the top-down planning process by the P&O Team.
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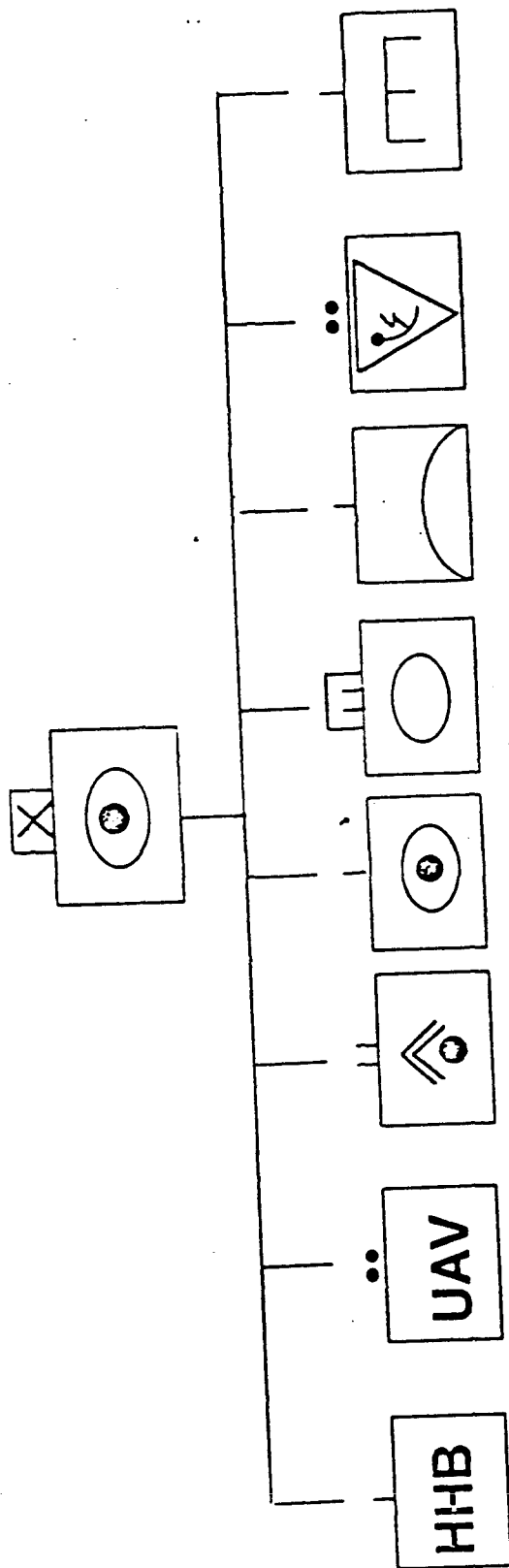
**BATTLESPACE DOMINATION
SET CONDITIONS**

DECISIVE COMBAT OPS	→ The MSF will shape and set conditions for the decisive combat with its deep strike campaign. Fire planning in support of the brigade commanders' battle space will be planned and executed by the assets available to them. Additional fire support requests will be passed to the DIVARTY for integration in the deep strike program. The division's counterfire and SEAD programs will provide the force protection to allow the MSF to enjoy unrestricted maneuver.
SANCTUARY	The MSF will designate a force and allocate fire support and acquisition means to defend the sanctuary against a threat. The allocation of fire support is based on the threat estimate. The response force will employ precision mortars, artillery, attack aviation and/or close air support to assist in fixing and destroying the threat. Fires must support the Sanctuary to allow the MSF freedom of action. It is the responsibility of the DISCOM Cdr and staff to control the sanctuary defense against all levels of threat (I - III).
TACTICS, TECHNIQUES AND PROCEDURES	
TF FIST <i>See JF FAC</i>	The MSF through its collection effort locates an armored threat reserve force 200 kms forward of the FLOT and task TF FIST (See Encl 1) to block and delay that reserve and be prepared to continue the attack to destroy that force. The task force commander after careful analysis determines that he needs a balanced mix of combat power to block the threat and be prepared to conduct follow on ground attack to complete destruction of the enemy reserve after the MSF long-range attack assets have completed their strikes. → The MSF commander directs the tactically tailored TF to: conduct cross FLOT maneuver (See Encl 2) to clear enemy forces from routes to be used by MSF long-range attack assets in movement to their firing positions deep in the enemy's rear, establish base of fire for MSF, and provide force protection through range standoff. This requires the TF to fight through the enemy's defensive belt, hold off the enemy reserve and protect itself from the enemy's long-range fires, simultaneously, as it moves to secure firing positions. The TF commander positions his field artillery assets in the center under the protection of his armored forces as they maneuver. The artillery will be required to fire on targets at extended ranges as well as provide close support to the main body. The ability to have accurate, near-real time intelligence gives the commander the ability to apply pressure on the enemy with fires simultaneously throughout his battle space.
TF RED- LEG	The KPT of the MSF through its collection effort locates an enemy CAG conducting ROM and resupply operations in an assembly area and directs TF Redleg to destroy this target before it has the opportunity to move.

**TF REDLEG
(CONT)**

The KPT continues to track this target and pass intel to the DIVARTY targeting/intel cell. The commander after careful analysis decides to strike at operational depth to destroy the CAG and extend his base of fires. This is an economy of force operation of which the commander is using his GS artillery tasked organized (See Encl 3) with the appropriate maneuver protection package, while focusing his air attacks at even greater depths against an approaching armor force. The trigger to use air assault operations will be sufficient attrition of enemy forces, especially artillery long shooters and ADA that propose a threat to the operation. SEAD fired in support of the Ingress / Egress is triggered by the AVN Bde. The control of fires in the EA is accomplished by the AVN Bde. The commander initially inserts a light force (See Encl 4) armed with light cannon artillery and a HIMARS battery to destroy the CAG and set conditions for the follow on force. In addition, an artillery task force maneuvers across FLOT to a firing point where it can fire on the approaching armor force and reinforce the fires of the light force. The artillery task force includes elements of armor, infantry, aviation, engineers, air defense, UAV's, and a TPQ-37(ER)

TF FIST

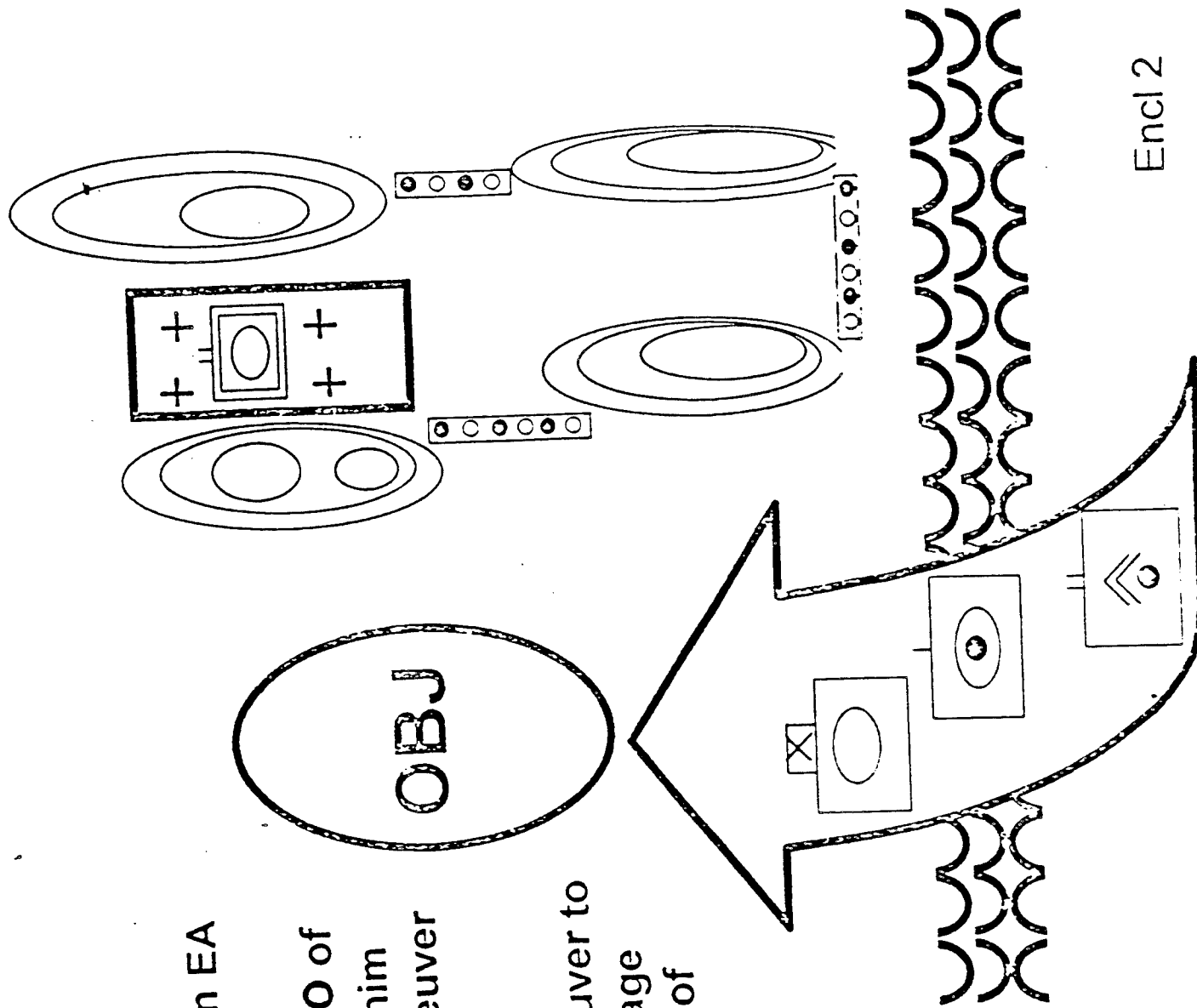


Encl 1

TASK: Destroy enemy HPT's in EA

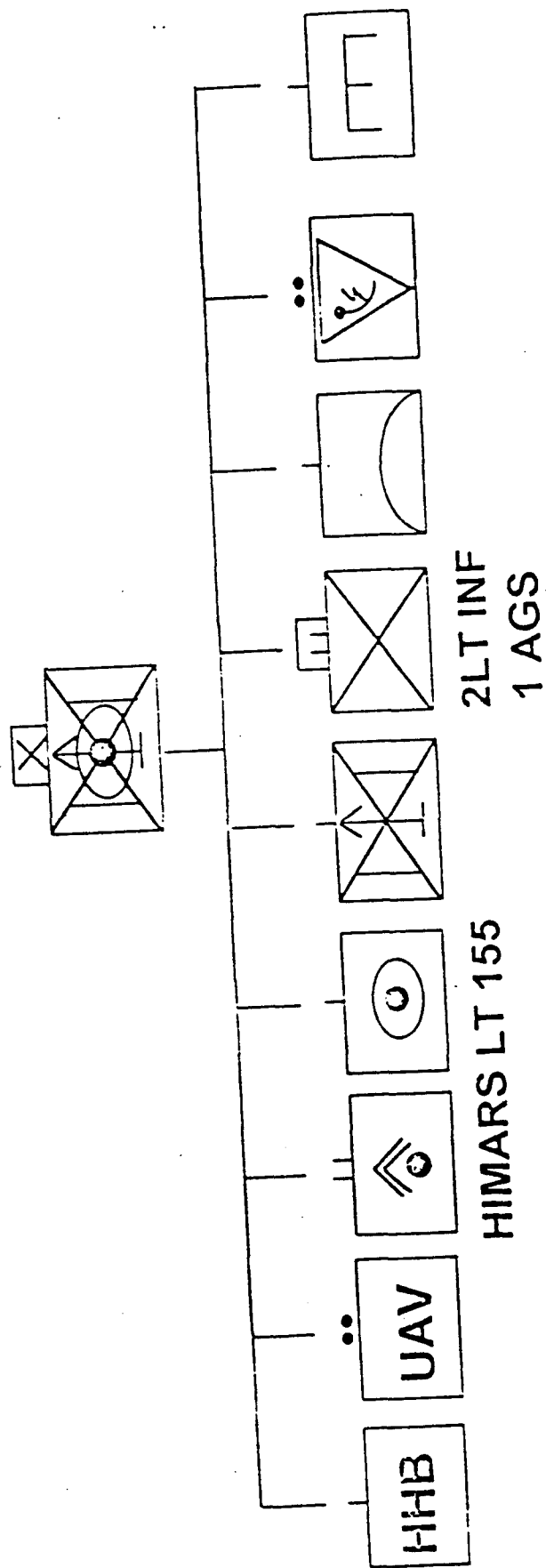
PURPOSE: Control Tempo of enemy operations preventing him from having unrestricted maneuver throughout the Battle Space.

METHOD: Cross FLOT, Maneuver to Fire Point, Employ WAM, Engage HPT's, Return to friendly side of FLOT.



Encl 2

TF REDLEG



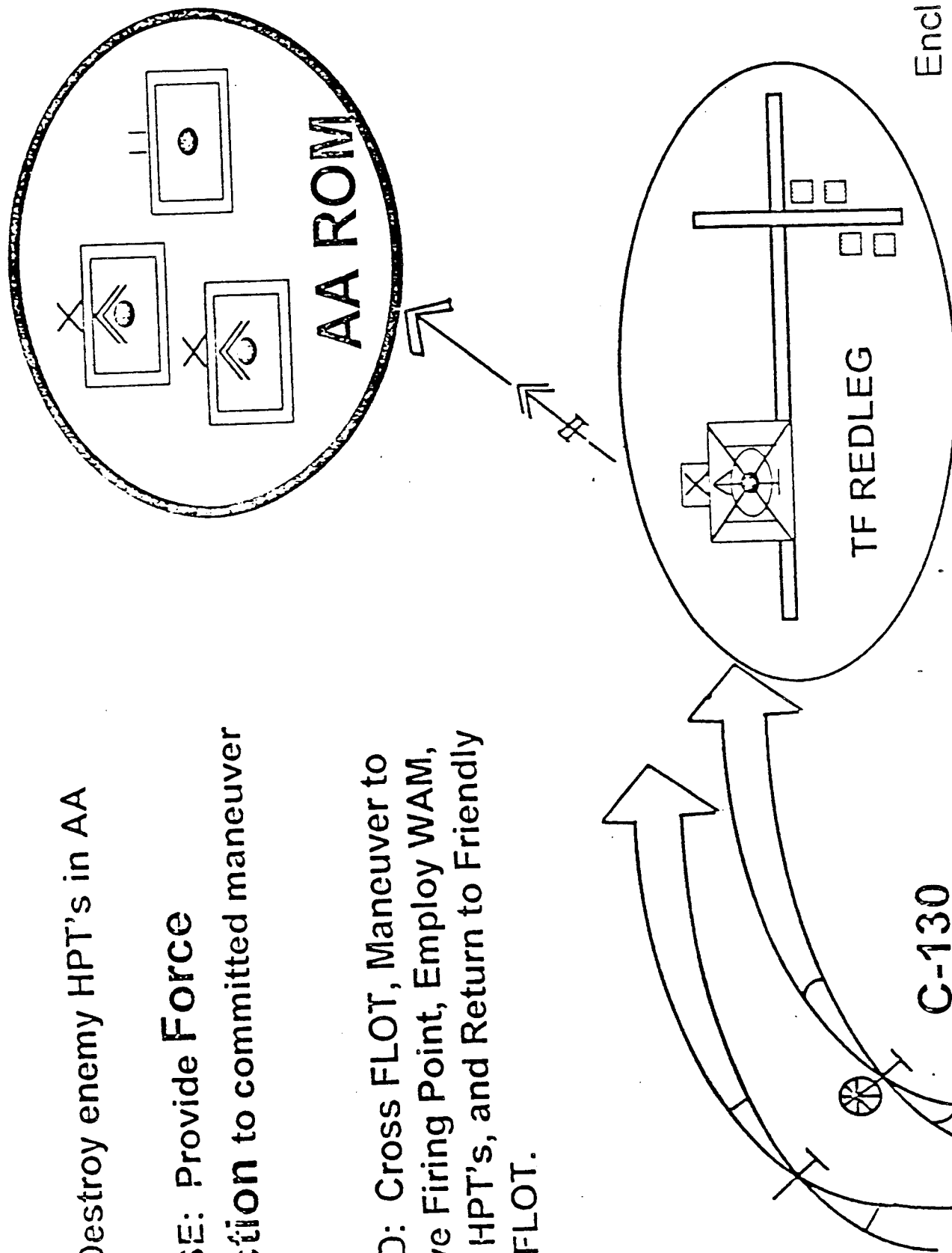
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Encl 3

TASK: Destroy enemy HPT's in AA

PURPOSE: Provide **Force Protection** to committed maneuver units.

METHOD: Cross FLOT, Maneuver to Objective Firing Point, Employ WAM, Engage HPT's, and Return to Friendly Side of FLOT.



Encl 4

INFORMATION REQUIREMENTS

Critical information needed from others:

CAT

1. Cdr's guidance

KPT

1. Information and Intel updates to support fires
2. Changes to fires, targeting, and BDA priorities / access to near - real time BDA
3. CRP throughout battle space
4. MSF consolidated R&S plans

P&O

1. Changes to Cdrs guidance / orders
2. Cdrs guidance on what constitute a target, attack criteria, and allocation of fires
3. Quickfire net for triggering events or modifying trigger points
4. Protection / security for DIVARTY critical assets (TPQ-37, MLRS, etc...)

BDE's

1. CRP
2. Status / location of support assets from DISCOM
3. Status / location of breached obstacles
4. Changes to Cdrs guidance / orders
5. Protection / support for DIVARTY GS assets operating in sector or zone
6. Terrain management to support positioning of GS assets within security umbrella

DISCOM

1. CRP
2. Status / location of DIVARTY CLC
3. Convoy routes and MSRs
4. Sanctuary threat
5. Time required and method of resupply (travel w / DIVARTY or establish CACHES?)

MSF A2C2

TASK	To provide A2C2 procedures for the Mobile Strike Force.
PURPOSE	To provide the MSF with a permissive environment for employment of aviation assets, intelligence collection assets, and long-range artillery fires; to take advantage of digital information technolog, dominate the battlespace, and strike the enemy with the right lethal or non-lethal fires at the right place at the right time.
CONCEPT	A2C2 process and procedures in the MSF will allow for the freedom of aerial maneuvers and fires, synchronization of joint assets into MSF battlespace, prevent fratricide, and allow for the MSF to destroy the enemy with the right weapon system with the right amount at the right time with no loss of operational tempo.
METHOD	
PLANNING PROCESS	1. Manned aircraft will be protected by positive control measures. It will be assumed that indirect or direct fires can damage or destroy friendly aircraft. Therefore, we will restrict fires operations to protect these manned assets. 2. UAV operations will not cause fires to be shut down. We will accept the risk of damage or destruction of UAVs by our fires in order to minimize restrictions on those fires. No operation will be modified or stopped because of UAV operations in the immediate area airspace. 3. Artillery ROZs will be used for launch and strike areas. 4. Strike boxes will be used when there is the potential for fratricide, the purpose of strike boxes is to prevent restriction of fires and protect manned aviation assets while permitting maximum freedom of fires.
HIDACZ	The MSF will operate within a HIDACZ. The purpose of the HIDACZ is to define a three dimensional battlespace that gives the MSF freedom of aerial maneuvers fires. Once activated the HIDACZ also gives the MSF assets the freedom to operate within defined lateral/vertical boundaries without having to coordinate outside of the MSF headquarters.

DECONFLICTING ALTITUDES	To the maximum extent possible, permissive altitudes will be used to deconflict the use of airspace. Artillery will require the establishment of ROZs over launch and strike areas. Deconfliction within the HIDACZ will be accomplished using permissive elevations as follows: <table> <tr> <td>6,000-19,000</td><td>USAF HIGH BLOCK</td></tr> <tr> <td>4,000- 6,000</td><td>BUFFER</td></tr> <tr> <td>4,000</td><td>UAV CRUISING ALTITUDE</td></tr> <tr> <td>300-4,000</td><td>USAF LOW BLOCK</td></tr> <tr> <td>200- 300</td><td>BUFFER</td></tr> <tr> <td>0- 200</td><td>HELICOPTER OPERATIONS</td></tr> </table> Any operation that would cause these elevations to be violated must either be preplanned or coordinated with the A2C2 cell for clearance prior to execution.	6,000-19,000	USAF HIGH BLOCK	4,000- 6,000	BUFFER	4,000	UAV CRUISING ALTITUDE	300-4,000	USAF LOW BLOCK	200- 300	BUFFER	0- 200	HELICOPTER OPERATIONS
6,000-19,000	USAF HIGH BLOCK												
4,000- 6,000	BUFFER												
4,000	UAV CRUISING ALTITUDE												
300-4,000	USAF LOW BLOCK												
200- 300	BUFFER												
0- 200	HELICOPTER OPERATIONS												
STRIKE BOXES	Strike Boxes are an additional control measure designed to deconflict multiple weapon systems (USAF, Army aviation, Arty fires) firing on the enemy in a single objective or engagement area. Strike boxes are a system of grid boxes 10 KM by 10 KM over the MSF battlespace. Boxes designated as "Hot" are communicated over the radio. Boxes can become "Hot" to clear aircraft routes onto a target or designate aircraft target areas. Strike boxes can be designated "Hot" for UAVs or USAF Navy aircraft transitioning to operate in airspace lower than the MSF approved operating altitude (see attached encl for drawing and example). The A2C2 grid system is the same grid used for ground reference.												
COORDINATING POINTS (CP)	Coordinating Points are designated points outside the MSF HIDACZ Battlespace to flow USAF, USN, or other aircraft into the MSF battlespace. Aircraft flowing into MSF HIDACZ will coordinate prior to entering. Aircraft will enter through assigned CPs given to them by the MSF A2C2 cell located in the aviation Bde.												
CORRIDORS OR ROUTES	Army Aviation aircraft will use air corridors to execute their missions forward of the MSFs sanctuary locations. Corridors will be turned on when in use and off when not being used. When turned off, MSF fires are not restricted by the corridors.												
MINIMUM RISK ZONES (MRZs)	MRZs are established along the boundaries of the MSF HIDACZ to assist aircraft ingressing to and egressing from the target area. The MRZs will allow for permissive air defense artillery (ADA) identification, and minimal precision fires deconfliction, while giving aircrews room to maneuver to and from the target area.												

ROZs, BDZs, NFAs	Restricted Operating Zones (ROZ). Base Defense Zones (BDZ), and No Fire Areas (NFA) will be used as needed to deconflict UAV launches, landings, ground maneuver or air assault operations, as well as MRLS/ATACMs fires
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A2C2

INFORMATION REQUIREMENTS

UNIT SECTION	PROVIDES	RECEIVES
KPT	INFORMATION AND INTEL PRODUCTS TO SUPPORT THE PLANNING PROCESS	AVN ROUTES, UAV ROUTES
P&O IMS	HIDACZ PLANNING AND CPs	AVN ROUTES
AVN BDE A2C2 CELL	ROUTES, STRIKE BOXES, MRZs, ALL BDZs, NFAs, ROZs. A2C2 OVERLAY	UAV ROZs, BDZs, NFAs, HIDACZs, CPs
MNVR BDES	UAV ROZs, NFAs	A2C2 OVERLAY, STRIKE BOXES, MRZs, ROUTES/CORRIDORS
DISCOM	BDZs, SANCTUARY AIR ROUTES	A2C2 OVERLAY, STRIKE BOXES, MRZs, ROUTES/CORRIDORS
DIVARTY	MRLS, & ATACMS ROZs	A2C2 OVERLAY, STRIKE BOXES, MRZs, ROUTES/CORRIDORS
PHOENIX	COMMON OVERLAY FOR STRIKE BOXES, MEANS TO HIGHLIGHT ACTIVE ROUTES/CORRIDORS	

BATTLESPACE/A2C2 GRID SYSTEM

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

Each grid square measures 10 km by 10 km

The Strike Boxes are identified by referring to the intersection of the row and column at the location being highlighted. For example: A1, G4, etc.

This grid system is a common reference system used by all MSF forces.

Each of the 10 km by 10 km grids can be further divided into 5 km by 5 km squares for additional precision as follows:

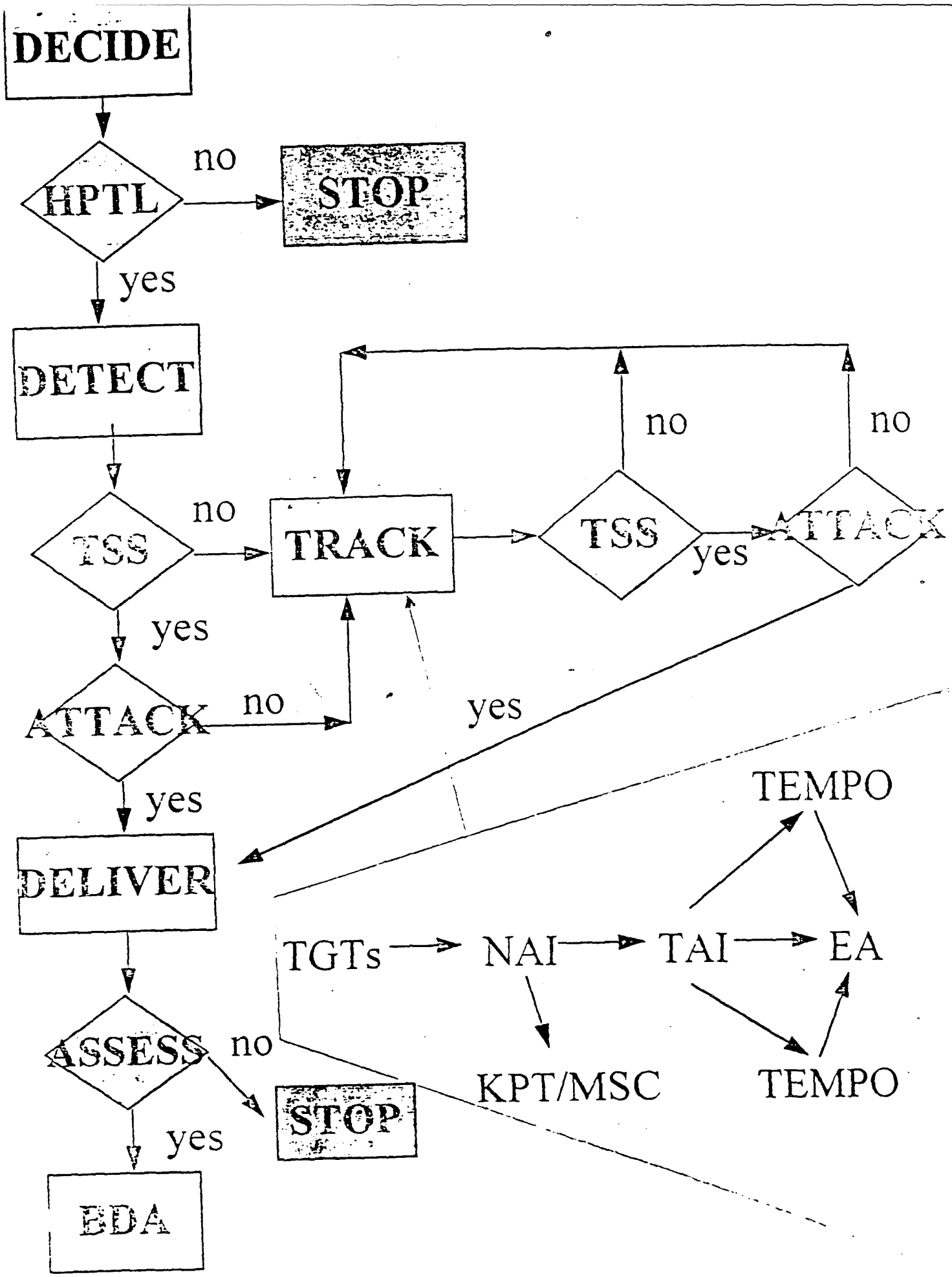
A	B
C	D

MSF TARGETING						
TASK	Identify Enemy targets for Engagement by the Appropriate Attack Systems to Effectively Detect, Track, Attack, and Assess Enemy Targets.					
PURPOSE	Rapid Precision Attack by the appropriate system(lethal and non-lethal) produced by Synchronizing the following systems:					
	Target Selection	Collection (Precision Recon)	Precision Fires	Deep Attack		
CONCEPT	Targeting process has not changed. We will use the D2TDA methodology complemented by digitized information management systems and increased communication capabilities to achieve the fires effect to support Cdr's Intent and Maneuver					
MSF TARGETING PROCESS						
PHASE	POC	ROLES				
DECIDE	PURPOSE	Determine what enemy HVTs should be attack to best support Cdr's intent				
	Target Boards	MSF Targeting board, at a minimum, composed of the members listed below Their primary responsibility is to decide what targets to attack, with what collection and attack asset, and which targets require BDA. It is essential they understand the purpose and desired end state of the mission. Targeting board will organize its plan by Operation, by Phase to match the OPORD Another key function of the Targeting Board is to tie the ASSESS phase to the DECIDE Phase, dedicating sensor assets to assess BDA for "HOT" targets The Boards meets via VTC with meetings limited to less than 30 mins				
		DEPUTY CDR or KPT CHIEF (Chair)				
		P&OTm	AVN Bde	KPT	DIVARTY	USAF
		FA & Intel	Rep	FAIO & Intel	Rep	Rep
	P& CHIEF & KPT Tgtrs	After Mission analysis receive Cdr's initial guidance/intent on the employment of fires. (FAIO and Intel Rep) Develops Collection Plan to support targeting and BDA. Recommend HVTs to Cdr MSF.				
	P&O Tms	During mission Analysis develop HPTL and target Sync Matrix to be approved by the Cdr. FSPT assets must be dedicated to the Counter-Recon fight.				
	Future Ops Targets	Meet twice daily to link targeting to the ATO process and validate Target Sync Matrix as target fidelity increases from JFLCC, and Corps Intelligence.				
	Bdes	MSCs develop Recon/Collection Plan to support MSF within Bde battle space.				

PHASE	POC	ACTION
DETECT	PURPOSE	Focusing on the Deep and Rear battles, assign specific collection assets to find and track HPT.
	KPT	The primary functions of the KPT are; 1) Focus Collection Plan to Detect and Track Cdr's PIRs and HPTs. MSF Sensors and dedicated Corps assets will be packaged to support Collection Plan. Sensors usually GS to MSF: GBCS, AQF, LRS, UAVs, Recon SQD. 2) Provide Attack Systems with pre-requisite target validity, fidelity and timeliness per Target Selection Standard (TSS). There are six ascending stages of target fidelity. From lowest to highest they are; Suspected target, Target, HVT, HPT, HPT with required TSS, and Immediate targets. As the target validity increases appropriate sensors must be dedicated to improve fidelity and timeliness. 3) Broadcast Target Intelligence to subordinate Bdes via INTSUM overlay 4) Flash HPTs which meet attack criteria to appropriate attack system. 5) Target Hand over from JFLCC or Corps 6) Flash message to Current P&O Tm on Immediate Targets (Targets that present a risk to current or future Ops).
TRACK	PURPOSE	Tracking resources will still be contrained. Targets are tracked by KPT in TAI's to revalidate Target Selection Standards(TSS) leading to a decision point for the Commander or Tgt Board. Once a target is detected it will be passed to the KPT to update the Common Picture and to the appropriate MSC as the delivery mechanism. we will continue to track by division and brigade assets to verify validity and increase fidelity. targets will be attacked in TAI's based on TSS and the target's effect onthe enemy TEMPO of the battle.
	ALL	Appendix 1, target flow diagram.
DELIVER	PURPOSE	Destroy or Defeat the enemy with stand-off precision fires. Ties the Precision Recon to the Deep Attack.
	AVN	Provide Precision Fires to achieve effects to support Cdr's intent
	DIVARTY	Provide Precision Fires to achieve effects to support Cdr's intent.
	DISCOM	Must have "eyes" on target to fire Counter-Recon targets within Div Sanctuary
	ENGRS	Dynamic Obstacles to restrict enemy Cdr's freedom of action.
ASSESS	PURPOSE	The purpose is to Inform the Cdr that we have met Deep Fires conditions to support operational plan.

	KPT	The Assessment must be tied close to Detect phase to capitalize on limited sensors. The KPT will continue to track targets until destruction condition has been met. Receives intel from Higher echelons and subordinate units. Collects BDA, synthesizes information then broadcasts to MSF Cdr and Subordinate Bdes to develop Relevant Common Picture(RCP).
	Target Board	Determine which HPTs to ASSESS by which sensor(s) and latest Time information is of value (LTIOV). Multi Sensors will be dedicated to support Cdr's "Hot" targets. As an example, assess BDA on enemy ADA systems prior to launch of AAssault
	Bdes	P&O tms will task Bdes to ASSESS directed targets and update RCP at KPT

INFORMATION REQUIREMENTS		
POC	INFORMATION PROVIDED OUT	INFORMATION PROVIDED IN
KPT	Provide RCP to all units. Track Enemy Unit strengths.	BDA assessment from Bdes
P&O Tms	BDA tasking per Bdes. Planned WAM target areas. Track Bde Target Nominations.	
DISCOM	BDA assessment	Suspect areas of Special Operations Forces activity within Div Sanctuary
BDEs	All targets Shot to KPT/BDA assessment	
DIVARTY	Through AFAATDS forward all targets shot to KPT/BDA assessment. Provide verbal fires SITREP when requested.	Updates HPTL and AGM as battle progresses.
EN BDE		SPOT Report from WAM sensors.
PHOENIX		Provide ASAS-PHOENIX-AFAATDS digital link. Target Sync Matrix for RCP.



TARGETING SYNCHRONIZATION MATRIX

PHASE _____

DECIDE			DETECT			TRACK			DELIVER			ASSESS		
P GORY	CATE- GORY	HPT's	AGENCY	ASSET	TO WHO	WHEN	AGENCY	ASSET	TO WHO	WHEN	AGENCY	ASSET	TO WHO	WHEN
1	FSPT	M46/ BM-21/ FROG	DIV	Q37										
			G2	EAD ETS: COMINT ININT RF-4C UAV SYRUS TENCAP										
			313 MI	QUICK- FIX TRQ-32										
			DIV	Q-37										
		D-20, D-30	DIV											
			ARTY											
		ATK HEL	3-4											
			ADA											
2	ADA													

DECIDE - phase/process that determines target validity, fidelity standards, collection and attack methods and assessment requirements.

HPTL - product of Decide Phase.

DETECT - phase/process from Collection Plan to find HPTs or validate IPB. (NAIs)

TSS - Target Selection Standards define target filelity for attack by system identified in Targeting Synchronization Matrix (TSM).

ATTACK - decision made after meeting target fidelity. Commander may identify specific targets during the decide phase requiring his decision before attacking based on the tempo of the battle. These targets are identified in the Deliver block of the TSM.

TRACK - phase/process of tracking HPTs to further develop fidelity. In 2010, tracking resources will still be constrained. Targets are tracked in NAIs to revalidate TSS leading to a decision point for the commander. Once a target is detected, it will be passed to the KPT to update the Common Picture and to the appropriate MSC as the delivery mechanism. We will continue to track the target by division and brigade assets to verify validity and increase fidelity. Targets will be attacked in TAIs based on TSS and the target's effect on the TEMPO of the battle.

DELIVER - phase/process of attacking targets.

ASSESS - decision made during Decide Phase on which HPTs require battle damage assessment. (BDA)

BDA - phase/process of determining success of attack.

AIR DEFENSE BATTLE NOTE	
TASK:	Provide air and missile defense of priority division assets.
PURPOSE:	Destroy air threat before it reaches division assets.
METHOD:	
P&O KPT PLANNING PROCESS	A. Division planners ensure that the air defense plan is based on a thorough aerial IPB that identifies threat capabilities, tactics, and probable courses of action. The analysis must also identify facilities or locations of threat air assets so that they can be targeted with offensive counter-air. As with our current doctrine, an analysis of the threat must be the first step in the design of an air defense plan. The intelligence community must provide as thorough an analysis of the air threat as possible. Any required information regarding the air threat that isn't provided in the initial intel analysis must come from the air defender's knowledge of the threat, be provided by the division intelligence officer or requested from higher intelligence sources. The air defenders apply this analysis to the friendly situation and mission and structure their air defense accordingly.
	B. Planners integrate the plan with higher headquarters and adjacent unit air defense plans and ensure that it supports the division concept of the operation. Air defense within the theater of war will be a joint and combined effort with higher echelons, sister services and allied forces providing complimentary coverage. All of the following players must be considered and integrated with the division's air defense plan: 1. Adjacent units (U.S. or allied) provide coverage along our flanks. 2. The U.S. Air Force is our primary defense against the fixed-wing air threat. 3. Long-range TBM coverage can be provided by assets at Corps and theater level if within range.
	C. Position GS Forward Area Air Defense (FAAD) systems well forward in the division area along expected threat air avenues of approach to engage threat air as they approach the division area.
	D. Based on METT-T, provide ground maneuver brigades with direct support ADA batteries to ensure responsive and continuous protection.
NLOS	E. NLOS (AD) systems provide effective defense against the stand off rotary wing threat. In order to be effective in that role, they must be positioned where their coverage will extend beyond the limits of friendly positions in order to reach positions from where threat helicopters would attempt to engage friendly assets. This consideration will be closely monitored and the NLOS will be repositioned, as required, in order to maintain proper coverage.

AIR-TO-AIR STINGER	F. The division aviation brigade provides RAH-66 Comanche air-to-air combat teams for offensive counter helicopter mission. A minimum of three RAH-66 Comanche aircraft equipped for stinger air-to-air engagements will be positioned in a forward location within the division area. These aircraft will be prepared for short notice employment to intercept threat rotary wing aircraft beyond the range of ground based stinger weapons. They will be launched on the direction of the current P&O air defense representative and vectored to intercept the target by the air defense or aviation representative in the A2C2 cell.
STINGER AMBUSH	G. Stinger teams may be deployed forward of friendly lines in ambush locations to destroy enemy aircraft as they leave their forward bases or approach the division's area of operation. Planning and execution of this type of high risk operation requires the effort of the entire staff. The plan for inserting and extracting the ambush teams as well as the communications plan require thorough planning and coordination to ensure success and survival of the ambush teams.
CORPS SAM	H. Corps Sam systems OPCON to the MSF are dual capable systems that provide long-range fires against the air breathing threat as well as defense against the ballistic missile threat. This high priority system enables us to extend our coverage well forward over maneuver forces as they move forward. Care must be taken to ensure the survivability of these systems. 1. When positioned at forward locations, they must be positioned and/or provided with assets to defend against ground attack. 2. Strict emission control (EMCON) must be practiced at all times to avoid detection and destruction. Rather than use the corps sams radar for target acquisition, these systems must rely on external acquisition sources and use their radars only as needed to engage targets.
FAAD C2I	I. <u>EARLY WARNING</u> A fully operational FAAD C2I integrated into Phoenix will provide situational awareness of aircraft activity within the division's airspace throughout the division. The division command net will also be used to broadcast voice alert of hostile air activity. The air defense representative in the KPT will monitor the FAAD C2I terminal and broadcast alerts over the command net to initially alert and periodically update the division when threat air attack appears imminent.

AIR DEFENSE

INFORMATION REQUIREMENTS

	PROVIDES	RECEIVES
KPT	Aerial IPB Early warning of threat air attack	Air Defense status reports
P&O TEAMS	Air defense task organization, Div air defense plan	Aerial IPB
AVN BDE/ A2C2	Control of the division's airspace Alerts and changes to air defense weapons control status to support planned and immediate airspace management Three Comanche aircraft configured for air-to- air engagements responsive to air defense planners	Requests for airspace control measures required to support the air defense plan
MNVR BDES	Air defense status reports for their supporting air defense systems	Early warning of threat air attack Air Defense protection based on METT-T
DISCOM	CSS for air defense systems assigned or attached to the MSF	Early warning of threat air attack Air Defense protection based on METT-T
DIVARTY	Fires to help protect air defense systems from ground attacks	Early warning of threat air attack Air Defense protection based on METT-T

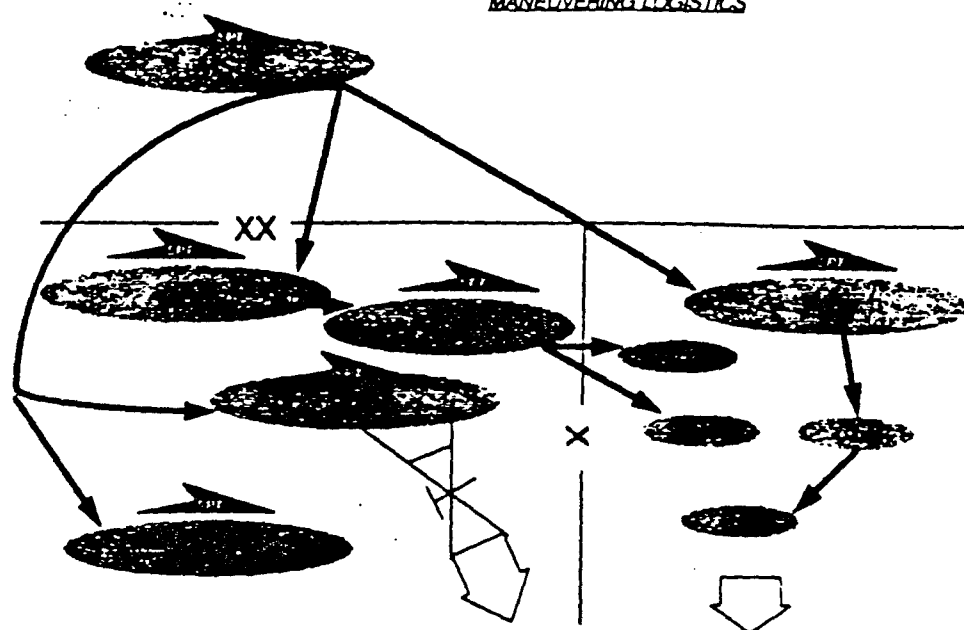
MANEUVER LOGISTICS BATTLE NOTE	
TASK	Effectively and efficiently maneuver logistical capability into and throughout the MSF's dominated battle space, integrating protection and freedom of mobility enablers.
PURPOSE	Logistically support the MSF, facilitating its achievement of desired agility, synchronization, tempo, and simultaneity of operations allowing domination of its battle space and mission accomplishment.
CONCEPT	Maneuver (or position) the right logistical capability to support the Mobile Strike Force, through the use of timely, well coordinated mission planning, anticipation and prediction processes which utilize available information and decision support tools, allowing timely, informed decisions concerning the management of requirements, capabilities, and protection.
ENABLING TTP	Using information operations planning and management tools, the Plans and Operations (P&O) teams, Knowledge Processing Team (KPT), assigned and attached unit logistics officers, and the DISCOM Staff will conduct deliberate decision making processes (DDMP) for all missions to determine the logistical requirements and the corresponding logistical capability, mobility, and protection capability, and identify shortfalls and make recommendations to meet those requirements. And then, using the information, and decision support tools and relevant common picture, will execute/maneuver and protect logistics for all current, future, and branch plans.
METHODOLOGY TO MANEUVERING LOGISTICS PLANNING	
PLAYERS	P&O teams: Conduct logistical mission analysis within the DDMP, to include, terrain, mobility, protection, and future operations considerations; coordinate with appropriate P&O staff members for allocation of resources for task organization or support roles; develop division concept of support and supporting synchronization matrix. KPT: process requests for information in support of the DDMP and current, future and branch operations cycles; maintain the relevant common picture in support of all logistics operations, including mobility and threat data in the MSF area of operation and area of interest. Also maintain visibility of attached and OPCON unit capability. Unit logistics officers: develop concepts of support which are integrated with unit scheme of maneuver, coordinate and integrate terrain, mobility, and protection considerations for all logistical operations within your battle space, provide input to the MSF Logistics Support Plan synchronization matrix and timeline.

PLAYERS CONT	DISCOM staff: Conduct parallel planning with the P&O teams and maneuver units, conduct mission analysis within the DDMP, and provide input to synchronization matrices. Additionally, allocate logistics resources and capability to meet support requirements; coordinate with the KPT for precision information requirements allowing to integration of terrain, mobility, protection, and logistics support capability considerations into the planning and execution process.
RELEVANT COMMON PICTURE	The KPT maintains the relevant common pictures (RCP) necessary to maneuver logistics. These RCPs are in the form of unit status; logistical requirements and capability, and sources of additional capability and resources; threat in the AO and AI, and to the sanctuary and other logistics nodes and LOCs; and finally, terrain, facility (air strips, railways, ports, buildings and cities), obstacle (enemy and friendly), and mobility condition and capacity information (air corridors, MSRs, bridges, roads, rivers, lakes). These RCPs serve as the keys to determining supporting requirements and the time space factors of maneuvering logistics capability.
BATTLE SPACE MANAGEMENT	
TERRAIN	Sanctuary: Its size and shape are METT-T dependent. The P&O team as the overall terrain manager will allocate terrain to establish the Sanctuary. The Sanctuary is the battle space dominated by the DISCOM. Units that will occupy the Sanctuary must be identified and their ties (duration and space) to the sanctuary defined. Outside the Sanctuary: Within the division battle space. Terrain located outside the Sanctuary and not assigned or occupied by division brigades (in between, outside, etc., to unit AO or Sanctuary). METT-T dependent on who will be assigned points, areas, zones or sectors outside of division sanctuary. P&O team is the MSF terrain manager, it allocates space for logistical operations.
SECURITY & PROTECTION	Sanctuary: The division secures the Sanctuary battle space with its assigned organic, or attached resources. The Sanctuary Security Cell (SSC) is located in the DISCOM and coordinates active and passive response to threats to the Sanctuary. The Sanctuary defense will be managed IAW MSF quadrant matrix plan. Base Cluster CDR's within the Sanctuary are responsible for security within and among the clusters in their assigned quadrants. The SSC will respond to threats as they are identified using the ASAS relevant common picture. The Sanctuary should be dispersed and out of range of threat artillery. It must be under the division air defense umbrella coverage. Consideration must be given to split operations (when less than 100% of the Sanctuary elements move to establish future Sanctuary).

SECURITY & PROTECTION CONT	Outside the Sanctuary: Within the division's battle space and out side the DISCOM battle space, units must secure logistics points, areas, facilities, routes, air corridors etc. Coordination for battle space domination and security will be done by P&O and the SSC with the appropriate unit (s). BDE Battle Space: BDEs responsible for security of all logistics operations, nodes and LOCs in use within their assigned battle space. Coordination with BDE for security of those logistical operations (outside of BDE current support operations ie., cache or pre-stock for future operations) which will be conducted in the BDE battle space is P&O and DISCOM responsibility. Response Force: Level I Threat - Unit responsibility (reaction forces). Level II Threat - Response forces will be allocated by division in task organization or tasked in OPORD (Commanche, Infantry, Armor, MP etc.). Level III Threat - Response force/Tactical Combat Force (TCF) will be allocated by division and tasked in OPORD. Possible Resources: include attack helicopters, AC130 Gun Ships, Mech. infantry, light infantry AA, or Light or heavy armor units, Artillery capability and Air Defense.
COUNTER RECON	Units are responsible for developing R & S plans. The SSC located in the DISCOM has a counter RECON capability within it. The SSC will coordinate CR activities within the Sanctuary and for those DISCOM logistics operations which will be conducted outside the Sanctuary. This will be done with the unit having direct responsibility for CR within a given battle space. BDEs will allocate resources and conduct CR for logistics operations within their battle space. Resources: Sensors, Shooters IAW Precision RECON and Counter RECON TTP Battle Notes dated 1 March 1995 and 15 March 1995 (Inf patrols, Commanche helicopters, AC130, REMBASS, UAV, etc.).
MOBILITY	The P&O team, DISCOM, and BDEs have responsibility for planning and coordinating the maintenance (escort, SEAD, mine clearing, obstacle clearing, bridge securing, crossings etc.) of main logistics routes and corridors (air A2C2, and ground MSRs etc.). BDEs coordinate for and allocate logistical mobility assets within their battle space. Movement of logistical capability depends on having open lines of communication. MSRs may be the primary LOC. For the Air Assault BDE, air corridors are primary. Alternate LOCs must be planned and assets allocated to prepare and maintain them. Maximum operating capability is realized when operations are conducted during hours of darkness (for protection) and to make

MOBILITY CONT	use of the inherent 24hr capability. All delivery systems must plan for around the clock support in all weather. The KPT is a source of information on capabilities of systems to move logistical resources and the time it will take under variable conditions. Time distance factors (air & ground) are very important to maneuvering logistics. Engineer and Intelligence input are critical to mobility decisions. Packaging: Basic Loads, Required Supply Rates, CCLs, etc., are essential to moving just the right amount of supplies around the battle space. Packages should exist for supplies to be transported by air or ground based on METT-T requirements. Transportation Delivery Systems: Ground (HEMTTs, HETs, 5Tons, S & Ps, 7.5K tankers, HMMWVs); Air (CH-47, UH 60, C130); Sea; Rail.
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ECHELONMENT OF LOGISTICS CAPABILITY	
CONCEPT	Though the division logistics base is located in the Sanctuary, the DISCOM can support from alternate locations within the BDE's battle space, or split the Sanctuary operating area by creating a forward logistics element (FLE) or forward operating base (FOB). This technique is called echeloning support. The modular design of the Forward Logistics Battalions (FLB) within the DISCOM, allows the employment of modularly designed Combat Logistics Companies (CLC) to support the maneuver battalions of the maneuver brigades. Since the CLCs support the battalions, the FLB has the flexibility of remaining in the Sanctuary until additional capability is needed. The modular design of the Division Area Logistics Battalion (DALB) allows the creation of support packages for customers which it habitually supports. Both types of logistics battalions have redundant capability and capacity, in addition to the CLC (FLB only). Additionally, the Mobile Support Group supporting the MSF has the same mobility and redundancy to echelon its support capabilities around the MSF battle space. The P&O team's and KPT's predictive logistics management process will allow logistics planners time to coordinate, tailor and package the precise logistics support required for a given mission. Enhanced mobility and redundancy, and the improved situational awareness provided by the RCP allow the MSG and DISCOM to preposition, cache, airlift, or throughput supplies to the user. The relevant common picture produced and maintained by the KPT will allow the MSG and DISCOM to efficiently manage support and take less risk with critical assets.
TTP	Each maneuver brigade has an FLB; each maneuver battalion has a CLC; the DIVARTY and division troops are supported by the DALB. The MSG resupplies the MSF DISCOM and support the Corps slice. The DISCOM P&O team matches capability (tailors) to requirements.



This figure depicts one of many COAs to echelon support . It shows the major organizations such as the MSG, FLB, CLC, and DALB, and how they can be arrayed in the division battle space. The figure also shows one method of flowing support. The bottom-line is that the required support will be positioned where ever it is needed.

Appendix B
Glossary of Terms

GLOSSARY OF TERMS

A2C2	Army airspace command and control
AC of S	assistant chief of staff
ACE	analysis control element
ACUS	area common user system
AD	air defense
ADA	air defense artillery
AFATDS	advanced field artillery tactical data system
AG	adjutant general
ALO	air liaison officer
AR	armor
ASAS	all source analysis system
AV, AVN	aviation
BCBL(L)	Battle Command Battle Laboratory (Leavenworth)
BCE	Battle Command Elective
BCST	Battle Command Support Team
BCTP	Battle Command Training Program
BDA	battle damage assessment
BOS	battlefield operating system
C2	command and control
C2V	command and control vehicle
C2W	command and control warfare
CAT	command action team
CAV	cavalry
CBS	Corps Battle Simulation
CCIR	commander's critical information requirements
CDR	commander
CGSC	Command and General Staff College
CH	chaplain
CML	chemical
COA	course of action
CP	command post
CPEA	concept, planning and preparation, execution and analysis process
CS	combat support
CSM	command sergeant major
CSS	combat service support
CUCV	commercial utility cargo vehicle
DBS	Digitized Battle Staff
DII	Defense Information Infrastructure
DISCOM	division support command

DIVARTY	division artillery
DOIM	director of information management
DST	decision support template
EEA	essential element of analysis
EN, ENGR	engineer
FA	field artillery
FAADC2I	forward area air defense command control intelligence
FAIO	field artillery integration office
FFIR	friendly force information requirements
FISS	forward information support section
FM	field manual
FRAGO	fragmentary order
FSCoord	fire support coordinator
FSE	fire support element
FY	fiscal year
GCCS	global command and control system
GNAT-D	global network access terminal - deployed
GNAT-S	global network access terminal - sanctuary
GPS	global positioning system
HIDACZ	high density air control zone
HMMWV	high mobility multi-purpose wheeled vehicle
HPT	high payoff target
HQ	headquarters
IET	information exchange team
IG	inspector general
IMO	information management officer
IN	infantry
IO	information operations
IPB	intelligence preparation of the battlefield
ISYSCON	integrated system control
KBLPS	knowledge-based logistics planning system
KPT	knowledge process team
LAD	Log Anchor Desk
LAN	local area network
MANSS	metropolitan area network support section
MEDLOG Planner	medical logistics planner
METT-T	mission, enemy, terrain, troops, and time available
MI	military intelligence

MILTOPE	military tactical operating platform environment
MLRS	multiple launch rocket system
MS	medical service
MSF	Mobile Strike Force
MSF/BC 95	FY95 Mobile Strike Force Battle Command
NGLO	National Guard liaison officer
NPT	network planning tool
NSC	National Simulation Center
OD	ordnance
OPLOG Planner	operational logistics planner
OPORD	operations order
OPTEC	Operational Test and Evaluation Command
P&O	planning and operations
PAO	public affairs officer
PIR	priority intelligence requirement
PW	Prairie Warrior
PW/MSF 95 AWE	Prairie Warrior Mobile Strike Force 1995 Advanced Warfighting Experiment
QM	quartermaster
RC	reserve components
RM	resource management
SC	signal corps
SF	special forces
SGM	sergeant major
SGS	secretary general staff
SICP	standard integrated command post
SIGO	signal officer
SIMEX	simulation exercise
SJA	staff judge advocate
SURG	surgeon
SWO	staff weather officer
TAC	tactical attack center
TC	transportation corps
TEM-OPS	Terrain Evaluation Module - Obstacle Planning System
TOC	tactical operations center
TRAC	TRADOC Analysis Center
TRADOC	Training and Doctrine Command
TRANS	transportation

TTP	tactics, techniques and procedures
UAV	unmanned aerial vehicle
UAV-HRSS	Unmanned Aerial Vehicle - High Resolution System Simulator
USAF	United States Air Force
USMC	United States Marine Corps
WO	warning order