

**Capabilities-Based Planning:
Maximizing Combat Power
From Legacy to Objective Force**

**A Monograph
by
Major Ronald E. Misak
U.S. Army**



**School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas**

Second Term AY 00-01

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.					
1. REPORT DATE (DD-MM-YYYY) 30-05-2001		2. REPORT TYPE monograph		3. DATES COVERED (FROM - TO) xx-02-2001 to xx-05-2001	
4. TITLE AND SUBTITLE Capabilities-Based Planning: Maximizing Combat Power From Legacy to Objective Force Unclassified				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Misak, Ronald E. ; Author				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Command & General Staff College School of Advanced Military Studies 1 Reynolds Ave. Fort Leavenworth, KS66027				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME AND ADDRESS ,				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT APUBLIC RELEASE ,					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT In 1999 GEN Eric Shinseki, Army Chief of Staff, initiated the Army Transformation program attempting to both enhance the timeliness of employment for ground forces and to leverage technology to maintain our ground dominance. . The first phase of the transformation consists of fielding initial brigade combat teams (IBCTs) at Fort Lewis, Washington. These IBCTs will develop the operational and organizational model for follow-on brigades using readily available equipment. The second phase consists of fielding an interim division (IDIV) using a yet-to-be-determined interim armored vehicle (IAV). The third phase consists of the total transformation to the Objective Force. The Objective Force requirement is to have a combat brigade on the ground within 96 hours after liftoff, a division within 120 hours, and five divisions within 30 days. Sometime around the year 2003, the Army can expect to have a mixture of legacy forces such as the 4th Infantry Division (Mechanized) and interim forces including the IBCT and IDIV. Each of these forces will have unique capabilities and employment requirements to maximize its use. The challenge for the Army will be to develop missions and orders that maximize the combat power of each type of unit. The monograph determines if current U.S. Army planning doctrine develops courses of action that fully utilize the capabilities of Army forces from legacy to interim forces to maximize combat power as outlined in FM 3-0, Operations.. The 4th Infantry Division (Mechanized) and a mechanized brigade from the division are used to represent legacy forces. The IBCT and proposed structure for the IDIV are evaluated to represent interim forces. Each force is analyzed to determine its numerical relative force ratio and its critical capabilities, requirements, and vulnerabilities developed using a model put forth by Dr. Joe Strange of the Marine Corps University. The Military Decision-Making Process from FM 101-5, Staff Organization and Operations is examined to determine how courses of action are developed by a commander and staff. The monograph concludes that current U.S. Army planning doctrine does not develop courses of action that fully utilize the capabilities of Army forces from legacy to interim forces to maximize combat power. The emphasis on firepower and maneuver during the military decision-making process prevents understanding and utilizing the remaining elements of combat power; leadership, protection, and information. An method of developing courses of action that utilize a unit's capabilities and underlying requirements while protecting vulnerabilities is presented as an alternative to current doctrine.					
15. SUBJECT TERMS Army transformation; initial brigade combat team (IBCT); Military Decision-Making Process (MDMP); planning					
16. SECURITY CLASSIFICATION OF:		17. LIMITATION OF ABSTRACT Same as Report (SAR)		18. NUMBER OF PAGES 70	
19. NAME OF RESPONSIBLE PERSON Burgess, Ed burgesse@leavenworth.army.mil					
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified	19b. TELEPHONE NUMBER International Area Code Area Code Telephone Number 913758-3171 DSN 585-3171		
					Standard Form 298 (Rev. 8-98) Prescribed by ANSI Std Z39.18

ABSTRACT

In 1999 GEN Eric Shinseki, Army Chief of Staff, initiated the Army Transformation program attempting to both enhance the timeliness of employment for ground forces and to leverage technology to maintain our ground dominance. . The first phase of the transformation consists of fielding initial brigade combat teams (IBCTs) at Fort Lewis, Washington. These IBCTs will develop the operational and organizational model for follow-on brigades using readily available equipment. The second phase consists of fielding an interim division (IDIV) using a yet-to-be-determined interim armored vehicle (IAV). The third phase consists of the total transformation to the Objective Force. The Objective Force requirement is to have a combat brigade on the ground within 96 hours after liftoff, a division within 120 hours, and five divisions within 30 days.

Sometime around the year 2003, the Army can expect to have a mixture of legacy forces such as the 4th Infantry Division (Mechanized) and interim forces including the IBCT and IDIV. Each of these forces will have unique capabilities and employment requirements to maximize its use. The challenge for the Army will be to develop missions and orders that maximize the combat power of each type of unit.

The monograph determines if current U.S. Army planning doctrine develops courses of action that fully utilize the capabilities of Army forces from legacy to interim forces to maximize combat power as outlined in *FM 3-0, Operations*. The 4th Infantry Division (Mechanized) and a mechanized brigade from the division are used to represent legacy forces. The IBCT and proposed structure for the IDIV are evaluated to represent interim forces. Each force is analyzed to determine its numerical relative force ratio and its critical capabilities, requirements, and vulnerabilities developed using a model put forth by Dr. Joe Strange of the Marine Corps University. The Military Decision-Making Process from *FM 101-5, Staff Organization and Operations* is examined to determine how courses of action are developed by a commander and staff.

The monograph concludes that current U.S. Army planning doctrine does not develop courses of action that fully utilize the capabilities of Army forces from legacy to interim forces to maximize combat power. The emphasis on firepower and maneuver during the military decision-making process prevents understanding and utilizing the remaining elements of combat power; leadership, protection, and information. An method of developing courses of action that utilize a unit's capabilities and underlying requirements while protecting vulnerabilities is presented as an alternative to current doctrine.

TABLE OF CONTENTS

I. INTRODUCTION	1
Kosovo	1
Army Transformation	3
Methodology	10
II. Unit Capabilities	13
Combat Power Analysis	13
4th Infantry Division (Mechanized)	16
Mechanized Brigade, 4th ID (Mech)	21
Interim Division (IDIV)	32
III. Military Decision-Making Process	39
IV. Analysis	51
V. Conclusions	61
VI. BIBLIOGRAPHY	65

CHAPTER ONE

INTRODUCTION

As the United States enters the 21st century, we face no identified peer military competitor. The United States Air Force, through training and technology enjoys air superiority approaching air supremacy. The Navy features the premier force-projection blue water navy in the world. On land, the Army enjoys dominance through a combination of the M1A2 tank, multiple launch rocket system (MLRS), AH-64D LONGBOW APACHE attack helicopter, the ability to insert air assault and airborne forces to seize and control key terrain, and the Army Battle Command System (ABCS) to facilitate command and control of the force. Even with these military advantages, Operation Allied Forge in Kosovo put the question of relevancy of all three services to the test.

Kosovo

Attention focused on Kosovo in early 1998 when large-scale fighting broke out, resulting in the displacement of some 300,000 people. With the onset of the Balkan winter, a humanitarian catastrophe of enormous proportions loomed.¹ A ceasefire was agreed in October 1998 enabling refugees to find shelter, averting an impending humanitarian crisis over the winter. However, violence continued and the situation worsened significantly in January 1999. A peace conference, held in Paris, broke up on 19 March with

¹ John Pike, *Kosovo Background Brief* [online document] available from http://www.fas.org/man/dod-101/ops/kosovo_back.htm; Internet; accessed 15 Feb 2000.

the refusal of the Yugoslav delegation to accept a peaceful settlement.² When the peace talks broke down, Serbia launched military forces in a renewed assault on the people of Kosovo. At 1900 hours GMT on 24 March, NATO forces began air operations over the Federal Republic of Yugoslavia to prevent an imminent humanitarian catastrophe. These air strikes against Serbian military targets in the Former Yugoslavia sought to:

1. Ensure a verifiable stop to all military action and the immediate ending of violence and repression in Kosovo;
2. Withdrawal from Kosovo of Serbian military, police and paramilitary forces;
3. Agreement to the stationing in Kosovo of an international military presence;
4. Agreement to the unconditional and safe return of all refugees and displaced persons, and unhindered access to them by humanitarian aid organizations.
5. Provide credible assurance of Serbian willingness to work on the basis of the Rambouillet Accords in the establishment of a political framework agreement for Kosovo in conformity with international law and the Charter of the United Nations.³

The conditions Allied Force sought to achieve with air power directly called for a ground component to provide the verification of these objectives, or if necessary, interposition forces to prevent further violence. The lack of a ground component was a visible and much noticed aspect of the operation fueling speculation about the relevancy of the Army in small-scale contingencies (SSC) such as Kosovo.

² Ibid.

³ Ibid.

Army Transformation

We will provide to the Nation an array of deployable, agile, versatile, lethal, survivable, and sustainable formations, which are affordable and capable of reversing the conditions of human suffering rapidly and resolving conflicts decisively. The Army's deployment is the surest sign of America's commitment to accomplishing any mission that occurs on land.

The Army Vision

For the Army, the need to find relevance in the ongoing debate about roles and missions became particularly acute, given the common perception about the dominant role that air power played in military operations in Kosovo.⁴ The Army faced the threat of being seen as irrelevant in the new environment due to the lure of airpower and the perceived aversion to casualties by policy makers. Air power advocates reinforced this attitude by claiming victory in Kosovo due solely to the application of air power.

Task Force Hawk, the Army component of Allied Forge, reinforced this air power dominance attitude by becoming an example for the army's relevance or irrelevance, depending on the point of view.⁵ Twenty-four Apache attack helicopters with supporting MLRS and security forces deployed to Tirana, Albania as Task Force Hawk (TF Hawk) to provide a flexible attack force against Serbian forces in Kosovo.⁶ Once deployed in its assembly area in the vicinity of Tirana, Albania, TF Hawk was to:

⁴ Chris Hellman, "What's Next for the 'Army After Next'?" Weekly Defense Monitor Volume 3, Issue 35 (Washington D.C., 1999).

⁵ John Hillen, "The Future of War" interview by PBS, [online interview] available at <http://www.pbs.org/wgbh/pages/frontline/shows/future/interviews/hillen.html>; Internet; accessed 20 February 2001.

⁶ U.S. Army, "Additional Support to Deploy for Task Force Hawk" April 23, 1999 available at http://www.defenselink.mil/news/Apr1999/b0423199_bt194-99.html; Internet; accessed 23 March 2001.

- On order, conduct deep attacks to destroy enemy forces in the TF Hawk area of responsibility (AOR). The TF was to also support air interdiction through the targeting process.
- On order, conduct Suppression of Enemy Air Defense (SEAD).
- Be prepared to conduct offensive and/or defensive operations to defeat enemy attacks toward the TF assembly area or base camp.
- Take all possible steps to maximize force protection.
- As NATO and Serbia reached agreement on peace in Kosovo, be prepared to provide initial U.S. forces for the peacekeeping mission.⁷

Once the force arrived in Albania after several delays, it was disorganized and unable to project power in a way in which the Kosovo conflict demanded. This failure to respond raised the issue of the Army's relevancy to a higher level.⁸

As a result of reviews of operations in Kosovo, pressure increased for change in the Army. Deputy Defense Secretary John Hamre made some of the more pointed remarks about the Army's need to reconsider its strategic mission saying,

"if the Army holds onto nostalgic versions of its grand past, it is going to atrophy and die...[The Army] cannot simply be what it was, and think that it is going to be relevant for this new, complex world that is emerging."⁹

Entering the position of Army Chief of Staff under this pressure, GEN Shinseki, Army Chief of Staff, initiated the Army Transformation program in 1999. Through Transformation, the Army is attempting to add the ability to perform strategic mobility to both enhance the timeliness of employment for

⁷ U.S. Army, "Tactics, Techniques and Procedures From Task Force Hawk" Center for Army lessons Learned Newsletter No. 01-5, *Operation Allied Force*, Vol II, Introduction, available online at <http://call.army.mil/products/newsletters/01-5/01-5intro.htm>

⁸ John Hillen, as quoted in a Frontline Interview available at <http://www.pbs.org/wgbh/pages/frontline/shows/future/interviews/hillen.html>

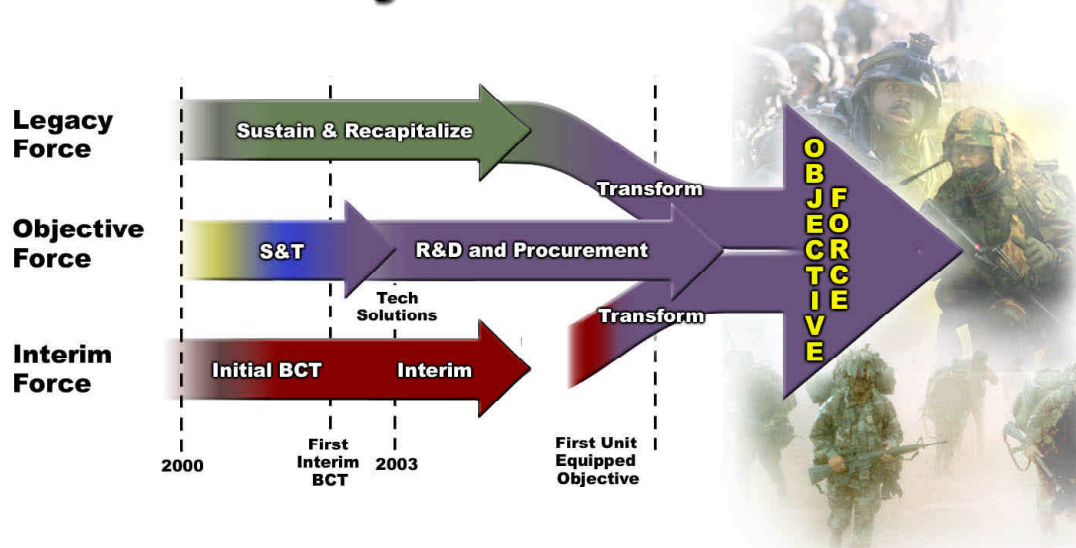
⁹ Remarks by Deputy Defense Secretary John Hamre made during a speech given in July 1999 quoted in the *Weekly Defense Monitor*, Volume 3, Issue 35.

ground forces and to leverage technology to maintain our ground dominance.

According to the Army Vision,

“The strategic relevance of the Army lies in its ability to **shape** the environment, **respond** rapidly and decisively to full spectrum operational requirements, and **prepare now** for tomorrow’s uncertain future. Our commitment to meet the challenges of an uncertain future compels a comprehensive transformation of *The Army*. To this end, the Army will begin immediately to transform itself into a force that is strategically responsive and dominant at every point on the spectrum of operations.”¹⁰

The Army Transformation



***... Responsive, Deployable, Agile, Versatile,
Lethal, Survivable, Sustainable.***

Figure 1, Army Transformation¹¹

The concept for the transformation of the current Army to the endstate of the Objective Force is shown in figure 1. This concept identifies three paths to a fully developed Objective Force, retaining some current forces as a Legacy Force, an Interim Force to begin the transition, and a direct path through

¹⁰ United States Army. *The Army Transformation Strategy*, [online document] Washington D.C., 1999); available online at www.army.mil; Internet.

¹¹ Ibid. 6,

research and development to the Objective Force.

The Legacy Force is the portion of the Army used to guarantee its warfighting readiness by keeping open the window of opportunity to transform the Army to full Objective Force capabilities. Key armored and aviation systems will maintain the capabilities they currently have and add selected others that are indispensable to the enterprise of transformation. After the characteristics and equipment of the Objective Force are determined, the Legacy Forces will transition to this capability.

Until the Army achieves the Objective Force, the Army will include both legacy and interim forces. Interim Forces will seek the characteristics of the Objective Force within the constraints of available and emerging technology organized as a rapidly deployable, full-spectrum, force.¹²

As the lead of the Interim force, the Initial Force will stand up at Fort Lewis as two brigades initially equipped with readily obtained surrogate off-the-shelf equipment to evaluate and refine the Operations & Organization (O&O) concept. These brigades will begin the Army's transformation to the full spectrum force. Creating a limited number of reorganized IBCTs will add near term capability for strategic responsiveness, particularly regarding the Army's frequent participation in small-scale contingencies.¹³

As a further part of the Interim Force, the O&O concept for Interim Divisions are being developed. These divisions will provide the corps or joint force commander (JFC) with a strategically responsive, early entry ground force

¹² United States Army. *The Army Transformation Strategy*, November 2, 1999, p. 15 available online at www.army.mil.

¹³ U.S. Army, IBCT O&O Concept, v 4.0, 30 Jun 2000, p 5.

that is capable across the range of Army operations. The IDIV is designed to be responsive, deployable, lethal, survivable, agile, versatile, and sustainable in order to defeat ground threats in the operational environment of the early part of the 21st Century.¹⁴

The final results of Army Transformation will be the Objective Force. The Army's Objective Force will be capable of rapidly responding to crises, shaping the operational environment and succeeding decisively across the spectrum of

Objective Force Characteristics

Each characteristic is important but their interaction and synergy within the Objective Force will achieve the Army's transformation objective



Figure 2, Objective Force Characteristics ¹⁵

future operations. It will be a force decisive against both asymmetric and "traditional" opponents; dominant in open, close, and complex operational environments. Figure two shows the current

required characteristics of the Objective Force. These characteristics will be coupled to deployment requirements enabling the Army to deploy five divisions in thirty days. The combination of the Objective Force characteristics and strategically-responsive deployment will attempt to preserve the lethality of M1A2/M2A3 equipped Legacy Force while developing the ability to rapidly employ forces around the world.

¹⁴ U.S. Army IDIV O&O Concept, Version 3.72, 26 Jan 01 [online document]; available online at, available at <http://www.cgsc.army.mil/cdd/IDIV/IDIV%20References.htm>; Internet; accessed 12 February 2001.

As the Army progresses towards the final Objective Force, there occurs a timeframe when each type of force (legacy, interim, and objective) will be employed. A Joint Force Land Component Commander (JFLCC) could have a unit from each type of force conducting missions in his area of operations simultaneously during an operation. Each of these forces has unique capabilities and requirements for efficient deployment. The challenge will be to produce orders and plans that take advantage of the unique capabilities of each type of force fully utilize all of the elements of combat power.

Combat power is the ability to fight. It is the total means of destructive or disruptive force, or both, that a military unit or formation can apply against the adversary at a given time.¹⁶ Combat power, according to *FM 3-0, Operations*, consists of five elements, maneuver, firepower, protection, leadership, and information. Each of these elements must be fully combined and synchronized to convert the potential in a unit to combat power.

Maneuver is the employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission.¹⁷ Maneuver has strategic, operational and tactical aspects. Army transformation is attempting to address shortfalls in strategic maneuver by decreasing the deployment times of major elements to days not weeks or months. Operationally, maneuver deals with the positioning of forces in theater to create an advantage for the supported theater commander. Tactical maneuver remains

¹⁵ U.S. Army, *Army Transformation Strategy*, [online document] Washington D.C.: 2 Nov 99, p 9.

¹⁶ U.S. Army, *FM 3-0, Operations*, DRAG Edition, (Washington D.C.: United States Government Printing Office, 2000), 4-2.

¹⁷ Ibid. 4-3.

employing forces to keep the enemy off balance to enable the force to win battles and engagements.

Firepower is the amount of fires that may be delivered by a position, unit, or weapons system. It is the total effects of lethal and non-lethal weapons.¹⁸ Army operational fires have operational and tactical applications. Operationally, fires strive to accomplish campaign or major operation objectives. In the tactical battle, firepower creates the conditions for decisive close combat.

Leadership focuses directly on soldiers, making it the most important aspect of combat power.¹⁹ It is defined as influencing people, by providing purpose, direction, and motivation, while operating to accomplish the mission and improving the organization. This aspect of combat power reaches across all aspects of the Army including training, operations, and day-to-day activities.

Protection is the preservation of the fighting potential of a force so that the commander can apply the maximum force at the decisive time and place.²⁰ Protection as defined in *FM 3-0*, concentrates on preventing casualties, especially from accident and disease. Although more commonly thought to be only force protection, protection has four components: force protection, field discipline, safety, and fratricide avoidance.²¹

The final aspect of combat power is information. It provides an accurate, near-real-time perspective and knowledge of the situation. It is a powerful operational and

¹⁸ Ibid., 4-5.

¹⁹ Ibid., 4-6.

²⁰ Ibid., 4-7.

²¹ Although protection speaks to preserving fighting potential of a unit, it is focused almost exclusively on minimizing soldier casualties. No mention is made of conserving resources or the importance of logistics and maintenance to keep maximum fighting potential available to the commander.

tactical multiplier that magnifies the effects of maneuver, firepower, and protection.²²

Information allows commanders to use situational understanding to maneuver forces out of contact to initiate combat at the time and place of their choosing.

Methodology

The monograph will examine the critical capabilities of four Army forces, a Force XXI mechanized brigade and the 4th Infantry Division as legacy forces and the interim brigade combat team and the interim division as interim forces. Each of these forces will be analyzed using the relative force ratio numbers from CGSC Student Text 100-3 Battle Book.

These numbers provide a means of comparing the relative combat force of different units and systems within a unit by using an infantry battalion equipped with M2 Bradley infantry fighting vehicles as a baseline number of 1.00. Other units are assigned force numbers as a comparison to the baseline. Units that are not included in ST 100-3 will be assigned force ratio numbers by the author through comparing them to existing units and capabilities. The relative force numbers will identify the major combat capabilities and systems within each unit.

To provide further analysis of the aspects of combat power within the units, the model from *Centers of Gravity & Critical Vulnerabilities*, by Dr. Joe Strange of the Marine Corps War College will be used to further refine critical capabilities, critical requirements and critical vulnerabilities of the forces.²³

²² U.S. Army, *FM 3-0*, 4-9.

²³ Dr. Strange is a Professor of Strategic Studies at the Marine Corps War College and holds a Ph.D. from the University of Maryland in Modern Military and Diplomatic History.

After researching other means of analyzing combat force and the means to achieve it, Dr. Strange's model was adopted for this monograph due to structured approach to determining what a unit can accomplish (capabilities) and what is need to provide these accomplishments (requirements). For this monograph, the forces evaluated will be considered the center of gravity for the model. Dr. Strange provides these definitions for his center of gravity model.

Centers of Gravity – Primary sources of moral or physical strength, power and resistance.

Critical capability – Primary abilities which merits a Center of gravity to be identified as such in the context of a given scenario, situation or mission.

Critical Requirements – Essential conditions, resources, and means for a critical capability to be fully operative.

Critical Vulnerabilities – Critical requirements or components thereof which are deficient, or vulnerable to neutralization, interdiction or attack (moral/physical harm) in a manner achieving decisive results, the smaller the resources and effort applied and the smaller the risk and cost, the better.²⁴

The monograph examines current planning doctrine from *Field Manual 101-5, Staff Organization and Operations*, corps, division, and transformation publications to determine the process for developing courses of action (COAs) as part of the military decision making process (MDMP). The examination focuses on how the MDMP process identifies and utilizes unit capabilities in developing COAs. Finally, MDMP doctrine and the identified critical capabilities and requirements identified through analysis with Dr. Strange's model determine if current U.S. Army planning doctrine develops courses of action that fully utilize

²⁴ Joe Strange, "Centers of Gravity and Critical Vulnerabilities", *Perspectives on Warfighting*, NO 4, 2nd Edition (Quantico: Marine Corps University 1996), ix.

CG-CC-CR-CV Layout

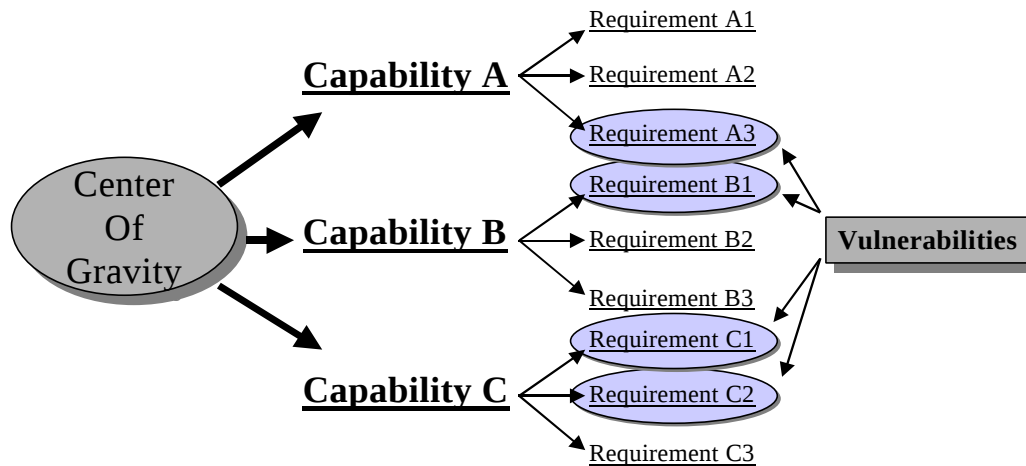


Figure 3, Dr. Strange's COG Model ²⁵

the capabilities of Army forces from legacy to interim forces to generate combat power as outlined in *FM 3-0, Operations*.

The monograph is organized in several chapters. Chapter two presents the organization of each unit by line and block chart. Using this organization, the relative force ratio is computed for each unit. Further analyzing the unit, Dr. Strange's model is applied by the author to determine the critical capabilities, requirements and vulnerabilities for each unit. Chapter three looks primarily at the military decision-making process in *FM 101-5, Staff Organization and Operations*. Chapter four analyzes the findings of the previous chapters and presents an alternative method to focus the MDMP on unit's capabilities and requirements to maximize combat power. Finally, chapter five presents the conclusions drawn after analysis by the author.

²⁵ Graphic by author.

Chapter Two

Unit Capabilities

Combat Power Analysis

Combat power analysis reflects two separate and distinct components: the measure of absolute combat power and the assessment of relative combat power potential.²⁶ Combat power analysis is used to compare different forces to determine their capabilities and vulnerabilities. At the simplest level, like units are counted and compared, such as the number of infantry battalions for both counted, to determine the most capable force. This leads to a direct numerical comparison much like Napoleon's dictum "God is on the side of the biggest guns and the biggest battalions".²⁷

Direct numerical comparisons can be used for analysis of the unit's mission based on historical ratios. The ratios in Figure 3 show what is thought to be the required numerical advantage for a unit to accomplish its mission. These numbers assume the correct application of the force and are used as a starting point for planning rather than a predictor of future outcomes.

Absolute combat power refines direct numerical analysis, assessing through the process of correlation of forces absolute force ratios. The application of this method uses numerical values assigned to combat systems

²⁶ U.S. Army, *ST 100-3 Battle Book*, [online document] (Fort Leavenworth: Command and General Staff College, 1999), 13-4, available online at <http://www.cgsc.army.mil/ctac/refpubs/ST100-3/index.htm>; Internet; accessed 15 February 2001.

²⁷ Napoleon Bonaparte, "Op-Ed The New Yorker's Revisionist History" quoted by GEN Barry McCaffrey, Wall Street Journal, available online at <http://usinfo.state.gov/regional/nea/iraq/drug523.htm>.

and units. It then compares all enemy systems to friendly systems to generate a numerical ratio. While this method helps determine mission requirements versus on-hand resources, it should not be the end of combat power analysis.

Friendly mission	Friendly: enemy	Position
Delay	1 : 6	
Defend	1 : 3	Prepared or fortified
Defend	1 : 2.5	Hasty
Attack	3 : 1	Prepared or fortified
Attack	2.5 : 1	Hasty
Counterattack	1 : 1	Flank

Figure 4. Historical minimum planning ratios²⁸

A unit can achieve effects beyond its absolute combat power by maximizing relative combat power potential. Through the application of strengths against weaknesses and the minimization of weaknesses against enemy strengths, the maneuver-oriented unit can attain a relative combat power advantage against a numerically superior force. Relative combat power analysis (RCPA) is a system that attempts to measure combat potential versus absolute value.

RCPA employs inductive reasoning, which causes the commander to think proactively; deductive reasoning leads to reactive thinking. The

²⁸ U.S. Army, *ST 100-3 Battle Book*, [online document] 13-2, Although based on historical evidence, these numbers are still used to provide a rough estimate of the ability of current forces to conduct missions. These numbers still have relevance at the decisive point of the battle.

commander needs to make some assumptions in this method. He looks for times, places and events on the battlefield where friendly and enemy forces might be able to concentrate and synchronize their forces to accomplish their purpose. These become potential decisive points, places and times where one side or the other can gain a relative combat power advantage. The commander will then focus on key and potentially decisive points where he can mass the effects of his combat power to gain a relative advantage at a given time and place.²⁹

Key to understanding and utilizing this RCPA method is the commander truly understanding the capabilities of the unit and the requirements to employ these capabilities. Dr. Strange's model showing a center of gravity having critical capacities that have critical requirements to implement provides a methodology for commanders to analyze their unit and determine capacities and how to employ them.

The units analyzed in this monograph are recent developments in the Army, products of much research and simulation to determine their organizational requirements. The documentation accompanying these developments in the form of Organizational and Operational Concepts provides a reference guide for the commanders to better understand their unit. Lacking this documentation for legacy or attached forces, a CG-CC-CR-CV model can be used by any commander to better understand their unit.

To determine these critical requirements and vulnerabilities, each of the selected units is presented as an organizational chart to show the units and equipment they contain. Next, they are analyzed using first relative force ratios

²⁹ Ibid.,13-4.

to provide a rough estimate of where and in what type of force is contained in a unit. By taking the organization and comparing it with supporting documentation such as operations and organizational documents the author can apply Dr. Strange's model to determine capabilities, requirements and vulnerabilities for the unit. This allows for an expansion of relative force ratios and the determination of critical requirements and vulnerabilities.

4th Infantry Division (Mechanized)

Technologically and doctrinally, Force XXI requires a dynamic, holistic mentality toward the Information Age -- adaptability, flexibility, modularity, connectivity -- all are characteristics of the organization and of the information web that supports and enables it.³⁰

The 4th ID is the Army's first digitized division, providing a foundation for the Army's move towards digitization in battle. Designated as Force XXI, the 4th ID (Mech) became the Army's move to harness the increased ability to gather and process information and gain a military advantage from this ability. The goal is for the Army to complete fielding for a digitized corps consisting of 4th ID (Mech), 1st CAV DIV, and III Corps HQs by 2003.³¹ These forces will become the heavy component of the Legacy Force.

To facilitate leveraging technology, 4th ID has several additions to its equipment. Most significantly, the division is equipped with the Army Battle Command System (ABCS). ABCS is a multilevel command and control system that ties together the command and control efforts from the individual weapons platform to the Joint level. These systems operate in a Distributed Computing

³⁰ U.S. Army, "Army Signal Command Role in Force XXI" [online document] available at <http://asc-www.army.mil/ABOUT/wwwforce.htm>

Environment (DCE) that supports data exchange between each of the Battlefield Functional Areas (BFAs) (Maneuver, Fire Support, Air Defense, Combat Service Support, and Intel Fusion) facilitating the sharing of information between command posts and individual cells via US Message Text Format (USMTF) messages.³² This system consists of seven different components:

- Global Command and Control System-Army (GCCS-A)
- Maneuver Control System (MCS)
- Advanced Field Artillery Tactical Data System (AFATDS)
- Air and Missile Defense Planning and Control System (AMDPCS)
- All Source Analysis System (ASAS)
- Combat Service Support Control System (CSSCS)
- Force XXI Battle Command Brigade and Below (FBCB2)

These components allow the BFAs to gain a common operational picture (COP) and use their COP to make decisions and maneuver faster than a conventional enemy.

The second major system added to the 4th ID is the Maneuver Control System-Intervehicular Information System (MCS-IVIS). MCS-IVIS is a graphical information communications device installed in all combat and C² vehicles and selected support vehicles. MCS-IVIS permits the user to access all information collected by sensors in and around his combat vehicle by integrating the information into a single source. Data such as vehicle position, targeting data, NBC contaminants, and range to targets is integrated into the MCS-IVIS situation map and reports and are provided to the commander/user through the interactive display and are transmitted, via data burst, to all or selected

³¹ U.S. Army, *Army's First Digitized Division/Corps*, [online document] (Washington D.C.:DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS); available at http://www.ado.army.mil/BrfsDocs/docs/ArmyFirst_111300/Armysfirst.htm; Internet.

MCS-IVIS in the battalion task force.³³ MCS-IVIS allows commanders to plan, control and coordinate the battle faster than the enemy, thereby disrupting his timetable and forcing him into a reactive mode.

Composition

The 4th ID (Mech) retains much of the composition of an Army of Excellence mechanized division with some exceptions. Shown in Figure 4, The

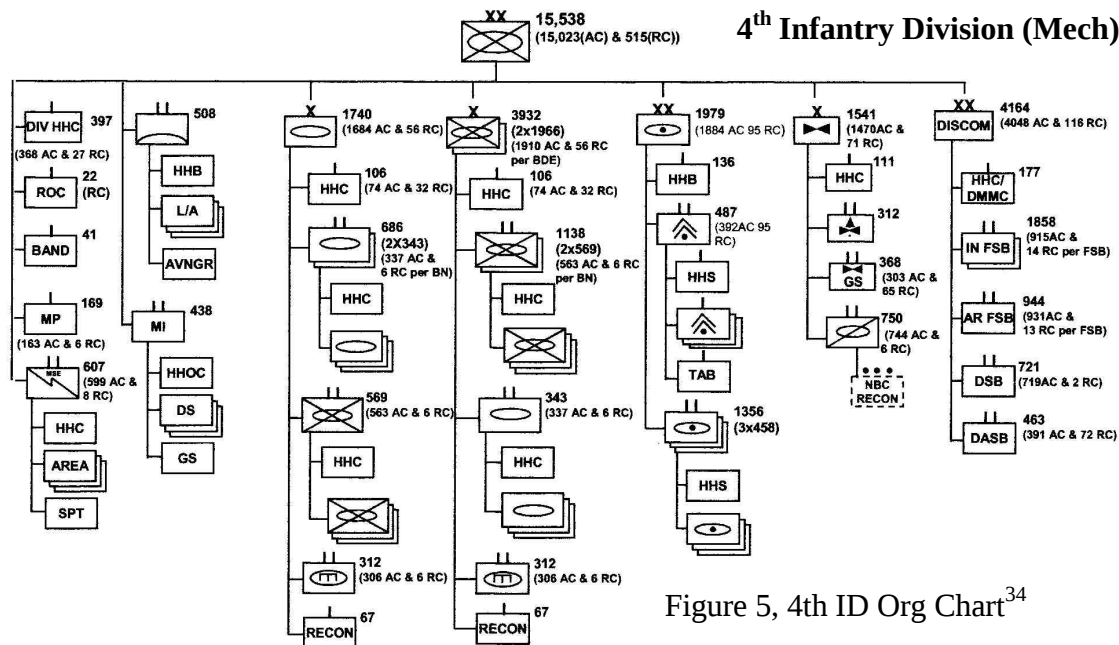


Figure 5, 4th ID Org Chart³⁴

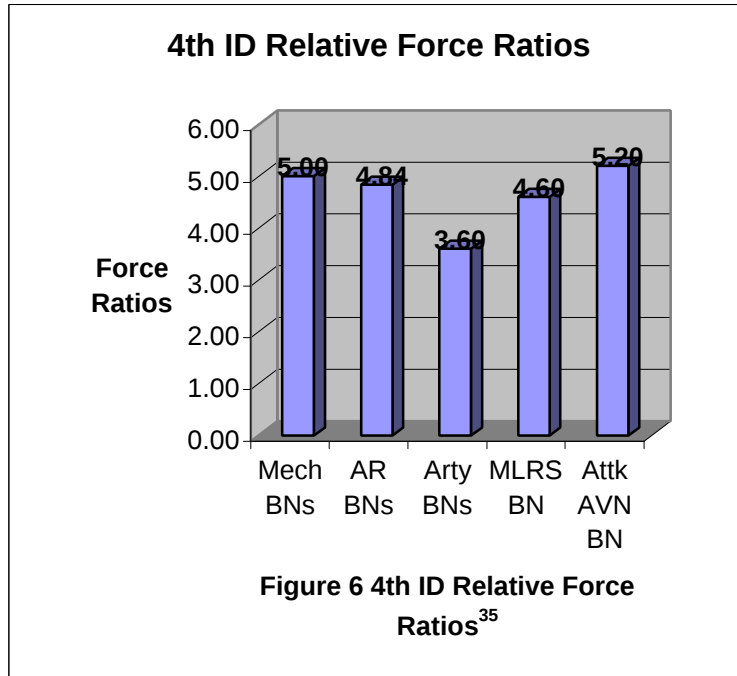
division retains three ground maneuver brigades with five mechanized battalions and four armored battalions. The division artillery consists of three self-propelled howitzer battalions equipped with M109A6 PALADIN systems and

³² U.S. Army, *Staff Leader's Guide for the Army Battle Command System*, (Fort Leavenworth: Command and General Staff College, 1998), 3-1. This document provides an overview and description of each of the components of ABCS in detail along with detailing the architecture and layout for the system.

³³ U.S. Army, *Operational and Organizational (O&O) Plan for the Family of Army Tactical Command and Control Systems (ATCCS)*, Annex D (The Family of Maneuver Control Systems), D-2-1 available at <http://www-leav.army.mil/tsmmcsweb/> mcsoando.

³⁴ U.S. Army, *Force XXI Organization Charts*, available at www.cgsc.army.mil/ctac/publications/st100-3.htm.

has the added firepower of a full MLRS battalion. The aviation brigade has one battalion of AH-64D APACHE LONGBOW attack helicopters, giving the division



an increased capability, in conjunction with the MLRS battalion, to conduct shaping attacks in the deep area.

Relative Combat Power

From the organization for the division we can determine the relative force ratios. The relative

force ratios for 4th ID (Mech) are as follows:

$$\begin{aligned}
 5 \times \text{M2 Battalions} &= 5 \times 1.00 = 5.00 \\
 4 \times \text{M1A2 Battalions} &= 4 \times 1.21 = 4.84 \\
 3 \times \text{M109A6 Battalions} &= 3 \times 1.20 = 3.60 \\
 1 \times \text{MLRS Battalion} &= 1 \times 4.60 = 4.60 \\
 1 \times \text{AH-64D Attack Battalion} &= 1 \times 5.20 = 5.20 \\
 \text{Total} &= 23.24^{36}
 \end{aligned}$$

These numbers show a balanced distribution of force ratios across the division in figure 6. Out of a total relative force ratio of 23.24, the division has over half of its combat power distributed to the maneuver brigades and supporting artillery battalions in the direct fight (13.44 relative combat power)

³⁵ Graphic by author.

³⁶ The complete table of Relative Force Ratios is in Appendix 1, Relative Force Ratios. The numbers are used as is for comparable units and have been extrapolated by the author for units not included in the original numbers.

while being able to shape the battlefield deep with its attack aviation and MLRS units.

CG-CC-CR

Applying Dr. Strange's model to the 4th ID produces the diagram shown in Figure 7. To determine the capabilities and requirements for the 4th ID, the author compared the division's organic units are with the stated capabilities in TRADOC PAM 525-5, *Force XXI Operations*. From this analysis, the division has three critical capabilities, conduct close combat with the maneuver brigades, conduct attack aviation and MLRS attacks in the deep area to shape the battlefield, and provide logistics support. To support these capabilities, they must have the physical assets to conduct the missions and the support, logistics and intelligence, to enable these capabilities.

Much like the other heavy divisions in the Army, logistics is the most critical capability for the division. The requirement for 451,433 total gallons of fuel and 932 short tons of ammunition per day in the attack presents a vulnerability that can be exploited by enemy forces to deny 4th ID its combat

capabilities

without

directly

attacking

them.³⁷

The

information

for this capability

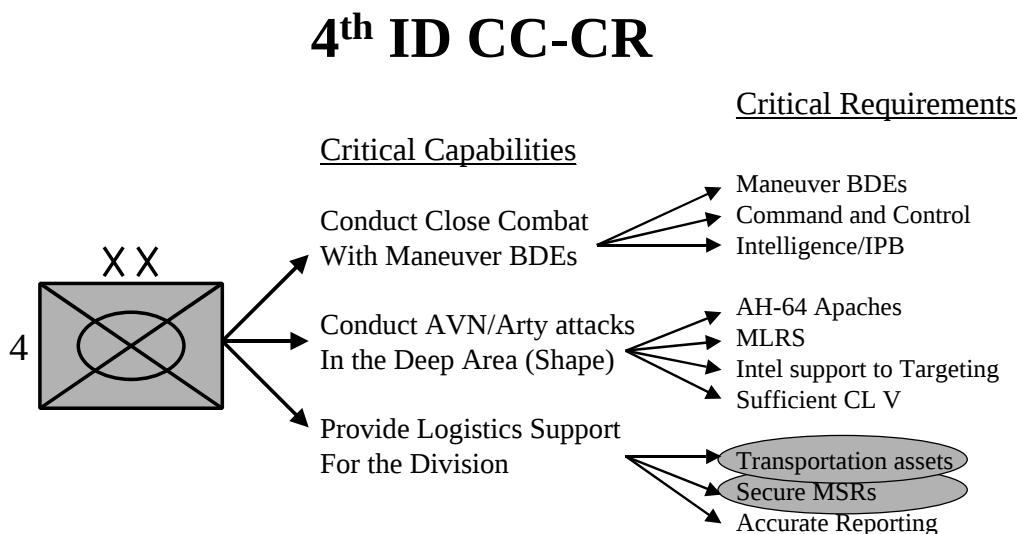


Figure 7³⁸

requirements and systems that differentiate this division from other heavy divisions are overlaid on the same combat power as a conventional mechanized division. Even without the ABCS and MCS-IVIS, the 4th ID retains the combat power of the previous divisions, preventing the information requirements for the division from becoming a critical vulnerability.

The critical need for logistics capability to support the division identifies the critical vulnerabilities for the division of secure main supply routes (MSRs) and available transportation assets to transport and disperse the required classes of supply. These critical vulnerabilities provide an enemy force with an opportunity to conduct an asymmetric attack in the division's rear area to deny it the supplies it needs to conduct combat.

Mechanized Brigade, 4th ID (Mech)

Within the 4th ID (Mech), the primary units for the close fight are the maneuver brigades. Using both the MCS-IVAS and the FBCB2 systems, the brigades are capable of locating individual vehicles and units on the battlefield and developing a common operating picture. The brigades retain the M1 tank and M2 infantry fighting vehicles of the pre-Force XXI 4th ID and add communications and the ability to internet the force.

Composition

A mechanized brigade in Force XXI is organized around two mechanized battalions and one armor battalion shown in figure 5, 4th ID Organizational Chart. The mechanized battalions are equipped with the M2A3 Bradley fighting

³⁸ Dr. Strange's model applied to 4th ID, capabilities and requirements determined by the author from equipment and units within the division and comparison with *TRADOC PAM 525-5 Operations* for missions and design capabilities with Force XXI units.

vehicle and the armor battalions have M1A2 Abrahm tanks. Normally in the direct support role to the brigade, one battalion of M109A6 Paladin howitzers provides indirect fire support. An infantry-specific forward support battalion provides logistical support to the brigade.

The brigade contains a reconnaissance troop, providing the brigade with ground reconnaissance and surveillance assets under its direct control. The brigade also has a direct support military intelligence company in direct support. This company provides tactical unmanned aerial vehicle (UAV) coverage dedicated to the brigade. The company also provides analytical and communication links to the division Analysis Collection Element (ACE).

Relative Combat Power

The relative force ratios for a mechanized brigade are:

$$2 \times \text{M2 BNs} = 2 \times 1.00 = 2.00$$

$$1 \times \text{M1 BN} = 1 \times 1.21 = 1.21$$

$$1 \times \text{Arty BN} = 1 \times 1.20 = 1.20$$

$$\text{Total} = 4.41^{39}$$

Legacy Brigade Relative Force Ratios

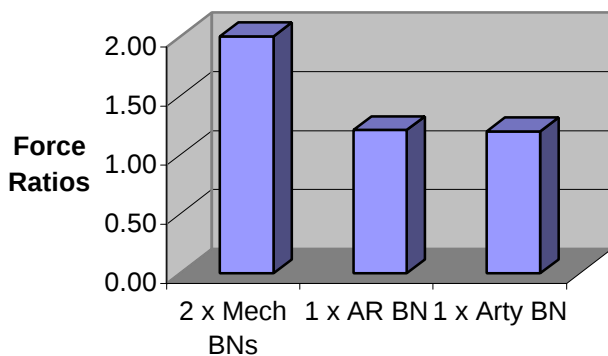


Figure 8

The relative force ratios for the legacy brigade show the majority of relative force in the ground maneuver units. The brigade is limited to the range of its direct support artillery to shape the battlefield.

CG-CC-CR

The diagram for capabilities and requirements for the mechanized brigade is shown in figure 7. The brigade, like the

division, has the capability to conduct close combat with a subordinate unit, in this case the battalions. To provide a shaping function beyond the close fight, the brigade has the capability to conduct reconnaissance and surveillance through its BRT and MI Company. The logistics capability exists for the brigade, like the division, due to the combat power of the brigade residing in M1/M2 combat vehicles.

³⁹ This relative force ratio is based on the brigade having the artillery battalion in a direct support role. The brigade reconnaissance troop (BRT) is not figured into the ratio. They're lookers not shooters.

The critical requirements for the brigade are split between the reconnaissance and surveillance capability and the need for logistics. The

Initial Brigade Combat Team (IBCT)

A Force for The Army's Full Spectrum Strategic Responsiveness Early Dominant Response in Small Scale Contingencies Capable Contributor in Major Theater War and Stability and Support Operations.

IBCT Organizational and Operational Concept Version 4.0

The IBCT is a divisional brigade, designed to optimize its organizational effectiveness and balance the traditional domains of lethality, mobility and survivability with the capabilities required for responsiveness, deployability, sustainability and a reduced in-theater footprint. Its core qualities are high mobility (strategic, operational, and tactical) and its ability to achieve decisive action through dismounted infantry assault, supported by organic direct and indirect fire platforms, and enabled by situational understanding.

For the IBCT to operate successfully as a full spectrum force, the following key operational capabilities (KOC) and characteristics were considered in the organizational design. The first two capabilities—mobility and dismounted assault-centric close combat—are the Interim Brigade Combat Team's most distinctive, core qualities.⁴⁰ They define the fundamental competencies of the IBCT and are the basis for its design. The IBCT is designed to move rapidly out of contact and conduct decisive operations using dismounted infantry.

Composition

The IBCT centers on three motorized infantry battalions, which are the IBCT's main forces used to achieve decisive effect, shown in Figure 5. These battalions are equipped with Light Armored Vehicles (LAV) IIIs to provide

⁴⁰ U.S. Army, *IBCT Organizational and Operational Concept*, version 4.0 (Fort Leavenworth: 2000), 13.

transportation, minimal protection for the troops and a direct fire system to directly support the dismounted troops. The primary lethal systems within the IBCT include: mobile gun systems; TOW IIB anti-tank guided missiles (ATGM); Javelin anti-armor missiles; 120-, 81-, and 60mm mortars; and 155 mm

Interim Brigade Combat Team

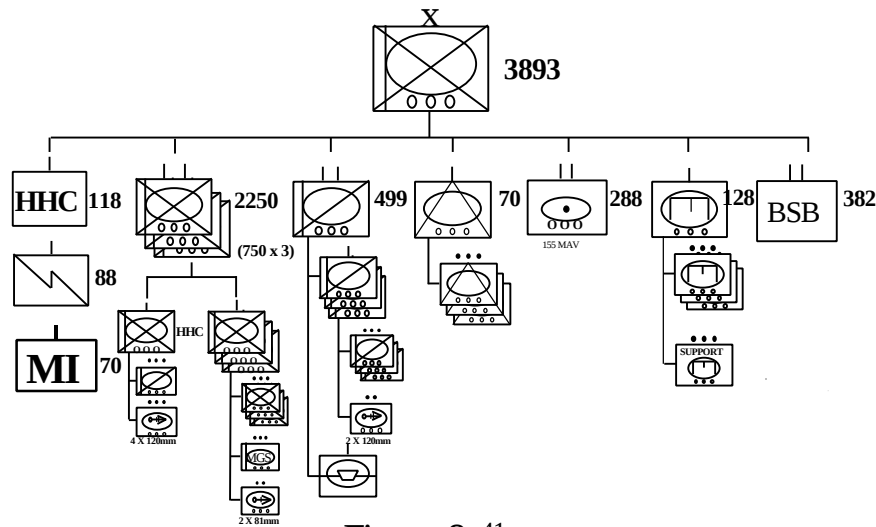


Figure 8 ⁴¹

cannon artillery.

A Reconnaissance, Surveillance, and Target Acquisition (RSTA) squadron provides the brigade with sensors and personnel, along with the military intelligence company, to gather and process information and intelligence for the brigade. An artillery battalion equipped with 155mm howitzers on the LAV III platform provides direct support indirect fires for the brigade. To counter the lack of organic antiarmor capability in the battalions, an antiarmor company with an advanced line-of-sight antiarmor weapon is part of the brigade.

⁴¹ U.S. Army, *IBCT O&O*, 35.

The IBCT lacks a robust logistics element, causing it to be dependent on other organizations through reachback capabilities for sustained logistics support.⁴² The brigade also lacks an organic air element, other than the unmanned aerial vehicle (UAV) located in the military intelligence company.

To effectively share data and intelligence, The IBCT is equipped with the Army Battle Command System (ABCS) family of systems. These systems allow the IBCT to achieve the quality of information sharing necessary for multi-echelon collaborative planning and the execution-focused command and control environment of the IBCT. This provides the foundation for development of a common operating picture for the unit, leading to situational understanding.⁴³

Relative Force Ratios

Based on the organization in Figure 5, the relative force ratios for the IBCT are as follows:

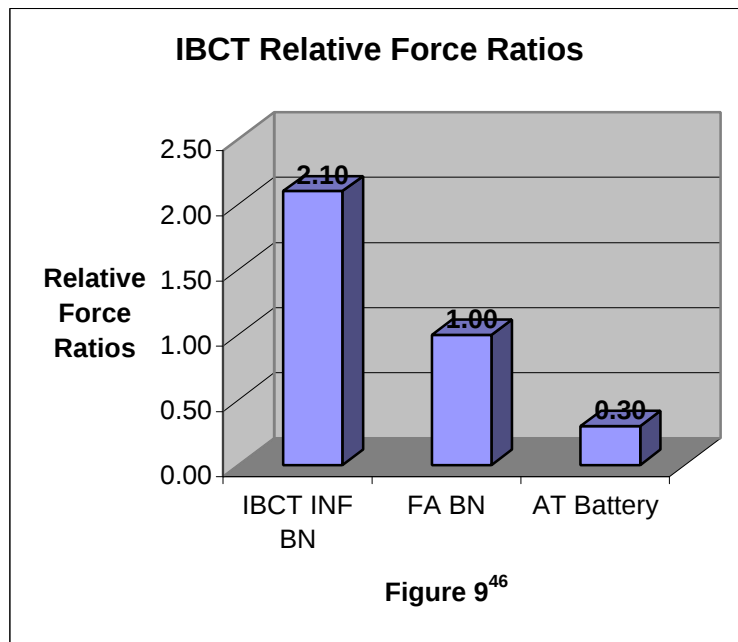
$$\begin{aligned} 3 \times \text{INF BNs} &= 3 \times .70 = 2.10 \\ 1 \times \text{Artillery BN} &= 1 \times 1.00 = 1.00 \\ 1 \times \text{Antiarmor CO} &= 1 \times .30 = .30 \\ \text{Total} &= 3.40^{44} \end{aligned}$$

⁴² U.S. Army, *IDIV O&O*, 67. An electronic tether that enables forces to leverage organic and non-organic resources from outside the AO. Reach-back reduces the footprint in the AO without compromising its ability to accomplish its assigned missions. This force posture enhances operational agility and further reduces force protection requirements.

⁴³ U.S. Army, *IDIV O&O*, Glossary, Available online at www.cgsc.army.mil/cadd/. Common operation picture is defined as an identical operational picture shared by more than one command. Situational awareness is Immediate knowledge of friendly, enemy, and other forces in time and space with respect to the environment

⁴⁴ The .70 number for the INF BNs is derived from the baseline number of 1.00 for an M2-equipped INF BN and the relative force ratio of .20 for a MARFOR LAV Co. The addition of JAVELIN anti-tank missiles brings the number up closer to the M2 battalion than three LAV Companies. The AT CO number takes into account the projected effectiveness of the follow-on system to the TOW 2B initially fielded with the IBCT. The RSTA squadron is not used for relative force ratios due to its dedicated reconnaissance and surveillance mission. They're lookers not shooters.

Figure 9 shows the relative force ratios graphically. The clear majority of



combat power for the IBCT resides in the infantry battalions. The IBCT total relative force ratio of 3.40 shows the price of deployability when compared to a balanced mechanized brigade combat team (BCT) relative combat

power of 4.42.⁴⁵ Additionally, the IBCT lacks the combat power to influence enemy forces beyond the range of their artillery battalion, except by maneuver, when operating independently early in an operation, that a BCT would have available from its parent division.

These numbers also demonstrates necessity of considering the situation when comparing units strictly by numbers. The IBCT is designed to conduct dismounted infantry assaults support by fires and this design is reflected in their organization. Deployability, not the maximization of combat power was a key factor in the unit's design.⁴⁶

CG-CC-CR

Looking at the organization and the companion IBCT O&O, the critical capabilities and requirements shown in Figure 7 are identified. Its core

⁴⁵ 2 x M2 BNs (2.00), 1 x M2A2 BNs (1.21), and a direct support artillery BN (1.20).

⁴⁶ Graphic by author.

operational capabilities rest upon excellent operational and tactical mobility, enhanced situational understanding, combined arms integration down to company level, and high infantry dismount strengths for close combat in urban and complex terrain.⁴⁷

The IBCT requires a high level of mobility at all three levels of operations. Strategically, it must be organized, equipped, and configured to meet its 96-hour deployment standard. At the operational level, it must be capable of intra-theater deployment by ground/sea or by C130 in order to provide the joint force commander the flexibility to employ the IBCT to exploit opportunities and hedge

against
uncertainty.
At the tactical
level,
overmatching
mobility is
critical to the
success of the
force.⁴⁸ The
IBCT's tactical
mobility is
further

IBCT CC-CR

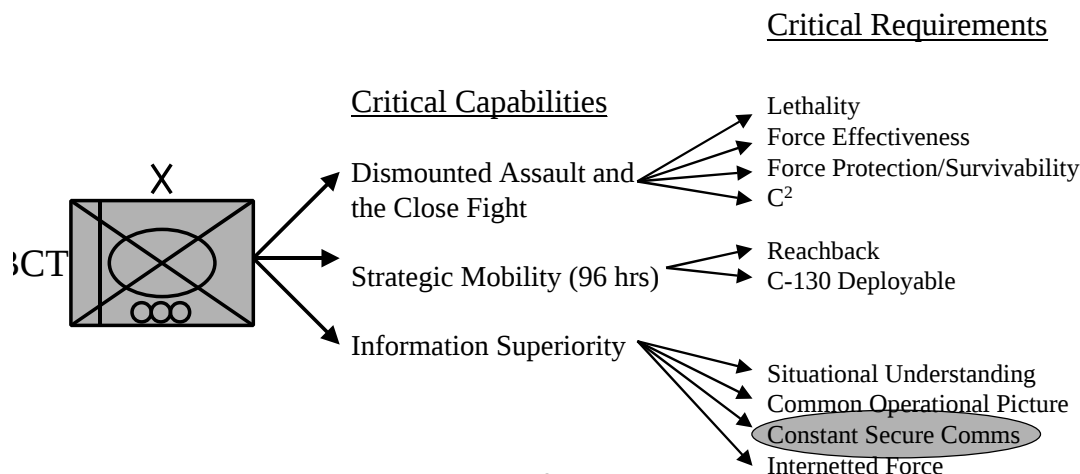


Figure 10⁴⁸

required to enable it to conduct essential RSTA operations, and strike the enemy in depth, reposition its reserve rapidly, secure lines of communications

⁴⁷ IBCT O&O, 9.

in unsecured or uncertain conditions, and to conduct non-contiguous platoon, company, and battalion fights in urban and complex terrain.⁴⁹ The high mobility of these systems sharply increases their effective use in combat operations, generating combat power well beyond that of US light forces of comparable size.

This tactical mobility allows the IBCT to determine and shape the time and place for the close fight by dismounted assault. The Interim Brigade Combat Team uses its substantial dismount capability in both its infantry and RSTA units to conduct the close assault supported by direct fires from organic weapon systems on-board the Infantry Carrier Vehicle and integrated fires. In order to maximize its assets the close assault is focused on company-level combined arms attacks.⁵⁰

Information superiority is another capability of the IBCT. It is a fundamental force enabler across all Interim Brigade Combat Team battlefield operating systems and the foundation for risk mitigation with respect to Brigade vulnerabilities, particularly the lack of armor protection. Owing to enhanced information superiority through embedded systems, the IBCT can: 1) develop the situation out of contact; 2) maneuver rapidly to positions of advantage; 3) and then initiate contact at the time and place of the commander's choice to achieve decision.⁵¹

Information superiority and the underlying situational understanding enable the force to avoid surprise, develop rapid decisions, control the time and

⁴⁸ Graphic by author based on description of organization and capabilities in IBCT O&O.

⁴⁹ U.S. Army, *IBCT O&O*, 8.

⁵⁰ U.S. Army, *IBCT O&O*, 14.

place to engage in combat, conduct precision maneuver and shape the battlespace with precision fires and effects to achieve decisive outcomes. The IBCT may not have platform overmatch or parity with an opposing force forcing it to have the capability for information superiority.

Because of the underlying necessity for the unit, the critical capability for the IBCT is enhanced information superiority. This capability reaches across the force and allows the utilization of strategic and tactical mobility and ability for the IBCT to determine the time and place for the close assault. To support this capability, the requirements are situational understanding, a common operational picture, constant and secure communications, and an internettted force. The common operating picture allows for the integration down to company level of the combined arms fight. The internettted force applies precise fires and effects to avoid collateral damage and non-combatant casualties. Secure, redundant communications are the backbone that enhanced situational understanding is built upon.

The critical vulnerability of the IBCT is the secure and redundant communications. The IBCT must be able to determine the time and place to initiate contact due to the nature of the force. Without secure communications to synchronize and control the force, the IBCT becomes an under-gunned wheeled force, unable to carry out decisive operations. It is the information superiority providing enhanced situational understanding made possible by secure communications that allows the IBCT to be a successful force.

⁵¹ IBCT, p 33.

Interim Division (IDIV)

The IDIV is a strategically responsive, full spectrum, combat division that deploys rapidly across the range of Army operations (from general war through peacetime military engagement) as an early entry force in support of a joint entry operation (unopposed or opposed) to shape the JOA for execution of the decisive operation. On order, the IDIV participates in decisive operations under a corps or joint force. The IDIV is prepared to deploy a task-organized brigade combat team (BCT) to preempt conflict in response to an SSC or to conduct decisive operations in a MOOTW SSC as a JTF's ARFOR.⁵²

The IDIV approaches the Objective Force characteristics of responsiveness, lethality, agility, deployability, versatility, sustainability and survivability. The IDIV provides the corps or joint force commander (JFC) with a strategically responsive, early entry ground force that is capable across the range of Army operations by being structured for rapid deployment to multiple APOD/SPODs.⁵³ Its ability to collect, process, store, display, and disseminate relevant information (RI) allows the division to build and disseminate an enhanced COP at all echelons and conduct combined arms operations that synchronize combat power to gain success. By coordinating organic and joint assets it is capable of attacking multiple enemy vulnerabilities simultaneously and asymmetrically, destroying the enemy's ability to react or recover before defeating him.⁵⁴

The IDIV takes advantage of its ability to generate an improved common operating picture (COP) to enhance the division and subordinate commanders' situational understanding (SU) and to dramatically improve the synergy of the combined arms team. Enhanced SU results in precision operations, allowing

⁵² U.S. Army, *IDIV O&O*, 2.

⁵³ *Ibid.*, 1.

⁵⁴ *Ibid.*, 3.

the division to employ its assets at the right time and right place, while reducing the deployed footprint of the division to only those forces absolutely necessary in the AO. The enhanced SU within the division allows maneuver forces to move to points of positional advantage with greater speed and precision, avoiding enemy strengths, and then combine the effects of direct and indirect fires to seize and retain terrain or destroy enemy forces.⁵⁵

IDIV Organization

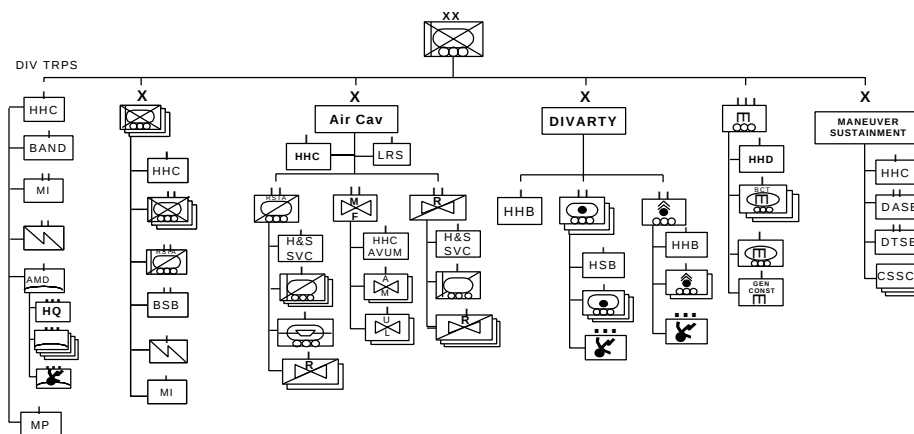


Figure 11⁵⁷

Composition

The IDIV retains a triangular force structure, shown in Figure 11. The division is organized around three brigade combat teams equipped with a light armored platform capable of being transported on a C-130. This platform is currently projected to be the LAV III outfitting the IBCTs. These BCTs are similar in structure to the IBCTs with the exception of the artillery battalions being assigned to the division artillery and deployed in direct support roles.

⁵⁵ U.S. Army, *IDIV O&O*, 1.

⁵⁶ *Ibid.*, 41.

An Air Cavalry Brigade (ACB) provides reconnaissance, lift, and attack aviation assets to the division. Reconnaissance is provided through a RSTA squadron equipped with both ground and air reconnaissance vehicles. The division artillery (DIVARTY) is organized around three artillery battalions equipped with a 155mm wheeled artillery system like those in the IBCT and a HIMARS battalion providing rocket support.⁵⁷

The division's command posts are normally echeloned with the Home Station Support Node (HSSN) remaining at the division's home station, the Sustainment CP locating either in the ISB or in the MSB AO and the Main CP locating in the division AO. The division leverages command post echelonment through reachback communications to the Aerial Port of Embarkation APOE(s), Aerial Port of Disembarkation APOD(s), enroute units, ISB, theater Army Service Component Commander (ASCC), Joint Task Force (JTF), and to the home station support node (HSSN).⁵⁸

Relative Force Ratios

The relative force ratios for the IDIV are:

$$\begin{aligned} 3 \times \text{BCTs} &= 3 \times 2.40 = 7.20 \\ 3 \times \text{Artillery BNs} &= 3 \times 1.00 = 3.00 \\ 1 \times \text{HIMARS BN} &= 1 \times 2.00 = 2.00 \\ 1 \times \text{ACB} &= 1 \times 5.20 = 5.20 \\ \text{Total} &= 17.40^{59} \end{aligned}$$

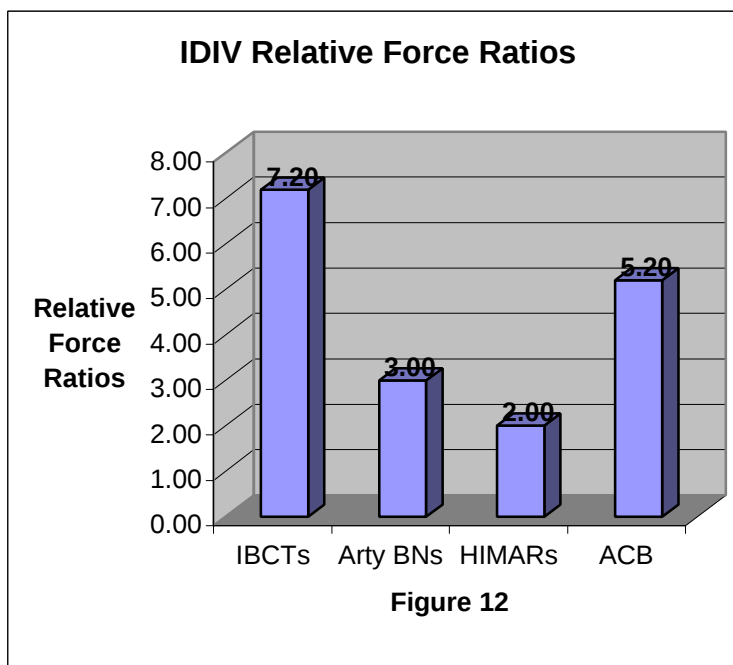
⁵⁷ The High Mobility Artillery Rocket system (HIMARS) provides the range and rocket types of the MLRS on a system mounted on a 5-ton family of medium tactical vehicles (FMTV) truck chassis. Instead of the two-pod system on a MLRS, the HIMARS has a single pod on the system allowing it to be transported by C130. Additional information available at <http://www.fas.org/man/dod-101/sys/land/himars.htm>.

⁵⁸ U.S. Army, *IDIV O&O*, 6.

⁵⁹ The relative force ratio for the BCTs within the IDIV were extrapolated by removing the artillery battalion and the AT CO's ratios from the IBCT. Within the IDIV, there is no AT CO shown assigned to the BCTs and the artillery for relative force computation is located in DIVARTY.

Figure 12 shows the relative force ratios graphically for the IDIV. Like the 4th ID, the IDIV is comparatively balanced with 10.20 relative force positioned in the BCTs and the artillery battalions normally assigned to support them in the close fight. The division does have a sizeable portion of its force in its ACB and HIMARS battalion available to hit targets in the deep area to shape the fight for the BCTs.

Comparing the RF ratios of the IDIV to the 4th ID we again see the price of deployability. In pure RF numbers, the 4th ID's RF ratio of 23.24 shows an equivalent difference of almost three M2 equipped battalions more the IDIV's RF ratio. The difference in missions between the two units dictates a different organization and ability to generate combat power but does help show the danger of an IDIV being mis-tasked to perform a mission not within its

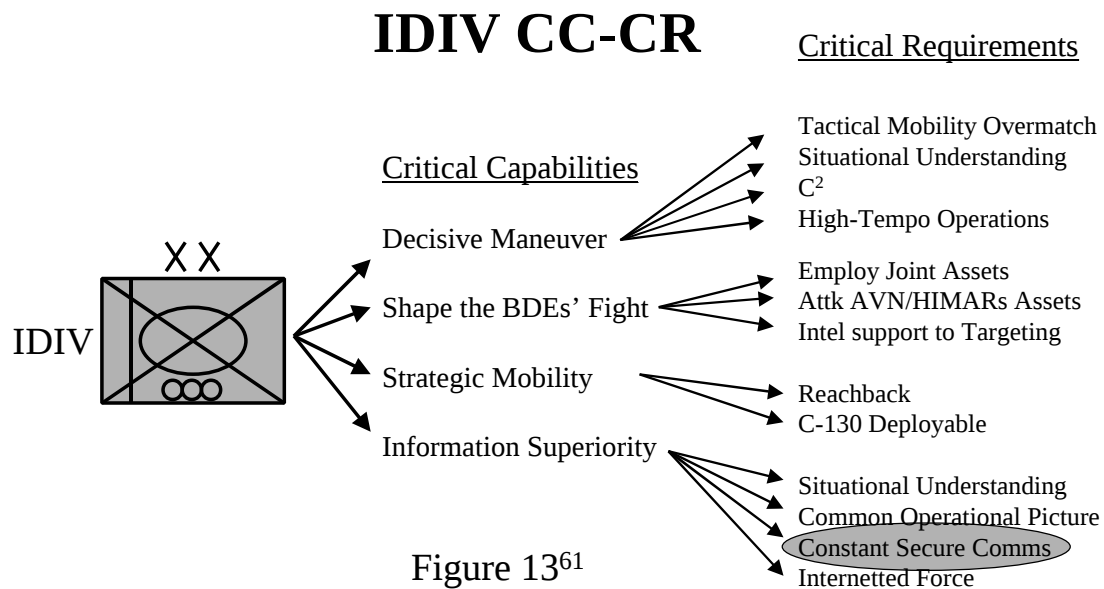


capabilities. It also shows the necessity for augmentation from outside the division to allow it to operate in a conventional armored environment.

CC-CR-CV

The critical capabilities and requirements for the IDIV are shown in figure 13. The IDIV has the critical capabilities of decisive maneuver, shaping the BCT's fight, strategic mobility, and information superiority.

The BCTs maneuver out of contact and strike decisively at a time and place of the IDIV's choosing. The ability to maneuvering out of contact allows the BCTs to obtain greater dispersion and tempo than legacy forces. The IDIV uses its capability for decisive maneuver to attack, disperse and attack again in



rapid succession, creating a tempo the enemy cannot match, while

⁶⁰ IDIV O&O, graphic by author.

simultaneously protecting friendly forces from the effects of enemy systems.⁶¹

The division uses a variety of assets to shape the fight for the BCTs. It uses its command and control abilities to synchronize organic, assigned echelon above division (EAD) and joint assets to attack multiple enemy vulnerabilities, simultaneously and asymmetrically to set the conditions for the BCTs to achieve decisive results.

The division requires minimal Reception, Staging, Onward Movement, and Integration (RSOI) allowing it to begin operations nearly concurrent with its arrival. This ability, along with the requirement for all of the division's assets to be deployable by C-130, gives the IDIV its capability of strategic mobility. The division can deploy one BCT and the early entry command post (EECP) and begin operations immediately upon arrival. Subsequently deploying units may also begin operations immediately upon arrival if tactically loaded and deployed directly into the AO.⁶²

The IDIV's command and control, automation systems, and internettted forces allow the division to gain a significant information advantage by collecting, processing, and disseminating an uninterrupted flow of relevant information in support of division operations. Its ability to collect, process, store, display, and disseminate relevant information allows the division to build and disseminate an enhanced COP at all echelons. The COP allows commanders at all levels to develop situational understanding and to align their actions within the division commander's intent.⁶³ Operating within the

⁶¹ IDIV O&O, 11.

⁶² U.S. Army, *IDIV O&O*, 10.

⁶³ *Ibid.*, 9.

commander's intent and at a rapid tempo gives the IDIV the advantage it needs to perform decisive operations.

Because of this required informational advantage, the critical capability for the IDIV is the requirement for information superiority. This capability allows them to deploy upon arriving in theater, maneuver out of contact to gain a decisive result, and set the conditions for the BCTs to fight and win. Without this capability, the weakness of the division to conventional forces becomes potentially grave.

The critical vulnerability for the IDIV, like the IBCT, is the requirement for continuous, secure communications both across the division area of operations and back to its deployment base for reachback capabilities. The ability of an enemy to prevent or disrupt communications negates the advantages of the IDIV's situational awareness and the ability to maneuver out of contact to determine the place and time of the decisive action.

To take advantage of these capabilities while protecting requirements identified as vulnerabilities, courses of action must be developed taking into account the uniqueness of each type of unit. The next chapter examines the MDMP to determine how COAs are developed.

Chapter Three

Military Decision-Making Process

The classical decision analysis model attempts to follow a progression of logical steps to arrive at a solution to a problem. These steps are:

- Identify the set of options
- Identify ways of evaluating these options
- Weight each evaluation dimension
- Perform the rating
- Pick the option with the highest score⁶⁴

By comparing several possible solutions against agreed upon criteria, an individual or group can analytically determine the best identified solution to a problem.⁶⁵

The Military Decision-Making Process (MDMP) is the Army's adaptation of the analytical approach to problem solving. Based on the classical decision analysis model, The MDMP is a tool that assists the commander and staff in developing estimates and plans.⁶⁶

According to *FM 101-5*, the MDMP has several stated advantages. It analyzes and compares multiple friendly and enemy COAs in an attempt to identify the best possible friendly COA by looking at a wide ranges of solutions. It produces the greatest integration, coordination, and synchronization for an operation and minimizes the risk of overlooking a critical aspect of the operation because of the detail and completeness in the process. As a result, it

⁶⁴ Gary Klein, *Sources of Power*, (Cambridge: 1999), 10.

⁶⁵ "Best" in the classical model is defined against the evaluation criteria established before evaluating possible solutions. Selecting criteria prior to a decision prevents sentiment or opinion from swaying the selection process.

⁶⁶ U.S. Army, *FM 101-5*, 5-1.

results in a detailed operation order or operation plan.⁶⁷ The disadvantage to the MDMP is the amount of time a commander and staff must take to fully utilize the process. Even when steps are compressed during time-constrained planning the process requires time for the staff to interact to compare and analyze possible solutions.

The MDMP consists of seven steps:

- Receipt of Mission
- Mission Analysis
- Course of Action Development
- Course of Action Analysis
- Course of Action Comparison
- Course of Action Approval
- Orders Production⁶⁸

These seven steps mirror the classical decision making model. Receipt of mission and mission analysis frame the problem and lay the groundwork for identifying the set of possible solutions. Course of action development, analysis, comparison and approval are the MDMP's steps for weighing and selecting the best solution to the problem. The final step, orders production disseminates the solution in sufficient detail for subordinate commanders and staffs to execute it.

During conflict, a commander exercises battle command against a thinking opponent.⁶⁹ The commander must first develop a vision of the battle, describe this vision to his subordinate commanders and staff, and then direct the unit to complete his vision. The MDMP is the tool the commander uses to

⁶⁷ U.S. Army, *FM 101-5*, 5-1.

⁶⁸ *Ibid.*, 5-3.

⁶⁹ U.S. Army, *FM 3-0*, DRAG Edition, 5-1. Battle Command is the exercise of command in operation against a hostile, thinking opponent. An active, thinking opponent requires a greater appreciation of options than a static problem, reinforcing the need for a complete, developed process.

fully allow for the range
of possibilities, by using
the entire staff during to
explore the full range of
probable and likely
enemy and friendly
COAs, and to analyze

and compare his own organization's capabilities with the enemy's. Without this appreciation for the full range of options, the commander and staff will arrive at a sub-optimal COA.

The steps of the MDMP are interposed on the commander's battle command process in Figure 10. The higher headquarters' mission and his own mission analysis help the commander develop his vision. The four elements in arriving at a COA, development, analysis, comparison and approval, cross over from the commander's visualization to developing framework of a plan to describe his vision of the battle. Orders production is the final product of the commander describing the operation and serves as a tool to direct the battle.

other adjacent units, further shaping the operation.

Mission Analysis Steps
1. Analyze the higher headquarters' order
2. Conduct initial IPB
3. Determine specified, implied, and essential tasks
4. Review available assets
5. Determine constraints
6. Identify critical facts and assumptions
7. Conduct risk assessment
8. Determine initial commander's CCIR
9. Determine the initial reconnaissance annex
10. Plan use of available time
11. Write the restated mission
12. Conduct a mission analysis briefing
13. Approve the restated mission
14. Develop the initial commander's intent
15. Issue the commander's guidance
16. Issue a warning order
17. Review facts and assumptions
Figure 15, MA Steps⁷¹

To fully understand what the unit is to accomplish both the commander and the staff conduct mission analysis on the mission received from the higher headquarters. Mission analysis defines the tactical problem and begins the process of determining feasible COAs.⁷²

The steps of mission analysis are shown in Figure 12. These steps allow the staff to help the commander define the environment they will be operating in, identify specific tasks they must accomplish, recognize limitations and constraints on how they can execute their mission, and determine the units and assets they have available for the operation. Armed with this analysis, the commander and staff are prepared to develop COAs as solutions to their problem.

There are four steps to developing courses of action. First, different COAs are developed using available assets to accomplish the mission. Next the COAs are individually analyzed to determine the strengths and weaknesses of the COA and to ensure it accomplishes the mission. The COAs are then compared to each other using criteria decided on by the commander and staff .

⁷¹ U.S. Army, *FM 101-5*, p 5-5.

⁷² U.S. Army, *FM 101-5*, p. 5-5.

The COA that has the highest probability of success measured against the criteria is selected.

The commander and staff develop COAs in a deliberate attempt to design unpredictable COAs to accomplish the mission.⁷³ To accomplish this, the staff works with the commander to develop COAs based on the his intent and guidance that meet several criteria. Doctrinally the initial criteria in *FM 101-5* for developing COAs include:

Feasibility - The unit must have the capability to accomplish the mission in terms of available time, space, and resources.

Acceptability - The tactical or operational advantage gained by executing the COA must justify the cost in resources, especially casualties. This assessment is largely subjective.

Suitability - It must accomplish the mission and comply with the commander's guidance.

Completeness - It must be a complete mission statement answering who will execute the mission, what type of action is contemplated, When will the action begin, where will the action occur, how will the commander employ available assets, and why will each force conduct its part of the mission.

Differentiable - Each COA must differ significantly from any others. Significant differences may result from use of reserves, different task organizations, day or night operations, or a different scheme of maneuver.⁷⁴

The staff uses six steps to develop COAs that meet these criteria. First, the staff analyzes relative combat power. Numerical force ratios are used to compare the forces against historic norms. An example of these ratios is the

⁷³ U.S. Army, *FM 101-5*, P. 5-11. These criteria are commonly referred to as the “FAS” test even though it is more accurately a “FAS+” test.

⁷⁴ U.S. Army, *FM 101-5*, p. 5-8 to 5-11. These criteria give the staff flexibility to develop a broad range of COAs but restricts them from wasting time and effort on COAs that fail to fully address the mission or the constraints placed on a unit. In particular, distinguishability forces the planners to develop solutions from different perspectives or different main efforts instead of gravitating to one solution.

relative force ratios used in chapter two. These force ratios are used only for an initial estimate of the capabilities of each of the forces and do not include the human factors of warfare that many times, are more important than the number of tanks or tubes of artillery. Planners must not develop and recommend COAs based solely on mathematical analyses of force ratios.⁷⁵

Combining the effects of maneuver, firepower, protection, and leadership, the staff expands the numerical comparison to determine each forces combat power.⁷⁶ They analyze the combat power for each force to identify strengths and weaknesses to gain insight into what friendly capabilities pertain to the operation, the type of operations possible for both friendly and enemy units, enemy vulnerabilities, and additional resources required to accomplish the mission.⁷⁷

Planners can compare friendly strengths against enemy weaknesses, and vice versa, for each element of combat power. From these comparisons, they may deduce exploitable vulnerabilities for the enemy or friendly vulnerabilities needing protection. These comparisons provide the staff insights into effective force employment.

After analyzing each of the forces and based on the commander's guidance, the staff generates options for COA development. In developing COAs, staff members must determine the doctrinal requirements for the operation including doctrinal tasks to be assigned to subordinate units. COA development must look at possibilities created by increasing capabilities

⁷⁵ U.S. Army, *FM 101-5*, 5-12.

⁷⁶ U.S. Army, *FM 101-5*, 5-11. The staff must beware of letting subjective assessments of a unit's abilities wish away deficiencies or diminish enemy advantages.

⁷⁷ U.S. Army, *FM 101-5*, 5-12.

through attachments to the unit and options not feasible because of detachments identified during mission analysis.

To focus the COA, the staff first determines the decisive point, if not already determined by the commander. This is where the unit will mass the effects of overwhelming combat power to achieve a result with respect to terrain, enemy, and time that will, mass the effects of overwhelming combat power to achieve a result with respect to terrain, enemy, and time that will accomplish the unit's purpose. This will be the main effort and is directly tied to accomplishing the mission.

The COA is further developed by arraying forces to ensure the decisive point is allocated sufficient forces and the supporting efforts support the main effort. Starting with the main effort and continuing through all supporting efforts, the staff determines the ratio of friendly to enemy units required for each task.⁷⁸ To determine the forces necessary to accomplish the mission planners must consider:

- The restated mission and the higher commander's intent and guidance
- The air and ground avenues of approach, both enemy and friendly
- As many possible enemy COAs as time permits, starting with the most likely and including the worst case (enemy's most dangerous COA)⁷⁹

The staff next arrays their forces, determining by ratio the general location forces are needed, beginning with the main effort at the decisive point and continuing through supporting efforts. Specific missions are not assigned

⁷⁸ U.S. Army, *FM 101-5*, p. 5-13. Use of ratios assumes like forces and can drive a planner to that assumption since the ratios are developed using a common baseline and makes only a rough attempt to distinguish unit capabilities. This isn't a problem as long as the ratios are recognized for what they are and their use limited to rough comparisons.

⁷⁹ U.S. Army, *FM 101-5*, p. 5-13.

to arrayed units during this step. The only consideration is the necessary forces allocated to accomplish the mission. Generic COA graphics are used during this step to represent types of units rather than identifying units by name.⁸⁰ The initial array identifies the total number of units needed based on the force ratios and sets the stage for the staff to identify possible methods of dealing with the enemy during the next step, scheme of maneuver development.

The scheme of maneuver describes how arrayed forces will accomplish the commander's intent. It is the central expression of the commander's concept for operations which governs the design of supporting plans or annexes.⁸¹ It takes the generic types of units apportioned to a task and develops a scheme of maneuver by refining the initial array of forces and adds graphic control measures to coordinate the operation and to show the relationship of friendly forces to one another, the enemy, and the terrain. The scheme of maneuver includes:

- The purpose of the operation
- A statement of where the commander will accept tactical risk
- Identification of critical friendly events and phases of the operation (if phases).
- Designation of the main effort, along with its task and purpose
- Designation of supporting efforts, along with their tasks and purposes, linked to how they support the main effort
- Designation of reserve, to include location, composition, task and purpose
- Deep, close, and rear operation.
- Reconnaissance and security operations
- An outline of the movements of the force
- Identification of maneuver options that may develop during an operation
- Location of engagement areas or attack objectives and counterattack objectives

⁸⁰ U.S. Army, *FM 101-5-1*, p. C-5. Task-organized composition graphics allow planners to show what a task force requires to accomplish the mission without tying specific units to the task force.

⁸¹ U.S. Army, *FM 101-5*, p 5-13.

- Responsibilities for area of operations (AO)
- Concept of fires
- C2 attack priorities
- Prescribed formation or dispositions when necessary
- Priorities for each CS and CSS element in support of the operation
- Integration of obstacle effects with maneuver and fires.
- Consideration of the effects of enemy weapons of mass destruction (WMD) on the force.⁸²

The scheme of maneuver provides enough detail across the many considerations of an operation to allow the staff to understand the missions and movements during the proposed operation.

After developing the scheme of maneuver, the staff assigns headquarters to groupings of forces to determine command and control relationships. A units' task organization becomes the units to be assigned to a headquarters to accomplish its mission, taking into consideration its span of control limitations.

With all of the forces apportioned and command and control relationships established, a COA statement and supporting sketch are prepared for each COA to clearly portray how the unit will accomplish the mission. The statement, along with the sketch for further clarification, explains the scheme of maneuver, including the mission and end state. The sketch provides a picture of the maneuver aspects of the COA using mission graphics to show unit boundaries and assigned tasks.

After the COAs have been fully fleshed out with a statement and sketch, they are analyzed individually. The COA analysis provides the staff with objective information to determine which COA accomplishes the mission with

⁸² These elements are based on the current *FM 100-3, Operations*. Pending the publication of *FM 3-0, Operations*, the scheme of maneuver will need to change to reflect the Decisive, Shaping, Sustaining framework. The elements of operational design will also become a major part of the description of the scheme of maneuver.

minimum casualties while best positioning the force to retain the initiative for future operations.⁸³ In addition, COA analysis helps the commander and staff to:

- Determine how to maximize combat power against the enemy while protecting the friendly forces and minimizing collateral damage.
- Have as near an identical vision of the battle as possible
- Anticipate battlefield events
- Determine conditions and resources required for success
- Determine when and where to apply the force's capabilities.
- Focus IPB on enemy strengths, weaknesses, center of gravity, desired end state and decisive points.
- Determine the most flexible course of action.⁸⁴

According to FM 101-5, course of action analysis is conducted using war gaming.⁸⁵ Although not mentioned in the FM, other ways exist to analyze COAs. Each staff element can directly go to the criteria and rank order the COAs as they see them. They can also establish their own criteria, in accordance with the commander's guidance and make a recommendation by staff section on the best COA from their perspective. The executive officer or chief of staff then determines the staff's recommendation to the commander based on the inputs from the different sections.

The advantage of war gaming is the involvement of the staff, providing a disciplined process, with rules and steps that attempt to visualize the flow of a battle. To do this, the staff takes a COA and war games using eight steps:

1. Gather the tools
2. List all friendly forces

⁸³ U.S. Army, *FM 101-5*, P. 5-16. This is the FM's apparent definition of "best" when comparing and deciding on COAs. Accomplish the mission should be a given provided the COA passes the FAS+ test. The inclusion of casualties and posturing for later missions leads the staff towards adopting both as criteria for COA selection.

⁸⁴ U.S. Army, *FM 101-5*, p. 5-16.

⁸⁵ *Ibid.*, 5-16. This statement applies to a tactical fight where the line of operations is apparent and the staff can easily understand the operation. A noncontiguous or simultaneous operation will require different methods to war game.

3. List assumptions
4. List known critical events and decision points
5. Determine evaluation criteria
6. Select the war-game method
7. Select a method to record and display results
8. War-game the battle and assess the results⁸⁶

This process concentrates on a definable battle, conducting a linear process to attempt to determine the key points in the battle.

As the battle is war-gamed, the staff assesses the COA against both the FAS+ criteria and the decision criteria established earlier as step five in the war gaming process. COAs are not evaluated one COA against another. Evaluation criteria are the factors the staff uses to measure the relative effectiveness and efficiency of one COA relative to other COAs following the war game. They look not only at what will create success, but also at what will cause failure during a mission. The evaluation criteria changes from mission to mission and can include anything the commander desires. From *FM 101-5*, the criteria can include:

- Principles of war
- Doctrinal fundamental for the kind of operations being conducted
- The commander's intent and guidance
- The level of residual risk for accident hazards in the course of action⁸⁷

Maintaining awareness of the criteria prepares the staff to determine which COA best meets the criteria and makes determining the recommendation to the commander easier. Each staff officer analyzes and evaluates the advantages and disadvantages of each COA from his area of responsibility.

⁸⁶ U.S. Army, *FM 101-5*, p. 5-17.

⁸⁷ U.S. Army, *FM 101-5*, p. 5-18.

The COA comparison starts and ends with the criteria determined by the staff and issued by the commander in his guidance. This step in the MDMP provides a direct head-to-head comparison between COAs on how they meet the developed criteria. Vague or ill-defined criteria make it difficult for the staff to agree on the definitions of the criteria and arrive at a decision on how each COA meets the criteria. Unfortunately, finding out at this stage that your criteria aren't sufficient to drive the COA process leaves the staff struggling to come to consensus on what constitutes the best COA for their recommendation to the commander.

Based on their analysis and comparison, the staff makes a recommendation on the best COA to the commander. The commander can accept the recommendation, accept their recommendation with modifications to the COA, or send the staff back to start the process over again. If the commander makes changes to the COA, the staff returns to the war game process to develop the necessary products and synchronization.⁸⁸

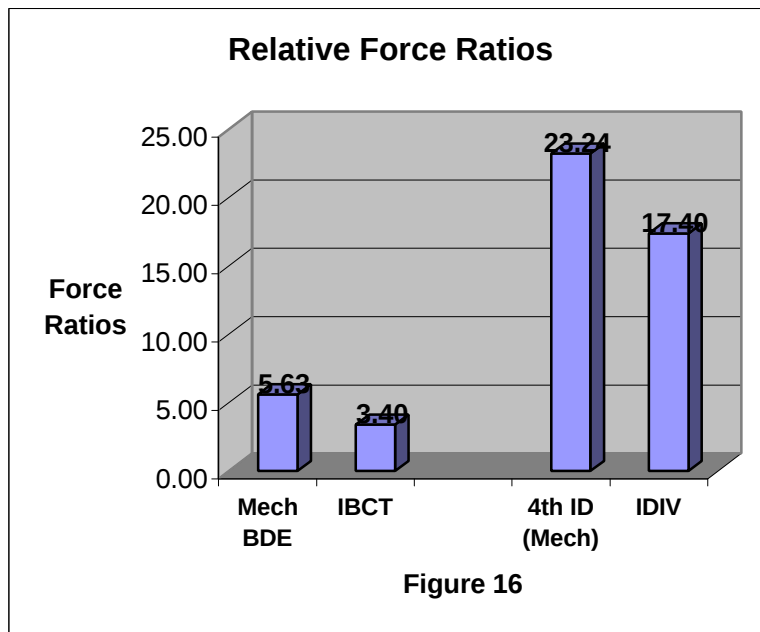
The final step in the MDMP process is orders production. This step develops an order that puts the commander's vision and the staff's COA efforts into a written product. The order allows the commander to describe the operation and provides execution documents to direct the mission's execution.

⁸⁸ U.S. Army, *FM 101-5*, p. 5-26.

Chapter Four

Analysis

Looking at the elements of combat power in relation to Army's transformation, several trends emerge. Fielding the IBCT and IDIV will substantially increase maneuver at the operational level. The projected ability to place a combat-ready brigade on the ground in ninety-six hours followed by a



division one hundred and twenty hours and five divisions in thirty days provides a significant increase in strategic and operational maneuver to the theater commander.

This increase in strategic and operational maneuver comes at a

cost in firepower and protection. Figure 16 shows the drop in relative force ratios between interim forces and existing legacy forces. An IBCT gives up the equivalent of over two M2 equipped battalions (2.23 relative force ratio) to a legacy mechanized brigade. The relative force ratio for the IDIV shows a decrease of 5.84, equivalent to almost six M2 battalions of relative combat power.

In addition to a drop in firepower, a decrease in protection occurs. The vehicles forming the common platform for the IBCT and proposed for the IDIV,

the LAV III, do not provide the crews and dismounts the same level of protection as the vehicles in an armored task force. The LAV III does provide a substantial increase to an IBCT if compared to a comparable light brigade. However, to provide the operational and tactical maneuver proposed for the interim forces, the crews and dismounts will spend a substantial amount of time in their vehicles. This leads to a more correct comparison with a mechanized brigade for protection issues.⁸⁹

Information is a vital element of combat power for the transformation forces. If the interim forces gain information superiority, they can choose the time and place to initiate combat to offset any platform overmatch by the enemy. To determine the time and place for combat, situational understanding must be developed throughout the force provided by a common operating picture.

Looking at the critical capabilities and requirements models for the IBCT and IDIV, the decisive role of information superiority again becomes apparent. Both forces have a critical requirement for constant and secure communications. Communications allows the forces to develop their common operating picture leading to situational understanding across the force. They can leverage their maneuver advantage to apply their limited firepower to achieve decisive results while minimizing the enemy's ability to attack the force. Without information superiority, the interim forces face making contact to

⁸⁹ The author realizes the IBCT doctrinally arrives at decisive decision by dismounted attack making a comparison to light forces appear more correct. The need for speed in maneuver both operationally and tactically will necessitate long periods of time spent in the vehicles where the troops are more vulnerable to enemy fires than they would be in an M1/M2 equipped task force.

develop the situation and losing their maneuver advantage.

The central issue now becomes how the MDMP addresses the different elements of combat power, particularly information, identified by the application of Dr. Strange's model for each of each type of unit to determine critical capabilities and requirements. The central issue becomes "*Does the process drive the commander's and staff to maximize these capabilities and protect critical requirements of their unit?*"

The stated purpose of the MDMP is to allow the commander to fully allow for the range of possibilities and use the entire staff to explore the full range of probable and likely enemy and friendly COAs, and to analyze and compare his own organization's capabilities with the enemy's. Without this appreciation for the full range of options, the commander and staff will be unable to arrive at an optimal COA.⁹⁰

The *FM 101-5* provides a definition of what an optimal COA looks like. It is a COA which:

- Accomplishes the mission with minimum casualties
- Best positioning the force to retain the initiative for future operations.

These criteria are an important consideration for COA development and selection but fail to work towards an optimal solution. They also fail to stress developing COAs that maximize the combat power of a unit with considerations of all of its the capabilities and requirements.

The MDMP focuses primarily on the arrangement of maneuver and firepower elements of combat power. When the staff analyzes relative combat

⁹⁰ U.S. Army, *FM 101-5*, 5-2.

power as part of COA development, numerical force ratios are used to compare the forces against historic norms. Although used only for an initial estimate of the capabilities of each of the forces, these ratios provide the basic framework for the staff's thought process for the following steps of COA development and selection.

When the COA is then further developed by arraying forces, the decisive point is allocated sufficient forces and the supporting efforts support the main effort. Starting with the main effort and continuing through all supporting efforts, the staff determines the ratio of friendly to enemy units required for each task. This again requires the use of numerical ratios with no method to determine full unit abilities or prevent a mismatch of units to tasks. These ratios are driven by the use of methods like the relative force ratios in Appendix 1. These ratios are useful within their limits, but do not give sufficient detail on the workings of a unit or requirements and vulnerabilities for its employment.

As the staff expands the numerical comparison to determine each forces combat power, they doctrinally combine the effects of maneuver, firepower, protection, and leadership.⁹¹ This requires a subjective analysis by the staff with no framework provided to allow the staff to make objective analysis linking the additional elements of combat power to increased capabilities. Information as an element of combat power and any of the capabilities and requirements to manage and utilize information are not included. This is an increasingly serious deficiency as the interim forces depend more and more on leveraging information to increase the effects of maneuver and firepower.

⁹¹ Ibid., 5-11.

The reliance on information superiority by interim forces requires a better approach to developing COAs utilizing a units' capabilities and determining and protecting its requirements for success. The MDMP process should be modified to specifically address the capabilities, requirements and vulnerabilities for a unit.

Before the unit enters the MDMP, the commander, subordinate commanders and staff must develop and agree on the capabilities of the unit. This takes place between a new commander his staff or when there is substantial staff turnover. Doctrine for each type of unit exists as a starting point for evaluation for capabilities. The capabilities are not tied to a specific mission, but reflect the use of existing equipment and soldiers assigned to the unit. Once approved by the commander, these capabilities form the basis for training and the unit's use of MDMP.⁹²

The intelligence section, in conjunction with the rest of the staff, does a similar analysis on the enemy forces as part of his intelligence estimate. To fully utilize friendly capabilities a comparable analysis of the enemy must be conducted. Analyzing both forces' capabilities and requirements sets the conditions for further refinement during mission analysis.

After receipt of the mission, mission analysis focuses on determining the requirements of the mission and the critical capabilities and requirements for both forces for the operation. Limitations, constraints and the effects of

⁹² The use of Dr. Strange's model to determine a unit's capabilities and requirements provides a useful tool for determining mission essential task lists (METL). This model provides a detailed examination of the critical requirements for the execution of the unit's capabilities (tasks) and helps identify the key requirements (sub-tasks) for the unit to focus training on.

weather and terrain are considered for both sides to determine what each force will be required to do to be successful. Attached units can be integrated into the plan by looking at what additional capabilities or requirements they bring to the fight. The mission analysis briefing to the commander provides a comparison between friendly and enemy forces and focuses on matching friendly capabilities against enemy requirements. The staff also identifies friendly requirements that are vulnerable to the enemy.

The commander uses this analysis to develop his guidance to the staff. COA guidance focuses on the commander identifying the enemy critical requirements he chooses as critical vulnerabilities and focusing the staff on developing COAs with these vulnerabilities as decisive points. He identifies for the staff where he will accept risk by establishing his priority for protection of critical requirements. To further shape COAs, the commander identifies critical capabilities and requirements for use as criteria for the FAS+ test to ensure the unit can execute its mission.

With this guidance, the staff now develops COAs focusing on applying capabilities against the decisive points. Units are matched to objectives based on their role as a requirement for capabilities. Units that provide a critical requirement are protected through positioning on the battlefield of by assignment of forces to protect them. The scheme of maneuver for the COA describes the application of capabilities in terms of time and space in the area of operations.

The COA approval briefing concentrates on showing the commander which COA maximizes the unit's capabilities against the enemy's vulnerabilities. It also identifies risk to critical requirements discovered during

the war gaming to ensure the commander understands the cost-benefit for each COA. This allows the commander to apply a structured approach to developing his commander's critical information requirements based on the COA selected. Once a COA is selected, orders production proceeds as per *FM 101-5*.

An example of this process can be shown with a scenario that has U.S. forces conducting an attack in Korea. 4th ID's mission is to attack to seize OBJ BLUE to protect the corps main effort to their west. The enemy force consists of an infantry corps defending vicinity the Kum River. The enemy has an armored brigade and a long-range artillery brigade. The enemy corps also has special purpose forces (SPF) operating in 4th ID's rear area.

As part of the intelligence estimate, the G2 determines the enemy's critical capabilities and requirements to be as shown in figure 17.

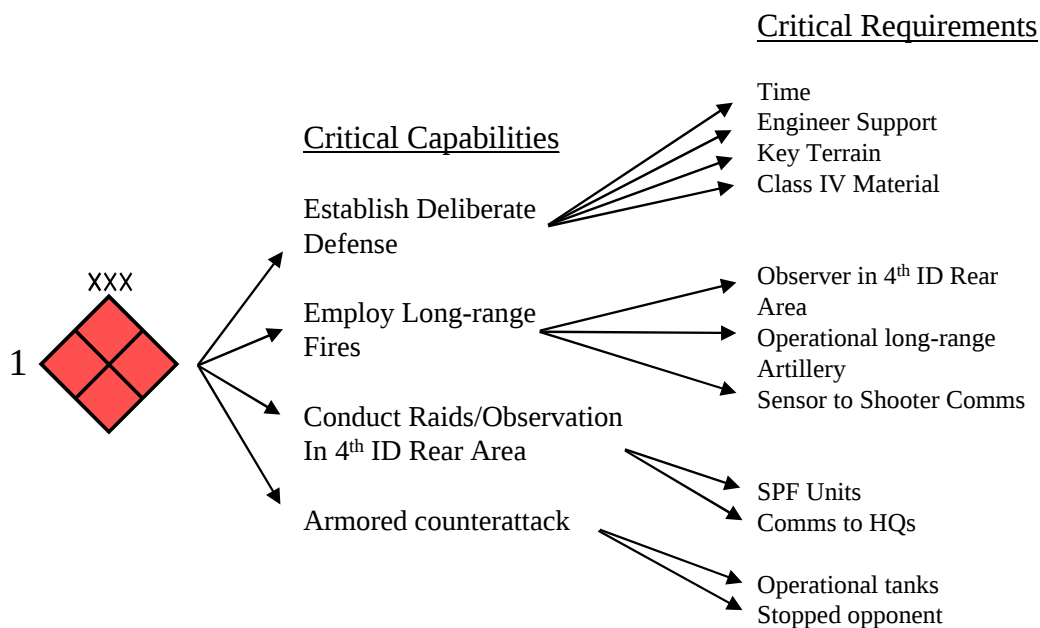


Figure 17, 1st Corps Capabilities

The 4th ID staff conducts their mission analysis and briefs capabilities and requirements to the commander as shown in figure 18.

4th ID Korea

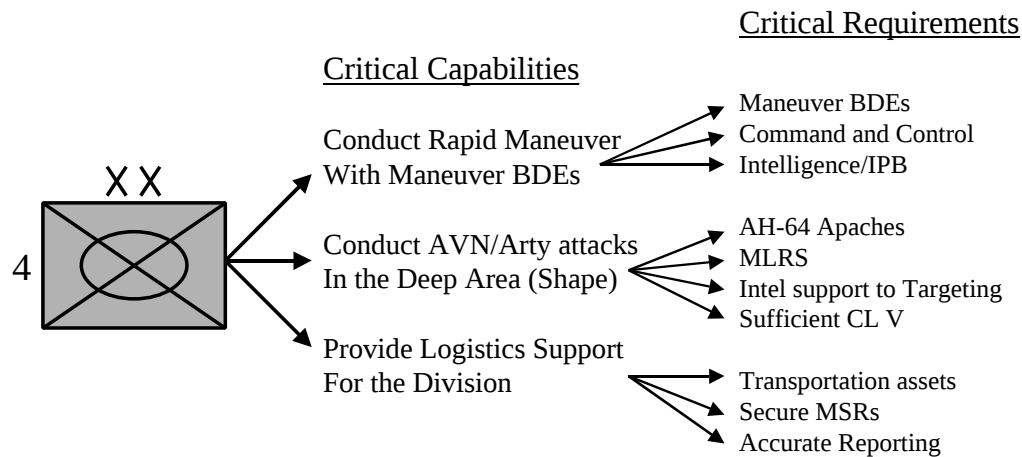


Figure 18, 4th ID in Korea

Issuing his guidance to the staff for COA development after the mission analysis brief, the commander directs the staff to develop a COA that focuses on the enemy's critical vulnerability of time by using rapid maneuver to move faster than the enemy can react with infantry forces to deny the enemy time to establish deliberate defenses. The commander tells the staff he feels the critical capability is the armored counterattack, which can threaten the corps' main effort. The staff develops and briefs a COA that uses on infantry battalion to feint in the east while the rest of the division attacks to rapidly penetrate in the western half of the division area. The division then continues attacks to the river to deny the enemy time to fully establish a deliberate defense and attacks to defeat the enemy counterattack threat.

To protect against long-range artillery fire and raids in the rear area, the COA directs an aggressive counter-reconnaissance effort to destroy SPF teams. AH-64Ds and MLRS are used to conduct shaping operations in the deep area against enemy long-range artillery and armored forces to set the conditions for

the defeat of the armored brigade's counterattack. The COA accepts risk to logistics by exposing MSRs to bypassed enemy forces.

Selecting this COA, the commander develops his intent for the operation as follows, establishing his decisive points and decisive action for the operation.

The purpose for this operation is to defeat enemy forces in zone to prevent them from concentrating against the 1st CAV DIV to our west, the Corps main effort. The Decisive Action for this operation is the defeat of the enemy's armored brigade north of the Kum River to deny the 1st Corps commander the capability to attack the 1st CAV DIV. I intend to do this by maintaining a rapid tempo to Kum River to prevent the enemy from establishing a deliberate defense along the Kum River, penetrating the main defense, then defeating the armored brigade.

There are three decisive points to this operation. First, we must conduct aggressive counter-reconnaissance to destroy SPF teams in our area to protect our logistics and degrade the enemy's long-range artillery. Second, shaping operations in the deep area must destroy long-range artillery and armored counterattack forces to get set the conditions for the third decisive point, rapid tempo to the Kum River to prevent the enemy from establishing a deliberate defense using the Kum River as the base for their defense. I will accept risk by exchanging the benefits of rapid movement over the risk of enemy forces remaining in zone.

The endstate is for the division to be in defensive positions along OBJ BLUE and the enemy armored brigade defeated.

The commander develops his CCIR for the COA focusing on enemy capabilities and friendly requirements identified as vulnerabilities.

- Priority Intelligence Requirements
 - Enemy Armored Forces
 - SPF Teams
 - Enemy Defensive Positions
 - Long-range Artillery
- Friendly Force Information Requirements
 - Rate of Movement
 - Location of 1st CAV DIV
- Essential Elements of Friendly Information
 - Logistics elements

Using each forces' capabilities and requirements to develop CCIR provides a structured approach for the commander and staff to focus the intelligence and reporting assets for the unit.

Using these additions to the MDMP, a staff can recognize and fully utilize the full range of capabilities a unit possesses in a structured, analytical system. As shown in the example, a commander and staff can identify the critical capabilities of the force, the requirements for their use, and use them to develop courses of action that maximize the force's combat power against the enemy. The commander's intent and CCIR become structured products focusing on the needs of the unit to accomplish its mission.

Chapter Five

Conclusions

The Military Decision-Making Process does not develop courses of action that fully utilize the full range of capabilities of forces to generate combat power as outlined in *FM 3-0*. Current doctrine focuses too heavily on the combat power elements of firepower and maneuver while minimizing the effects of leadership, protection and information. This approach fails to take into account unique capabilities that will exist in legacy, interim and objective forces during transformation.

Currently, information exists as an element of combat power only in draft manuals, such as *FM 3-0, Operations*, DRAG edition. Information superiority is a critical requirement for the interim forces. Both the IBCT and the IDIV rely on developing situational understanding through a common operating picture to offset their mobility-based decrease in firepower and maneuver. Failing to understand the critical requirements for employing these units risks at best underutilization and at worst the destruction of the units.

Additions to current planning doctrine are necessary to allow commanders and staff to develop courses of action in light of emerging capabilities. Providing units a methodology to identify, utilize and protect critical capabilities and requirements will allow all forces in the Army, legacy, interim, and objective, to maximize their combat power.

Appendix 1 Relative Force Ratios

Relative Force Ratios⁹³

US			Enemy	
Infantry Bn (M113)	0.71		Infantry Bn (BTR-50 / 60)	0.35
Infantry Bn (M2)	1.00		Infantry Bn (BTR-70 / 80)	0.60
Infantry Bn (Light)	0.48		Infantry Bn (BMP-1 / 2)	0.65
Infantry Bn (Airborne/Air Assault)	0.70		Infantry Bn (BMP-3)	0.77
			Infantry Bn (Light / Air Assault)	0.42
Seperate Brigade (Armored)	5.30		Infantry Bn (Airborne)	0.51
Seperate Brigade (Mech)	4.70		Recon Bn	0.38
Seperate Brigade (Light)	3.10		AT Bn	0.40
			AT Bn (AT Bde / Div)	0.45
Armor Bn (M1A1)	1.19		AT Bn (IMIBn / AT Regt)	0.21
Armor Bn (M1A2)	1.21		Tank Bn (MIB 40xT55)	0.34
			Tank Bn (MIB 40xT62)	0.38
Armored Cav Regiment	7.60		Tank Bn (MIB 40xT64 / T72)	0.58
Armored Cav Squadron	2.20		Tank Bn (MIB 40xT80)	0.77

⁹³ U.S. Army, *Student Text 100-3 Battle Book*, 2000, inside cover available online at www.cgsc.army.mil/ctac/ref/st100-3.htm. This table is based on an analysis of units using the M2 battalion as a base unit. This baseline shows a bias towards armored forces involved in a conventional fight against an equally conventional enemy. It is used in this monograph to portray a historical method of determining relative combat power and as a means to identify the principle combat elements in a unit.

Regimental Aviation Squadron	0.91		Tank Bn (TR 31xT55 / T62)	0.27
Cav Troop (Ground)	.50		Tank Bn (TR 31xT64 / T72)	0.50
			Tank Bn (TR 31xT80)	0.64
105(T) Bn (M102)	0.80		Indep Tank Bn (51xT55)	0.44
105(T) Bn (M119)	0.80		Indep Tank Bn (51xT62)	0.49
155(SP) Bn (M109A5)	1.00		Indep Tank Bn (51xT64 / T72)	0.82
155(SP) Bn (M109A6)(Paladin)	1.20		Indep Tank Bn (51xT80)	1.05
155(T) Bn (M198)	0.80		2A36 Bn	0.86
MLRS Bn	4.60		2A65 Bn	0.84
ATACMS Bn (B2)	7.50		2S1 Bn	0.71
ATACMS Bn (B1)	8.80		2S3 Bn	0.85
			2S4 Bn	0.45
Div Cav Squadron (AASLT, Abn, Lt Div)	0.70		2S5 Bn	0.88
Div Cav Squadron (Heavy Div)	2.00		2S7 Bn	1.02
			2S9 Bn	0.42
Atk Helo Bn (24xOH58D)	2.10		2S19 / 23 Bn	0.90
Atk Helo Bn (24xAH64)	4.00		9A52 Bn	4.50
			BM 21 Bn	2.94
ADA Bn (Avenger)	0.21		BM 21V Bn	0.98
Patriot Bn	0.59		BM 22 Bn	3.50
			BM 24 Bn	1.60

			D20 Bn	0.77
			D30 Bn	0.63
			FROG Bn	0.22
			M46 Bn	0.78
			M240 Bn	0.40
			SCUD Bn	0.80
MARFOR			SCUD-B Bn	0.40
Infantry Bn	0.80		SS-21 Bn	0.60
Tank Co	0.30		Hind- D Bn	1.90
LAV Co	0.20		HOKUM / HAVOK Bn	2.70
AAV Co	0.20		Hind-E Bn	2.05
FA Bn	1.50		SA-4 Bn	0.46
AH-1 Co	1.00		SA-6 / 8 Bn	0.11
MEF (Fwd)	5.60		SA-11 / 12 Bn	0.54
			SA-17 Bn	0.76
			S-60 Bn	0.34

BIBLIOGRAPHY

- Alberts, David S., John J. Garstka, and Frederick P. Stein. *Network Centric Warfare: Developing and Leveraging Information Superiority*. Washington D.C.: Department of Defense, 2000.
- Banner, Gregory T. "Decision Making--A Better Way." *Military Review*, Sep-Oct 1997.
- Bellamy, Chris. *The Future of Land Warfare*. New York: St. Martin's Press, 1987.
- Clausewitz, Carl Von. *On War*. Eds. And trans. Michael Howard and Peter Peret, Princeton: Princeton University Press, 1989.
- Dunnigan, James F. and Albert A. Mofi. *Shooting Blanks: War Making That Doesn't Work*. New York: William Morrow and Company, 1991.
- Franks, Fred Jr. and Tom Clancy. *Into the Storm, A Study in Command*. New York: G. P. Putnam's and Sons, 1997.
- Friedman, Norman. *Desert Victory: The War for Kuwait*. Annapolis: naval Institute Press, 1991.
- Galvin, John R. *Air Assault: The Development of Airmobile Warfare*. New York: Hawthorn Books, 1969.
- Garrett, Stephen F. "Evolving Information-Age Battle Staffs." *Military Review*, March-April 1998.
- Gorman, Paul F. "The Defence of Fomblor's Ford." *Army Magazine*, Volume 50, No 7, July 2000.
- Hellman, Chris. "What's Next for the 'Army After Next'?" *Weekly Defense Monitor*, Volume 3, Issue 35 September 9, 1999 available online at www.cbi.org.
- Klein, Gary. *Sources of Power: How People Make Decisions*. Massachusetts: The MIT Press, 1999.
- Kern, Paul J. "The Future Battlefield." *Army Magazine*, Volume 50, No 7, July 2000.
- Krawchuk, Fred T. "Developing the Capacity for Decisive Action." *Military Review*, November-December 2000.
- Leonhard, Robert R. *The Principles of War for the Information Age*. Novato: Presidio Press, 1998.

- Macgregor, Douglas A. *Breaking the Phalanx: A New Design for Landpower in the 21st Century*. Westport: Praeger Publishers, 1997.
- Maggart, Lon E. and Robert J. Markunas. "Battlefield Dominance Through Smart Technology." *Army Magazine*, Volume 50, No 7, July 2000.
- Owens, Bill. *Lifting the Fog of War*. New York: Farrar, Straus and Giroux, 2000.
- Perrett, Bryan. *Seize and Hold, Master Strokes on the Battlefield*. London: Arms and Armour Press, 1994.
- Strange, Joe. "Capital 'W' War", *Perspectives on Warfighting Series*. Quantico: Marine Corps University Press, 1998.
- _____. "Centers of Gravity and Critical Vulnerabilities: Building on the Clausewitzian Foundation So That We Can All Speak the Same Language", *Perspectives on Warfighting Series*. Quantico: Marine Corps University Press, 1997.
- Summers, Harry G. *On Strategy: A Critical Analysis of the Gulf War*. New York: Dell Publishing, 1992.
- Swain, Richard M. "Lucky War" *Third Army in Desert Storm*. Fort Leavenworth: U.S. Army Command and General Staff College Press, 1995.
- Toffler, Alvin and Heidi Toffler. *War and Anti-War, Survival at the Dawn of the 21st Century*. New York: Little, Brown, and Company, 1993.
- Turabian, Kate L. *A Manual for Writers of Term Papers, Theses, and Dissertations*. 6th ed. Chicago: University of Chicago Press, 1987.
- United States Army. *FM 3-0 Operations*, DRAG Edition. Washington, D.C.: United States Government Printing Office, 2000.
- _____. *FM 25-100 Training The Force, Soldiers, Units & Leaders*. Washington, D.C.: United States Government Printing Office, 1988.
- _____. *FM 71-100 Division Operation*. Washington, D.C.: United States Government Printing Office, 1993.
- _____. *FM 71-100-2 Division Operations Tactics, Technique, and Procedures*. Washington, D.C.: United States Government Printing Office, 1993.
- _____. *FM 71-100 Air Assault Division Operations*. Washington, D.C.: United States Government Printing Office, 1996.
- _____. *FM 90-4 Air Assault Operations*. Washington, D.C.: United States Government Printing Office, 1987.

- _____. *FM 90-26 Airborne Operations*. Washington, D.C.: United States Government Printing Office, 1990.
- _____. *FM 101-5 Staff Organization and Operations*. Washington, D.C.: United States Government Printing Office, 1997.
- _____. *Student Text 100-3 Battle Book*. Fort Leavenworth: Command and General Staff College, 1999.
- _____. *TRADOC PAM 525-5, Force XXI Operations*. Washington, D.C.: United States Government Printing Office, 1994.
- U.S. News & World Report. *Triumph Without Victory, The Unreported History of the Persian Gulf War*. New York: Random House, 1992.
- Wass de Czege, Huba and Antulio J. Echevarria. "Insights for a Power-Projection Army." *Military Review*, May-June 2000.
- Wass de Czege, Huba and Jacob Viever. "Optimizing Future Battle command Technologies." *Military Review*, March-April 1998.