

LEADERS OF CONSEQUENCE

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
Wargame Design

by

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2020

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REPORT DOCUMENTATION PAGE			<i>Form Approved</i> <i>OMB No. 0704-0188</i>		
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1. REPORT DATE (DD-MM-YYYY) 12-06-2020		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) AUG 2019 – JUN 2020	
4. TITLE AND SUBTITLE Leaders of Consequence			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Captain Andrew Lee Sherwood Powell			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Fort Leavenworth, KS 66027-2301			8. PERFORMING ORG REPORT NUMBER		
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)			10. SPONSOR/MONITOR'S ACRONYM(S)		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)		
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for Public Release; Distribution is Unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT <i>Leaders of Consequence</i> is a competitive wargame designed to demonstrate the impact of leader management on tactical execution. Two players lead respective combined arms battalions, managing and developing officers based upon leadership, behaviors, and propensity for war fighting functions. After players have managed their teams, each player deploys their organization in a tactical scenario. How well the player managed their team has complex effects on how the organization performs in the tactical phase. The tactical phase breaks down by war fighting function. Battalion staffs along with battalion to platoon leadership may use the wargame to better understand the impacts and value of managing leaders to improve tactical execution.					
15. SUBJECT TERMS Wargame Design, Leader Development, Tactical Execution					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT (U)	b. ABSTRACT (U)	c. THIS PAGE (U)			19b. PHONE NUMBER (include area code)
			(U)	116	

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

Due to COVID-19 restrictions, original signatures for committee chair and members were unavailable.

ABSTRACT

LEADERS OF CONSEQUENCE, by Andrew L. S. Powell, 116 pages.

Leaders of Consequence is a competitive wargame designed to demonstrate the impact of leader management on tactical execution. Two players lead respective combined arms battalions, managing and developing officers based upon leadership, behaviors, and propensity for war fighting functions. After players have managed their teams, each player deploys their organization in a tactical scenario. How well the player managed their team has complex effects on how the organization performs in the tactical phase. The tactical phase breaks down by war fighting function. Battalion staffs along with battalion to platoon leadership may use the wargame to better understand the impacts and value of managing leaders to improve tactical execution.

ACKNOWLEDGMENTS

I would like to initially thank my committee, Bob Salvatorelli, Todd Guggisberg, and Dr. James Sterrett. Their guidance, mentorship, and patience were crucial to my efforts and success. They enabled my development and improvement throughout the process and always motivated me towards my goals.

My family, friends, and peers supported me throughout the research and design and I greatly appreciate their efforts. Sincerest thanks to Stephen Nelson, David Blanton, Ed Sherwood, Kelly Wallace, Namon Allen, Clayton Greis, Jason Crosby, Drew Watts, and Chris Powell for taking the time to read the drafts of my work and/or provide thorough feedback and conversation. To Kurt Reynolds, Kevin Jagusch, Dominic Wiejak, Dan Sloan, Brandon Smith, and Andrew Clark, thanks for your precious time that you committed to playtesting the wargame. The insights and observations made by these individuals were invaluable to the success of *Leaders of Consequence*.

The guidance, assistance, and patience of key staff and faculty made this thesis possible: Ann Chapman for formatting and administrative efforts that should never be taken for granted, Dr. Prisco Hernandez for his lecture on research methodology, Mike Dunn for his mentorship on wargame design, and Curt Pangracs for formatting and printing of my imagery. I am truly grateful for their time and efforts.

Finally, I owe so much to my family, my wife, Trisha, and my sons, Gabriel, Michael, Aiden, and Bram. I sacrificed significant time amongst them to make this project a reality and their support and appreciation of my endeavors ultimately provided me with the ability to achieve this goal. I am grateful to all my family, friends, peers, and associates for providing their support.

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ACRONYMS

1LT	1st Lieutenant
2LT	2nd Lieutenant
ADA	Air Defense
BN	Battalion
C2	Command and Control
CfF	Call for Fire
CO	Company Commander
COM	Warfighting Function Competency
CPT	Captain
CRT	Combat Resolution Table
CTCP	Combat Trains Command Post
D10	Ten-Sided Die or Dice
DISTRO	Distribution Platoon
FLOT	Forward Line of Troops
FTCP	Field Trains Command Post
IFV	Infantry Fighting Vehicle
IV lines	Inter-visibility lines
LD	Leader Capacity
LoS	Line of Sight
M2	Movement and Maneuver
MAIN	Main Command Post
MAJ	Major
Mnvr/Move	Maneuver/Movement

NTC	National Training Center
PL	Platoon Leader
PLT	Platoon
TAC	Tactical Command Post
UMCP	Unit Maintenance Control Point
Vis/ID	Visibility/Identification
VP	Victory Points
WfF	Warfighting Function
WfFi	Warfighting Function Inclination
XO	Executive Officer

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CHAPTER 1

INTRODUCTION

The strength of our Army is our people; that's our greatest weapons system.

–GEN James C. McConville, quoted in Joe Lacdan

“CSA: Prioritizing Personnel Starts with Equal Opportunity

Leadership determines a unit's success on and off the battlefield. Well-trained leaders achieve results as a team and through effective decision-making skills capitalizing on opportunities, whatever their circumstances. Leaders lacking decision-making skills without an effective team facing a comparable situation often fail. Senior Army leaders have no greater task than to cultivate and develop the decision-making skills of the warfighters who engage our enemies face to face. That is why the Army devotes significant resources (time, Soldiers, funds, facilities, and maneuver space) in Army schools and training areas. The constraints of reality always limit those resources, forcing the Army to seek alternative training methods.

Competitive wargaming can serve as a resource-effective approach to training leadership development. Wargaming can significantly improve decision-making skills with payoff in tactical performance in field training and on the battlefield. How leaders are employed and distributed throughout an organization according to their respective talents and personalities has significant impacts on the performance of a unit. A competitive wargame can effectively represent the effect of leadership management upon tactical performance.

The wargame titled *Leaders of Consequence* described in this paper consists of two opposing players that assume the role of a battalion commander that make decisions

on how to best select, manage, and lead their subordinate leaders to execute a tactical mission. The players must balance the talents and personalities of the officers throughout their battalion staff and maneuver units. The players then execute a tactical scenario that relies heavily upon how well the players positioned and developed their leaders as a team.

This thesis includes five chapters: the introduction, literature review of research, explaining wargaming as a methodology, how the wargame effectively represents them, and the conclusion. Enclosed are the appendices: the parts list, the rules and designer commentary, playing pieces, reference charts, and maps.

Problem Statement

This thesis addresses a gap in wargames that model leader management in a battalion, how a commander directly affects every warfighting function (WfF) in a tactical scenario, and the importance of balancing personalities and competencies of subordinate leaders.

Research Question

This thesis answers: Can a competitive wargame effectively demonstrate the effect of leader management upon tactical performance? This includes the following secondary questions: Secondary Question 1: Is competency by WfF a factor that a competitive wargame can abstractly demonstrate? Secondary Question 2: Is personality a factor that a competitive wargame abstractly demonstrates? What aspects of personality are important to represent? Secondary Question 3: What are the impacts of an individual's competencies and personality within a competitive wargame?

Limitations

The project has several limitations in designing an unclassified wargame that abstractly simulates leaders in tactical warfare within a compressed timeline. The timeline dictated the construction of a functioning wargame within nine months while many wargames can take years of testing and production. Barring the use of any sensitive or classified material, the wargame uses general parameters for combat units such as the max effective range of main battle tanks. Research on personalities and the correlation with leader effectiveness requires further expansion throughout leadership studies.¹

Scope and Delimitations

The project focuses on battalion leadership and tactical execution down to the platoon (PLT) level. The chain of command represented in the wargame includes 12 platoon leaders (PLs), 5 company executive officers (XOs), and 5 company commanders (COs) while the staff consists of the S1, S2, S3, S4, S6, fire support cell, protection cell and their associated assistants (junior officers). The players do not account for administrative actions, and the influence of higher echelons is minimal to supplied assets and the simple mission order provided in the game.

The wargame streamlines the establishment of leaders throughout the battalion and further explains in chapter 4. The wargame does not account for manning cycles and the rotation of arriving officers, nor does it account for experiential learning and

¹ Daan van Knippenberg, “The Social Psychology of Personality and Leadership: A Person-in-Situation Perspective,” *The Oxford Handbook of Personality and Social Psychology*, ed. Kay Deaux and Mark Snyder (New York, NY: Oxford University Press, 2019), 778-781.

development for more senior or follow on positions. The wargame simplifies the representation of each leader and the wargame does not elaborate on the full scope of the five-factor model of personality.² The wargame does not include the noncommissioned officers within the leadership structure.

Combat does not account for technical/maintenance issues with platforms, weather, or time of day. The tactical execution does not include the realistic time factors of resupply, casualty evacuation, and technical preparation of the platforms. The wargame significantly reduces the process and systems for fire support. The project represents air defense artillery and aviation in a similarly abstract fashion. Electronic warfare is not a factor in this project.

Significance of Study

This wargame can teach how crucial leader management is in an organization and underscores leader development in the US Army. Executing the wargame, players develop a better understanding of how to manage leaders within an organization and the consequential impacts on tactical performance. In competition, players can see notable differences between adversarial, but similar forces simply due to differences in where and how leaders are employed. The project presents dilemmas as discussed later in chapter four where the player must choose how to employ even poorly presented leaders or suffer worse without them. The wargame model teaches a concept that saves considerable time and resources in comparison to what experiential learning might cost in the moment of actual tactical execution.

² van Knippenberg, 781.

Summary

The introduction provides the problem statement, the purpose for conducting research, and the parameters and scope of the project. The next chapter covers the literature used for research and wargames played and sampled. The third chapter describes wargaming as a methodology.

CHAPTER 2

LITERATURE REVIEW

Introduction

The research required for this project was two-fold in its requirements: to support wargaming as a methodology and to demonstrate the mechanisms within the wargame. This chapter describes the literature reviewed, divided into three parts covering doctrine, leadership material, wargaming, and wargames played.

Doctrine

The key Army Doctrine used in this project comes from ADP 6-0 on Mission Command and 6-22 on Army Leadership and the Profession. The Army doctrine on leadership establishes the framework on a human aspect captured within the wargame. The wargame uses terms and graphics nested within Army Doctrine. ADP 3-0, ADP 5-0, and ADP 3-90 were also significant documents used within the framework and concepts of the wargame.

Leadership Literature

I found applicable research on leadership in several sources. The dissertation by Dr. Boylan was a current and relevant piece on leadership development in the US Army. Boylan's dissertation underscored the need for further research and education in organizational leadership.³ His qualitative research methodology included case studies

³ Steven A. Boylan, *An Exploratory Case Study: U.S. Army's Leadership Development for Organizational Leaders* (Ann Arbor, MI: ProQuest LLC, 2017), 149.

that demonstrated why experience was a necessary component to include in the wargame. To make the wargame more comprehensive regarding aspects that contribute to leadership, research focused on personalities, traits, and behaviors and resilience. *The Oxford Handbook of Personality and Social Psychology* supplied material that supported the wargame mechanic behind incorporating personality. The material ruled out traits as a mechanic entirely and demonstrated how behaviors were more enduring measures not likely captured in the period represented.⁴ *Resilient Organizations*, while more economic in nature, still helped provide a quantifiable approach towards measuring resilience in leadership.⁵

Wargaming Literature and Rules

A foundation on wargaming was necessary research to support the framework and methodology. *A Theory of Fun* provided the basis of wargaming and how it works while *Simulating War* went further into theory and concepts.⁶ *The Art of Wargaming* and *On Wargaming* supplemented the application while providing an extensive history on why and how wargaming has been of significant use.⁷

⁴ van Knippenberg. 779-780.

⁵ Guia B. Pirotti and Markus Venzin, *Resilient Organizations: Responsible Leadership in Times of Uncertainty* (New York, NY: Cambridge University Press, 2017).

⁶ Raph Koster, *A Theory of Fun* (Sebastopol, CA: O'Reilly Media, 2013).

⁷ Peter Perla, *The Art of Wargaming*, ed. John Curry (Annapolis, MD: The United States Naval Institute, 2011); Matthew B. Caffrey, *On Wargaming: How Wargames Have Shaped History and How They May Shape the Future* (Newport, RI: Naval War College Press, 2019).

Throughout this project, the researcher participated in several wargames that contributed to the development and refinement of this methodology. *Baptism by Fire*, *Assault*, and *Kriegspiel* were the three largest contributors given they shared similar scope and organizational structure to this project.⁸ Other games that shared leadership models that gave significant insight were *Strike of the Eagle*, *Star Wars: Rebellion*, and *The Last 100 Yards*.⁹ Several other games were tested during research to validate mechanics and approaches.

Summary

This chapter reviewed the key Army Doctrine, literature, and wargames reviewed in research. The above-mentioned research proved the basis from which the designer derived the mechanics of the wargame. The following chapter covers wargaming as a methodology.

⁸ Dean Essig, *Baptism by Fire* (Millersville, MD: Multi-Man Publishing, Inc., 2017); Frank A. Chadwick, *Assault, Tactical Combat in Europe: 1985* (Bloomington, IL: Game Designer's Workshop, 1983); Georg Leopold von Reiszitz and Georg Heinrich Rudolf von Reiszitz, *Kriegsspiel*, trans. William E. Leeson (London: Two Fat Lardies, 1983).

⁹ Brian Bennett, Eickert Uwe, and Zak Robert, *Strike of the Eagle* (Fremont, OH: Academy Games, Inc., 2011); Corey Konieczka, *Star Wars: Rebellion* (Roseville, MN: Fantasy Flight Publishing, Inc., 2017); Mike Denson, *The Last 100 Yards* (Hanford, CA: GMT Games, LLC, 2019).

CHAPTER 3

WARGAMING AS A METHODOLOGY

Introduction

Wargaming serves an essential function for military organizations. Wargames simulate processes and consequences based upon a player's choices with varying degrees of reality and abstraction. This chapter explains the importance of and why the researcher chose wargaming as the methodology. The chapter further describes the history and relevance of wargaming.

Importance of Wargaming

A wargame is a tool that simulates a dynamic decision-making cycle. A wargame's most important function is how it teaches understanding and explores dynamics and decisions based on realistic factors.¹⁰ A wargame simulates a range of activities and events that significantly contribute to the training and planning efforts of military professionals. With an established wargame model in each scenario, a military planner or team can execute a simulation with minimal expense and significantly reduced time, often the most precious resource, to support benefits of one decision over another. Repeated iterations of a given wargame condition players for future execution. Therefore, a wargame is the methodology, through realistic parameters and mechanics can teach players the important consequences and dynamics regarding how leader management directly correlates with tactical performance. The time and personnel intensive process of

¹⁰ Philip Sabin, *Simulating War* (London: Bloomsbury Publishing, 2012), 85.

leader management is not feasible in live training, but the constructive format allows junior and senior leaders to execute multiple iterations and a more comprehensive understanding.¹¹ While wargaming is one of many training tools available, history comprehensively demonstrates the effectiveness of wargames.

History of Wargaming

Games have existed along with the rise of human society. The development of wargames has similarly risen alongside warfare. From chess to *Koenigspiel* in 1664 to *Kriegspiel* in the 1800s, the wargames progressed from the abstract games of princes to the extremely detailed exercises within the first command and general staff college.¹² The support of *Kriegspiel* within the Prussian command and general staff college is at the very root of the wargaming process tied within the US Army's current MDMP system. Wargaming in America did not take greater prominence until closer to the end of World War II where it also became a tool for operations research. Wargaming provided an alternate approach to research beyond quantitative or qualitative methodologies used at the time.¹³ Researchers found that by incorporating available data into parameters and mechanics, they could test theoretical approaches and demonstrate probable outcomes and effects capable of translating to real execution. The history of wargaming demonstrates its relevance as a methodology for the research questions of today.

¹¹ Headquarters, Department of the Army (HQDA), Field Manual (FM) 7-0: *Train to Win in a Complex World* (Washington, DC: Government Publishing Office, 2016), 1-11.

¹² Perla, 74, 95.

¹³ *Ibid.*, 292.

Relevance of Wargaming

Wargaming as a methodology and in execution is relevant because it reflects reality. Within the paradigm of the reality reflected in each wargame, the decisions made train and condition the player for real-life situations based on calculating odds to achieve a desired outcome. This competitive teaching tool conditions the player to assess the environment and aspire to adapt mechanics towards achieving successful outcomes.¹⁴ As a constructive training model, (potential) commanders and leaders both junior and senior can execute a wargame in a matter of hours that abstractly covers what a live training event may have taken weeks to accomplish on a broader organizational scale. While establishing a working and complex wargaming model might take considerable time to establish, the benefits of lessons learned, and resources preserved lends serious weight to the continued use of wargames in planning and research.

Summary

This chapter explored wargaming as a methodology, explaining the importance of wargaming, its context in history, and relevance. The next chapter explains key aspects and how the wargame effectively represents them, followed by the conclusion.

¹⁴ Koster, 86.

CHAPTER 4

REALITY AND THE WARGAME

Introduction

This chapter consists of six parts that explain how the wargame models leader management and tactical execution from reality. The **six** sections are: victory conditions, gameplay and basic infrastructure, leader management, the tactical scenario, combat, and tactical execution. Each section describes the associated reality and how the designer implemented the related abstractions modeled within the wargame. The wargame strives to emulate reality accurately while emphasizing the specific objective of the wargame, demonstrating the impact of leader management on tactical execution. The designer must effectively balance the player's interest and the wargame's playability and accuracy to enable a valid learning experience.¹⁵ The designer separated the wargame into two phases to enable the engagement with two major aspects, leader management and tactical execution. The two phases allowed the designer to better demonstrate the direct effect by establishing the leader management of the organization in phase one and then conducting the tactical scenario in phase two. The separation allows players to experience the obvious impact from one phase to another. Within a competitive context and to enable the instructional objectives, the victory conditions are vital to the instructional method and the first part elaborated upon.

¹⁵ Perla, 8.

Victory Conditions

Every organization in the Army has a mission and objectives that build towards accomplishing that mission. Leaders have the responsibility to balance developing subordinate leaders in the short term to foster success in the immediate mission set as well as preparing subordinates over the long term and into the future. The wargame's victory conditions focus more on the short-term mission accomplishment, underscoring the Army competencies of achieves and gets results that serve as culminating factors in the outcomes related to the mission.¹⁶ The organization's mission in tactical execution is a movement to contact that results in a meeting engagement for both players. The players score points for how many enemy units they destroy and how many friendly units cross their respective target phase lines. In a movement to contact operation, the objective is to develop the situation and establish or regain contact with the enemy.¹⁷ The players, notionally commanders of heavy, combined arms battalions, must determine in execution if they are enemy or terrain focused and what tactical approach ultimately nets the most victory points. While each player has an identical force, further explained later in this chapter, the effort and understanding put into the organizational synergy, considerations of how individual leaders apply and impact the organization as a whole, and the value of leader management where an organization needs it all make the most significant

¹⁶ Headquarters, Department of the Army (HQDA), Field Manual (FM) 6-22: *Leader Development* (Washington, DC: Government Publishing Office, June 2015), 1-3.

¹⁷ Headquarters, Department of the Army (HQDA), Army Doctrine Reference Publication (ADRP) 3-90: *Offense and Defense* (Washington, DC: Government Publishing Office, July 2019), 3-3.

difference in tactical performance. To accomplish these objectives, it is equally vital that players understand the basic gameplay and infrastructure of the wargame.

Gameplay and Wargame Infrastructure

The wargame uses a ten-sided die (d10) as the foundation upon which values and the results of actions are determined by players. Rolling lower is always best in all cases where the 0 on the d10 indicates a value of 10. Utilizing d10s meant margins of success were adjustable by tenths. A six-sided die (d6) would have meant less variation amongst the values whereas the design of the game needed to allow for a wide range of leaders to affect the values while still leaving room for failure. The range provided by the d10 allows players to focus in certain areas over others and allows players to make determinations in readily recognized odds. A player unfamiliar with other wargame models can readily determine that rolling a six or lower on a d10 equates to 60% of success versus the exact percentage of rolling a value of five or lower on a d6. The designer aimed to develop the capacity for players, especially through multiple iterations, to grasp and remember the Combat system later explained below to enable faster assessments and planning in gameplay.¹⁸ Players assign leader tokens to build teams with compiled values. Players always roll below or equal to the values to execute specific actions. Values once compiled may exceed 10 which results in an automatic success. Further described in the section on tactical execution, this facilitates the tempo of the wargame as well as reinforces other mechanics that emphasize instructional objectives. A value of zero means a player cannot execute the action with a dice roll.

¹⁸ Koster, 171.

Leader Management

This section covers the terminology of leader management, how individual leaders are represented within the wargame and how their abstract values relate to reality, how leader management in a battalion and the corresponding layout, and how players execute the first phase of the wargame. It is first important to distinguish the leader management from leader development.

Leader management as a term is precise and different from the more commonly used term leader development. Leader management in this case focuses on assessing an individual's competencies, capacity for leadership, and their behavior in tactical execution and applying that individual appropriately within the organization to facilitate execution. In contrast, Leader development is a more comprehensive and overarching process within the Army of which leader management is an aspect.¹⁹ Leader development is vital to the Army Profession and developing the culture and methodology of how leaders lead. The wargame does not focus on the exact process of how leaders lead within the organization, but more on how a leader balances teams of leaders and their capabilities. In equal regards, managing the individual leaders and their positions across an organization is just as crucial. Leaders assess their subordinates identifying strengths and weaknesses and determine where subordinates can best serve the organization's needs to accomplish the mission. Assessing strengths and weaknesses and understanding where subordinates best serve in relation to the mission takes experience and

¹⁹ HQDA, FM 6-22, 1-1.

understanding.²⁰ The wargame model provides an instructional method to train and facilitate that experience and understanding. In that regard, it is important to demonstrate how the wargame provides leaders with representative strengths and weaknesses.

Leader Tokens

To appropriately assess subordinates (and peers/superiors in some cases), leaders must be able to identify the strengths and weaknesses and compare them across the organization, prioritizing the needs of the organization and the mission at hand with the personnel available at that time. The wargame provides abstract assessments for each leader in four areas: leader behavior, leadership capability (LD), WfF inclination (WfFi), and WfF competency (COM), represented in the leader token Figure 1 below. The (+/=/-) indicates the leader behavior. LD indicates the numerical value associated with leadership capability. WfFi is one of the six functions. COM represents a numerical value associated with WfF competency. This paper discussed the last value, the cost, later in this section during team building. The token by itself provides an abstract assessment of a leader to help the player better compare amongst the field of leaders available during leader development. Leader behavior appears initially as a significant generalization.

²⁰ Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 6-22: *Leader Development* (Washington, DC: Government Publishing Office, July 2019), 1-9.

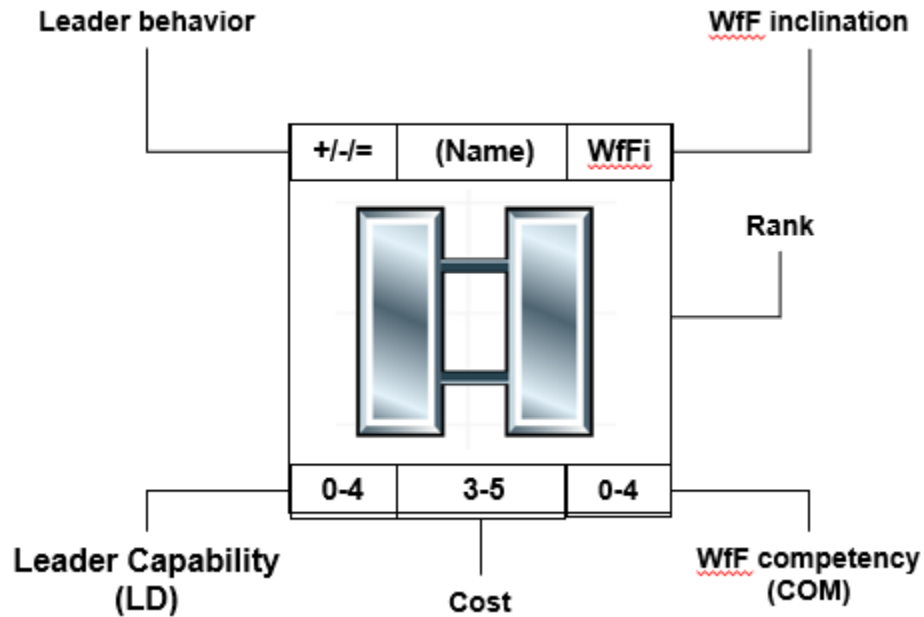


Figure 1. Leader Token

Source: Created by author.

Leader Behavior

The leader behavior displays on the token as either (+), (=), or (-). These symbols may seem intuitive in nature, but the reality is far more complex. The perspective on leadership utilized is person-in-situation which focuses on trait activation and appropriate behaviors established prior to a given event that result in degrees of effectiveness.²¹ A leader acquires or develops the traits in regards to a situation that along with a cultivated personality leads to leader behaviors over time. When these behaviors meet with recurring situations that match similar situational conditions under which the personalities and relevant traits apply, resulting in leader effectiveness. Figure 2 provides

²¹ van Knippenberg, 785-787.

a graphical model of this process for the person-in-situation perspective. The wargame's tokens provide assessments of each leader's behavior, after personalities and trait relevance developed through situational strengths. The (+) symbol indicates that the appropriate behaviors are present and result in effective leaders in the given circumstances of tactical execution. The (=) symbol indicates the leader has behaviors that sustain performance. The (-) symbol indicates that the leader has behaviors that diminish effectiveness in a tactical scenario. This diminishing factor does not necessarily indicate counterproductive or ineffective leadership but may also indicate a lack of experience or development in which the leader cannot perform effectively, also a wider issue at large for the Army.²² To demonstrate how leader behavior impacts the wargame, a token's behavior characteristic affects the individual and the select team the leader is assigned to.

²² Boylan, 143-144.

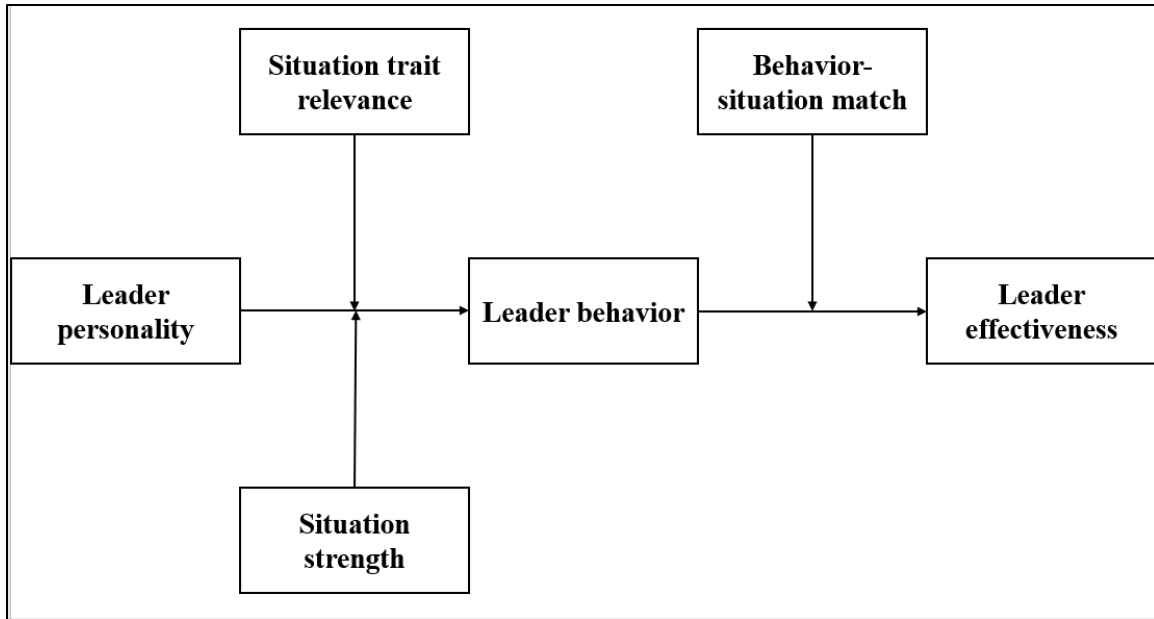


Figure 2. A Trait Activation Model of Leadership Effectiveness

Source: Daan van Knippenberg, “The Social Psychology of Personality and Leadership: A Person-in-Situation Perspective,” *The Oxford Handbook of Personality and Social Psychology*, ed. Kay Deaux and Mark Snyder (New York, NY: Oxford University Press, 2019), 787.

Leader effectiveness means the impact, good or bad that the given leader has from their position on their team as well as themselves. In the wargame, a leader with a positive behavior increases their LD and COM by a value of 1. Furthermore, a positive behavior also means that all their subordinate leaders increase their LD and COM by a value of one to abstractly represent the benefit of their leader effectiveness on their team. An equal sign indicates no change in the wargame, representing that the leader sustains current parameters individually and throughout their team. A negative behavior subtracts from themselves and their subordinates. These different behaviors create a system of stacking effects amongst teams that the player must account for when balancing the assignment of leader tokens and the result of each team’s compiled values. For example,

LD is the critical value regarding the maneuver team sheet. Placing a captain (CPT) with a negative behavior trait in the company commander position means that the entire company suffers a loss to LD and COM. In contrast, assigning a CPT with a positive behavior trait as the lead assistant operations officer (AS3) in the main command post (MAIN) would increase the LD and COM of the four lieutenants subordinate to him each by one. This mechanic demonstrates the importance associated with leaders balancing their subordinates across teams given their individual development and behaviors and the impacts it has across the organization. This mechanic is a crucial element that adds another level of complexity and reality to the team building phase. Another key element in team building is assessing an individual's leadership capability or LD.

Leader Capability (LD)

The LD stat as indicated in Figure 1, is an abstract representation and assessment of an individual's leadership in a tactical scenario. This trait focuses within the person-in-situation perspective, more specifically in this case, tactical execution. The value represents the individual's capability to influence the team and provide motivation towards accomplishing the mission.²³ The abstract value does not demonstrate the exact manner in which leadership is executed, simply an assessment of how effective a given individual is. Furthermore, each rank has a maximum starting value, such as CPTs do not go above three or 1LTs that do not go above two, to represent the accumulated experiences and development they have received. The increase of the value relative to

²³ Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 6-0: *Mission Command. Command and Control of Army Forces* (Washington, DC: Government Publishing Office, July 2019), 1-3.

rank is associated with the concept that a more effective leader has the experience of both leader and follower and over time has integrated that experience into more effective leadership.²⁴ The representation of experience and competency in this regard is a key assessment for any leader, an aspect the wargame emphasizes for instructional purposes. A 1LT leader token with a WfF inclination (WfFi) towards Sustainment, with a low COM, but a high LD, represents a leader that might best suit the organization in a maneuver position as a company XO or PL. At a glance, this might insinuate that a CPT with a value of four is only able to utilize his leadership to effectively maneuver his company 40% of the time, but the game approaches the assessment from the organizational level and the lower numbers per individual demonstrate a need for enablers through command and control elements as well as the stacking effect of team work. This paper describes the mechanics of LD in further detail in this chapter on the section of tactical execution. WfFi is the next trait on the leader token.

Warfighting Function Inclination (WfFi) and Competency (COM)

Located in the upper right of the leader token, an abbreviation of one of the six WfF represents the individual's inclination. An inclination in this case is an abstract assessment of the individual's experiences, traits, and motivations towards a given WfF. The inclination can also, but is not limited to, represent the individual's background or MOS in the organization. This allows the player to determine where in the organization's staff that the officer might best be suited. The Staff Team Sheet organizes by WfF.

²⁴ Senvo Adjibolosoo, *The Human Factor Approach to Managerial and Organizational Efficiency and Effectiveness* (Cham, Switzerland: Springer Nature, 2018), 107.

Placing a leader token with a corresponding WfFi in a matching WfF staff shop demonstrates maximizing the utilization of subordinates and team members available. A leader token assigned to a non-matching WfF only provides half of their COM to the WfF total. This effect represents a team member out of their respective element, on a team where they have mismatched experiences and training. In game, assigning a leader token to a mismatched staff section results in halving the individual's COM stat. The leader token conveys the COM in the bottom right of the leader token. The COM is another abstract assessment related to the individual's competency working as part of a team on the staff. The wargame establishes these values within the group in similar fashion to LD, scaling maximum thresholds according to rank, reflecting the accumulated experience and growth of a leader over time. All four stats provide a snapshot of pertinent leader data and assessments gathered over time up to the point where the player as the battalion commander is building or reviewing their organization. While the data presented is abstract, the wargame emphasizes a focus on leaders down to the lieutenant level.

Team Sheets

Given the instructional objectives, providing a learning environment for organizational leaders, staffs, and subordinate leaders at the company grade, the wargame demonstrates the impacts of managing leaders from the rank of MAJ to 2LT. The positions available to each player and the organization separate between the maneuver leadership in the combined arms battalion and the battalion staff. LD is the primary stat referenced for the maneuver leadership and the WfF and COM are more relevant to the staff team sheet. Each position is rank specific, such as a company commander position

in which only a CPT fills. It is necessary to focus down to the 2LT level in the wargame to achieve an instructional point. Organizations within the US Army can struggle to prioritize development for officers from the organizational to the company grade levels at times.²⁵ The 2LT leader tokens seem inconsequential at a first glance, given that their stats range from zero to one, and yet the 2LTs fill 17 of 42 positions available. Upon further assessment of the positions available and the leaders in place, the assignments given to 2LT leader tokens can make significant gains for a player's organization. Otherwise, a player that fails to take advantage of the officers available suffers the consequences in the ensuing tactical exercise. It is important to understand the layout of the two team sheets and how they relate to an actual combined arms battalion.

²⁵ Boylan, 148, 150.

Maneuver Team Sheet

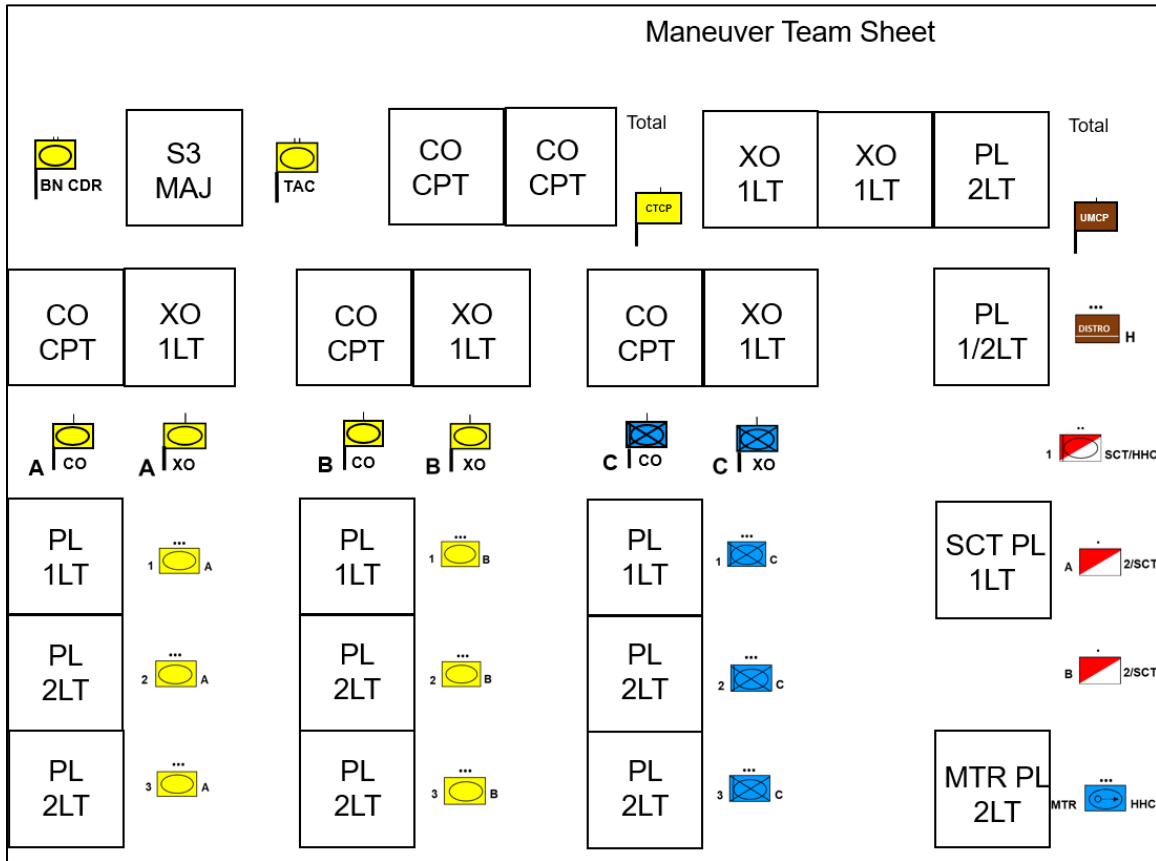


Figure 3. Maneuver Team Sheet

Source: Created by author.

As stated previously, the organization of each player splits between two sheets, the maneuver team sheet, and the staff team sheet. The maneuver team sheet has the tactical command post (TAC) the combat trains command post (CTCP)/ field trains command post (FTCP), simply referred to as the CTCP from here, and the unit maintenance control point (UMCP). The maneuver team sheet then contains all leader positions for maneuver elements; see Figure 3. The task organization of the maneuver

elements reflect a modern combined arms Armor battalion with two tank companies and one mechanized infantry company. Given the parameters of the tactical scenario's meeting engagement and the pace of the tactical exercise, the wargame restricts the available dismounted squads to the scout PLT. This paper discusses implementation of dismounted squads with mechanized infantry PLTs further in chapter five. The maneuver team sheet consolidates each company element together with subordinates attached left to right and/or top down. For example, Alpha company is the left most company as indicated by its unit symbols in Figure 3. The XO to the left and the three PLs respectively beneath the CO are subordinate to the CPT assigned to that position. Meaning that the CO's leader behavior, whether positive, equal, or negative, affects those four subordinate leaders. The Staff Team Sheet is similar in design but arranged by staff section and Wff.

Staff Team Sheet

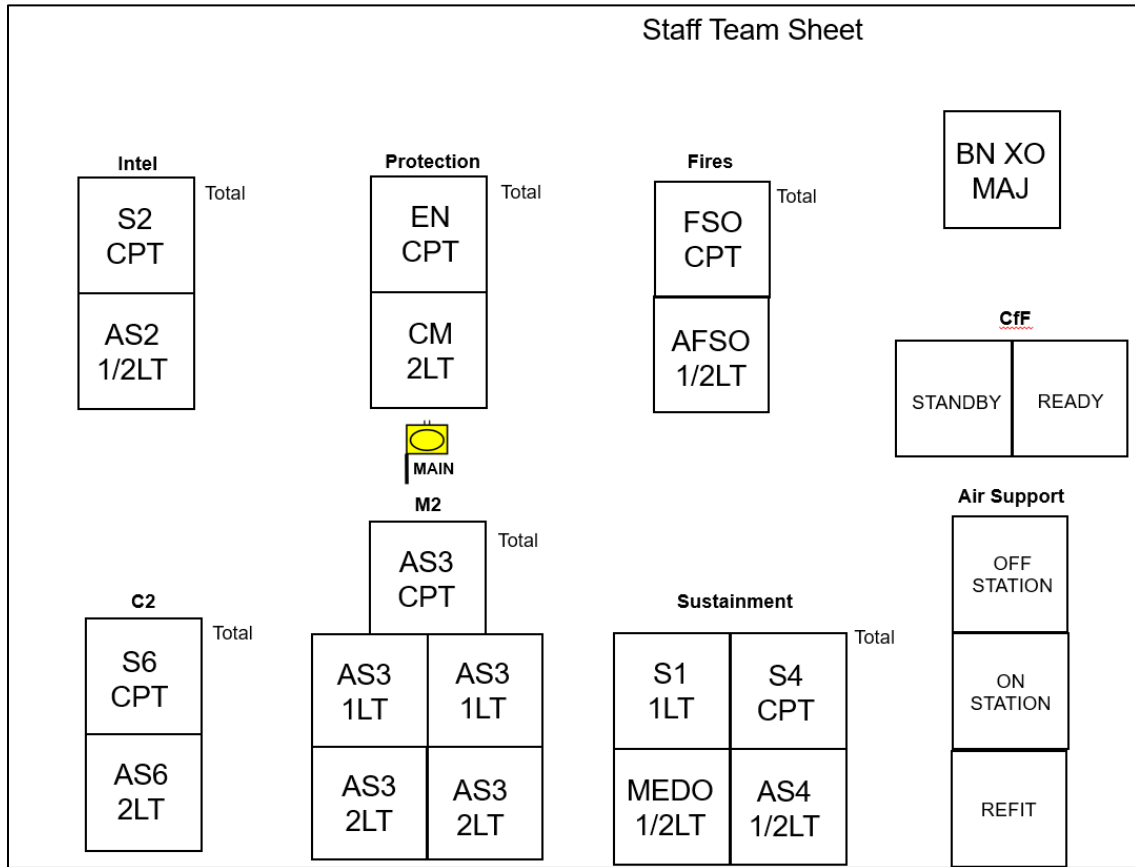


Figure 4. Staff Team Sheet

Source: Created by author.

The staff team sheet contains the MAIN and the staff sections under each WfF. Figure 4 demonstrates the layout of the staff team sheet. The officers that primarily represent or contribute significantly to each WfF fall beneath the appropriate section. WfFs are groupings of systems and tasks utilized by commanders and organizations to

accomplish their objectives.²⁶ In reality, most positions such as the battalion engineer have responsibilities and influence that span multiple WfFs. The wargame consolidates each officer into a given WfF to emphasize their individual impact. Organizations may position officers from staff sections in various locations, such as collocating the S1 and S4 with the headquarters commander at the CTCP. The staff section sheet does not indicate exactly where each officer is located during tactical execution. The sheet arranges each WfF in the order which the battle rounds occur during tactical execution. The total beside each WfF indicates the sum of the values of each team member after the players account for leader behaviors and development. The staff team sheet has the battalion XO to the side without focusing any specific WfF over another. The COM value of the battalion XO contributes to the section that matches the XO's WfFi. On the right side of the staff sheet and beneath the battalion XO are the call for fire (CfF) and air support trackers. These trackers relate to the adjacent Fires team and this paper explains their use further in the tactical execution phase. Understanding the layout of the sheets is critical to the team building process.

Building the Team

How a player builds the team and understands the synergistic impacts each position has on the performance of the organization is the core of leader management. The wargame provides two manners to build the team in phase one, both of which apply to real world scenarios in military organizations. The first method of team building in the

²⁶ Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 3-0: *Operations* (Washington, DC: Government Publishing Office, July 2019), 5-2.

wargame is in-depth team building. The players alternate drawing six officers at a time, one from each WfF until players fill all assignments on the both team sheets by their annotated ranks. The in-depth method reflects building a team over time, like the ideal timeline where a battalion commander assumes command when a unit resets sometime after deployment in a combined arms unit. The organization has approximately one year to develop, assessing leaders and adjusting the team based on strengths and weaknesses. The stacks of leader tokens have proportionate amounts of high, moderate, and poor performing officers of each rank. Once the player places leader tokens in an assignment, they lock in place. The player balances strengths and weaknesses based on the developing team and information in an abstract amount of time that represents months of previous training, incoming and outgoing personnel, leading up to the tactical execution. This mechanic emulates how an organization receives personnel by rank and skill set and then allows plays to prioritize WfFs and maneuver units accordingly. Drawing leader tokens from a pool by WfF randomly generates teams and can generate more variation throughout multiple iterations rather than players facing the same repeated problem set. In contrast, the second method of team building is much quicker in game play, yet still resembles a very real-world scenario for an organization.

layout of personnel with minor problem sets for the player to identify. This represents an ideal situation that a commander might step into. The moderate ready-made team sheets have fewer officers with better values and the number of (=) and (-) leader behaviors increase. Moderate team sheets demonstrate an organization that has sustaining capability and effectiveness but does not change or improve without leader engagement. A challenging team sheet has lower values for all leader tokens, mismatched WfFis, and significantly higher numbers of (-) leader behaviors. The challenging team sheets represent poorly managed organizations in drastic need of leader engagement. Failure to appropriately prioritize the leader engagement means the challenged organizations suffer significantly in tactical execution. Before this paper explains how to apply leader engagement as a mechanic in this phase, the next step in team building is meant to induce friction for the player's organization.

Once the players have either used quick or in-depth team building, the next step in team building is inherently adversarial. Each player goes to their opponent's team sheets and switches any two lieutenants, regardless of 1LT or 2LT. In quick team building, players cannot adjust or change the leader tokens printed on the sheet. In this case, players must annotate the swapped values on the leader tokens indicated by the opponent. This mechanic abstractly reflects that regardless of the planning and investment in a team, events occur that have negative effects and when leaders least expect them. The players must react on a smaller scale with adaptability and versatility, acknowledging the strengths and weaknesses built into their team and how they mitigate the impacts of the

leader swap.²⁷ With this last step, the team is set heading into tactical execution but the player has the opportunity to influence the organization before making the final assessment.

Developing

Before calculating the summed values for each WfF and determining the comprehensive LD within each maneuver unit, the players apply experience points to leader tokens. Each player has 12 experience points. Each leader token has a cost value identified at the bottom center. The cost value is determined by rank, scaling up from 2LT to MAJ. A 2LT token's cost ranges from 1 to 2 whereas a MAJ token's cost ranges from 3 to 5. The cost demonstrates in reality the proportional amount of effort required to develop an individual. Leader behaviors impact cost and already factor into each token. A (+) leader behavior reduces the cost by one while a (-) leader behavior increases the cost by one. This factor to cost emphasizes the effectiveness of the (+) leader behaviors and demonstrates the challenges that can be associated with (-) leader behaviors.²⁸ To improve an attribute, the player must pay the identified cost. A player can only improve each leader token twice, and no one value more than once. This mechanic reflects organizational leaders developing the leaders in their teams. Whether through indirect (more so at the organizational level) or direct means, leaders must develop their subordinates to foster learning and change.²⁹ The abstraction of the mechanic in the

²⁷ HQDA, ADP 6-22, 8-3.

²⁸ Adjibolosoo, 107.

²⁹ HQDA, ADP 6-22, 9-3.

wargame does not demonstrate how a leader induces development and improvement. Instead, a player assesses their team as is, applies the appropriate experience and development and immediately improves specified leader tokens. This step is crucial to the instructional objectives of the wargames as each player has the capacity to significantly increase their organization's overall effectiveness with their allotted experience.

A player must understand the current values and assessments of his teams before applying any experience. Depending on the arrangement of the team, the player must identify the strengths and weaknesses of his organization and determine what needs to improve and develop the most. The player executes judgment, perhaps determining to improve a team with a diminished value because the leader has a (-) leader behavior, while understanding that in most cases, improving the leader token with a higher ranking costs more experience points overall. In other cases, it may suit the player better to develop junior leaders with lower costs. The distribution of experience and development across the organization is an effort towards achieving better organizational effectiveness economically. Leaders must prioritize their development efforts, targeting what is worthwhile to change and has a greater, enduring impact on the organization. This also accounts for the players experience and understanding of what occurs in the following tactical phase, much like an organizational leader's experience developed over time enables them to understand the impacts that improved, junior leaders can have into the future.³⁰ Once players have distributed their allotted experience points, each player

³⁰ Boylan, 124, 135.

determines the total sum for each WfF and the impacts of the chains of command for maneuver units.

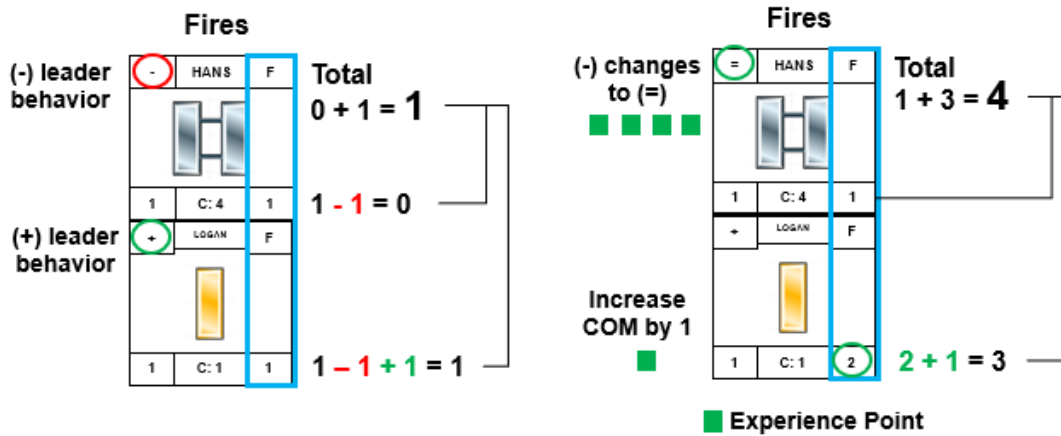


Figure 6. Example Assessment of WfFi Values, before and after Development

Source: Created by author.

Determining the set values finalizes the leader management phase. The players add the values in each WfF and the impacts on maneuver elements. As an example, using Figure 6, a player determines that the fires cell's combined value is one. The CPT has a (-) leader behavior which reduces all the values by one. The CPT's initial COM is one, reduced to zero. The 2LT subordinate to the CPT has a (+) leader behavior and a COM of one. The 2LT's leader behavior increases the individual COM by one to two. Then the team leader's (-) leader behavior stacks and reduces the subordinate's COM back to one. The CPT provides zero value while the 2LT provides one after determining all effects for a total Fires WfF value of one. The values of each WfF determine a threshold of success in the following tactical phase. The fires cell has an average 10% of achieving success at

this point. Prior to determining the final value, the player may decide that Fires is a priority in the organization's mission and invested development, using four points to improve the CPT's leader behavior in Figure 6. This removes the effect of the (-) leader behavior, returning both leader and subordinate COM values to normal, increasing the sum by two. Also investing one experience point in the 2LT's COM adds an additional point, bringing the sum from originally one to four, a 40% threshold of success. This example demonstrates the complexities that the player must consider across the team sheets to plan and adapt an effective team heading into the second phase of the game. The player's considerations in this case emulate those an organizational leader also faces today.

The conclusion of the leader management phase reflects a similar point that leaders find themselves heading into a mission or exercise. Organizational leaders assess the capabilities, strengths, and weaknesses of team members, determining how those individuals serve the organization comprehensively. Furthermore, the commander must understand how the organization compliments and enables the individual to achieve success as well. The organizational leader should balance mission requirements in the short term versus long term development, stewarding the profession by achieving success and victory while making enduring improvements. Key to achieving this is understanding the importance of the second and third order effects of how everyone impacts the organization and how they set the conditions for the desired outcome. One counterproductive leader can debilitate an entire team or warfighting function.³¹ In many

³¹ HQDA, ADP 6-22, 8-7.

circumstances, organizational leaders cannot easily remove a counterproductive leader and must then mitigate the negative effects while still prioritizing the needs of the organization. The leader understands the environment within their own organization, assesses the team, visualizing an end state and enables subordinates to share that understanding and accomplish the objectives. With the conclusion of the first phase, the players understand the respective team's staff and leadership capabilities.

This section described the first phase of leader management and how the designer modeled each mechanic in relation to actual leader management within a combined arms battalion. The section covered the leader tokens and associated attributes, the team sheets, the two team building methods available to the wargame, using experience points, and the nuances and synergy of team building to establish the final values. The following section covers the tactical scenario of the wargame.

The Tactical Scenario

This section covers the wargame's tactical scenario and how it models reality. This section describes the operational environment and explains the map, terrain features and effects, and their relation to reality. The section then conveys how time transpires through each round and why the designer selected that period. Lastly, the designer lays out the forces available to each player and their tactical attributes represented within the wargame and how they also relate to reality. The wargame's general setting provides a general starting point for understanding the operational environment of the wargame.

Operational Environment

The wargame is set in the late 2010s, in a conventional conflict between two similarly matched forces, in a desert/mountainous region with minimal civilian presence. The scenario is a meeting engagement between two heavy, combined arms battalions with minimal external support from brigade and higher. The designer meant for the scenario and tactical mechanics to be relevant enough for use by an actual combined arms staff for wargaming and instructional purposes. To accomplish this objective, the wargame incorporates a complex tactical scenario between PLT sized elements of a battalion. The operational environment establishes the tactical backdrop for the scenario in a familiar location for most combined arms battalions.

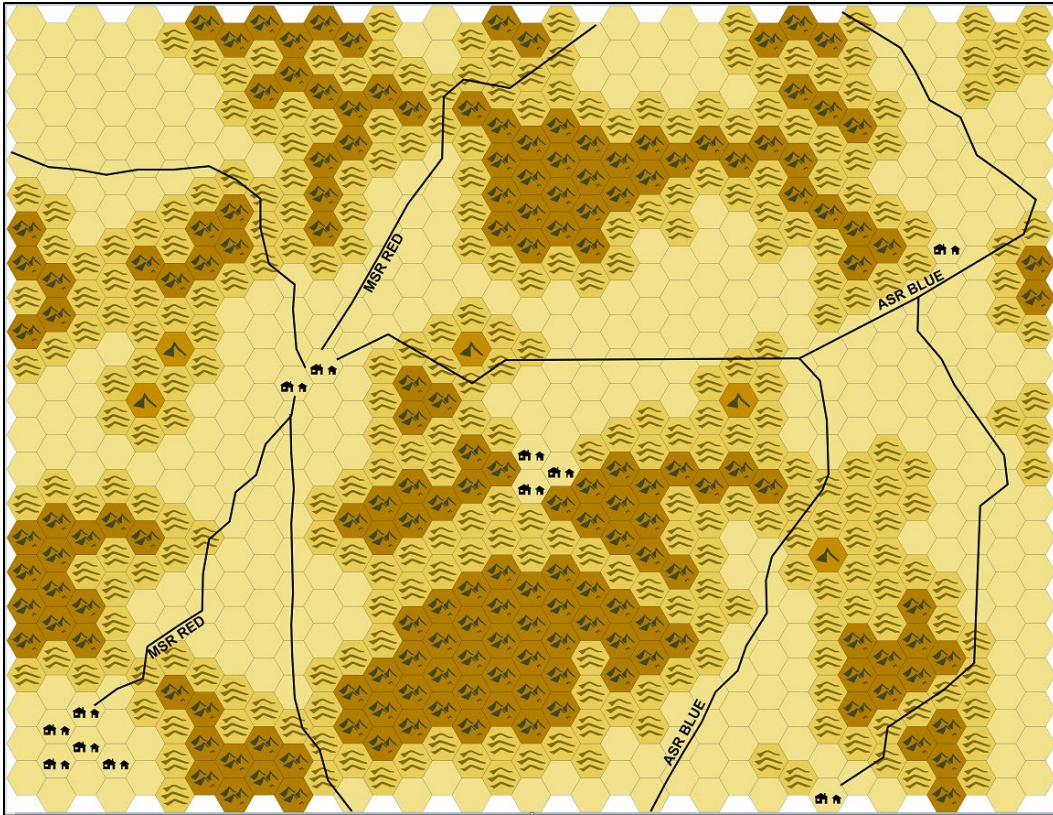


Figure 7. Wargame Map

Source: Created by author.

The scenario employs a map with a hexagon, or hex for short, grid representative of the Central Corridor in the National Training Center at Fort Irwin, CA. Most armored brigade combat teams rotate through the National Training Center (NTC) at some point, with many leaders visiting multiple times throughout their careers. Each hexagon is one kilometer across. The map represented in Figure 7 is 35 by 23 hexagons in size, representing approximately 805 square kilometers of space. Setting the wargame at NTC facilitates developing better tactical judgment through familiarization with the NTC for staffs and maneuver elements, especially since many junior leaders are preparing to

attend for their first time.³² The map has four avenues of approach from east to west with smaller routes in the north and south and the main avenue in the middle. The road labeled Main Supply Route RED is the starting boundary for the player with red game pieces. The Alternate Supply Route BLUE is the starting boundary for the player with blue game pieces.

Terrain



Figure 8. Terrain Types

Source: Created by author.

The terrain built into the map is key to the tactical scenario. Players must acknowledge the effects of terrain to properly employ their maneuver elements. Figure 8 displays the four types of terrain available on the map. The open terrain provides no benefit to cover or concealment with no negative impacts to movement for any units.

Inter-visibility (IV) lines are associated with foothills or rolling hills, micro terrain, which reduce visibility and enable units to maneuver in areas that at times from a distance may seem like open ground to an observer. Mechanized units are familiar with and train using IV lines to maneuver upon enemies. In the wargame, a unit that enters a

³² Koster, 48.

hexagon annotated with IV lines cannot be engaged unless the attacking element is within two hexagons. This represents the targeted units' competent and trained crews using the IV lines to their advantage, masking their position from direct fire from an oncoming enemy force. Furthermore, IV lines hinder movement for all units to account for mildly restrictive terrain.

The third terrain type is mountainous, extremely restrictive, which prevents any vehicles from entering and blocks line of sight. Dismounted elements can move through mountain hexagons, but they must stop movement upon entering a mountain hexagon. As very restrictive terrain, the mountains provide significant obstructions on the map. Mountains are the first of two types of very restrictive terrain.

The second very restrictive terrain type is urban. Urban terrain restricts line of sight and hinders vehicles and dismounts from moving any further upon entering an urban hex. The defensive bonuses granted by IV lines, mountains, and urban terrain emulate reality, providing advantageous positions for units that can seize them. The terrain available in an operational environment drastically impacts the planning and execution of an organization's tactical execution. It is crucial that leaders understand the spatial implications of terrain and the effort required to maneuver into and through the battlefield. Equally important to understanding battlespace is the relation of tactical execution and time.

Time

Time is a critical resource accounted for in the wargame within each battle round. Establishing the duration of the round sets the standard for activity that can happen within each round. Developing understanding of what occurs over a span of time is a crucial

experience that impacts the judgment of the players. while also grounding the player in the model. Each battle round equates to 15 minutes. Players alternate within each battle round so that both teams execute within the same 15 minutes. The round duration also sets the standard to account for unit movement and other actions, such as Cff missions, and the simultaneous method in which combat occurs.³³ The wargame's most common unit described in more detail later is a tank PLT that moves six hexagons (kilometers) in 15 minutes in open terrain. This relates to approximately 25 miles an hour, an appropriate tactical rate of march for the main battle tank at NTC. In mechanized warfare, a lot can occur within 15 minutes. A tank can engage multiple targets in tens of seconds with lethal accuracy. To account for this over 15 minutes, both defender and attacker engage in combat. The sequencing in time and space allows players to execute a plan in a competitive environment, while giving the enemy an active vote throughout the process. Furthermore, the battle rounds divide by Wff in the wargame. Their actions are meant to occur in a coordinated fashion in the real world, not necessarily sequentially. This chapter describes both combat and execution by Wff in more detail later, but it is necessary to understand the forces available to each player first.

Forces Available

³³ Perla, 155-156.

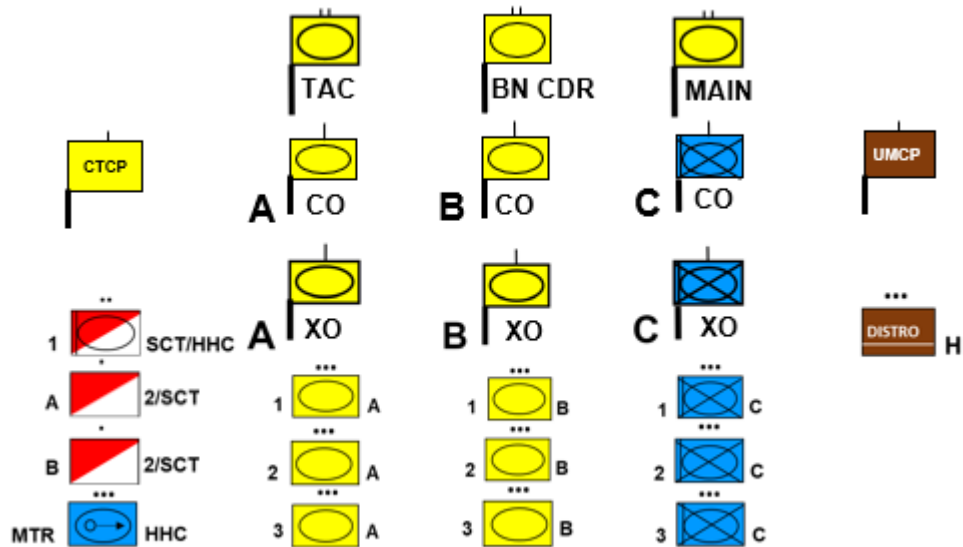


Figure 9. Task Organization of the Combined Arms Battalion

Source: Created by author.

Each player commands a heavy combined arms battalion based off a modern task organization in the US Army. The battalion consists of a headquarters, two tank companies, one mechanized infantry company, a support company, along with attachments. The headquarters company consists of the battalion commander, TAC, MAIN, CTCP, scout PLT, and mortar PLT. The scout PLT splits between a section of infantry fighting vehicles (IFVs) and two separate scout dismount squads. In the wargame, the tank company consists of the CO, XO, and the three tank PLTs. The wargame assumes company trains to be in vicinity of the XO's unit. The mechanized infantry company has a similar make up as the tank company but uses the profiles for the IFV versus the tank. The infantry company does not include icons for the dismounted squads in the wargame given that the only existing scenario is a meeting engagement with a rapid operational tempo that does not facilitate significant movement by

dismounted forces. The support company in the wargame consists of a distribution platoon (DISTRO) and the unit maintenance collection point (UMCP). The headquarters of the forward supply company collocates with the CTCP. The battalion has an engineer PLT and a local air defense (ADA) section attached. The attachments have minimal impact on the scenario, but their inclusion is vital to the instructional objectives of the wargame.

The designer also intends for battalion staffs and junior leaders to use the wargame as a training aid for organizational planning of a tactical scenario that accounts for assigned leaders and incorporates all WfFs. The initial scenario, the meeting engagement does not employ the engineer PLT or ADA section as much as a defense or attack would. However, excluding the elements from the current scenario would exclude those leaders from the process which is not the intent. In the movement to contact, it is necessary to preserve combat power for follow on operations just as well. Including the multi-functional elements and ensuring their protection is a broader training objective while executing the tactical scenario with a larger organization such as a battalion compared to a squad, section, or platoon. The objective of the game at its core is to build the best team and then demonstrate its effectiveness. The players can gain victory points for destroying one another's units, so preservation is a factor in denying your opponent points and protecting your own units, even if those units do not have an immediate tactical purpose. Chapter five describes future and potential implementation of the engineer and ADA units further. Given the forces available, it is important to understand the profiles for each tactical unit.

Tactical Profile

	Steps	Mnvr/Move	Armor	Vis/ID	Range	Target	Accuracy	Damage	Rules
TANK	4	2/6	A	10/7					
120mm					4	A/L	9	9	No (-) modifier for mnvr/move and shooting
.50/240C					1	I	7	6	

Figure 10. Tank Tactical Profile

Source: Created by author.

Each of the seven, unit types have a tactical profile. Each profile lists the type of unit and its associated weapon systems and attributes. See Figure 10 for the profile of a tank unit. Steps indicate the number of times that a unit can suffer damage before the player removes the unit from play. The following section on combat covers steps further. The eight attributes split in half between the unit and its weapon systems.

The first four attributes are the unit specific attributes seen in Figure 10. The Maneuver/Movement (Mnvr/Move) attribute conveys the distance that the tank unit travels on the map under certain conditions that have different impacts in combat. If the player decides to move a unit further than the Mnvr value, the unit is moving. The unit cannot move further than its movement characteristic. Armor differentiates whether a unit is armored (A), light (L), or infantry (I). Armor types are important for players to keep in mind because they match to specific weapon types. For instance, a light machine gun has trivial effect on a tank versus the effectiveness of a Javelin missile launcher. The visibility/identification (Vis/ID) attribute consists of the respective ranges for when a unit can see a target and then identify. The visibility value is higher than the identification value to emulate how mechanized platforms may be able to view an enemy signature but

cannot readily identify until the target approaches further. Visibility primarily affects line of sight (LoS).

A player determines if a unit has LoS by drawing the shortest distance of hexagons between one unit that does not exceed the first value in the Vis/ID column. As described previously, terrain impacts LoS. Established LoS is an important condition that contributes to engagements and Cff missions. LoS and Vis/ID provide parameters for planning regarding fire control measures and identification of enemy targets. If the rules of engagement require restrictive fire control measures that require positive identification versus weapons free status, the wargame provides the necessary differentiation with Vis/ID. Identification is the range in which the fog of war (FoW) mechanic factors.

FoW adds an element of uncertainty and friction inherent to real world combat throughout the wargame. All pieces stand on the map, facing their owning players, with the blank backside facing their opponent. Once a unit enters within the range equal to the value of an opposing unit's Identification that also has LoS, the identified unit is laid face up for all players to see. Each team has 26 units represented on the map. The number of units contributes to the complexity of the battlefield, stressing the importance of intelligence and battle tracking. The section on the WfF Intelligence describes more how players mitigate (or fail to mitigate) FoW. The FoW mechanic enables a player to develop their maneuver plan in anticipation of a yet-unconfirmed enemy formation. The next four attributes are associated specifically with the weapon systems of a given unit.

	Range	Target	Accuracy	Damage	Rules
TANK					
120mm	4	A/L	9	9	No (-) modifier for mnvr/move and shooting
.50/240C	1	1	7	6	

Figure 11. Weapon Specific Attributes

Source: Created by author.

The last four attributes in the unit tactical profile are weapon specific, as seen in Figure 11. The first weapon profile attribute is range. The range determines the distance in which the given weapon system can engage an enemy target. Target, as mentioned before with the armor attribute, references the optimal target armor type for a weapon system. Accuracy conveys the unit's initial ability to hit with the respective weapon system. Weapon systems that have fire control systems or the targeting capability of a Javelin are significantly more accurate than other systems represented in the wargame. Damage represents how effectively the weapon system can inflict damage on a target. Target to armor mismatches, terrain, and a few other factors discussed later during combat can have significant impact on a unit's ability to inflict damage. The level of complexity in the combat system delivers a level of detail that a competitive player and/or leader can better associate within the tactical scenario and real-world learning objectives befitting a wargame. The unit tactical profile provides the framework for what occurs in combat.

This section described the foundational elements of the tactical scenario. It covered how the wargame structures the operational environment, the map, the terrain, and the mechanics that emulate real world, tactical circumstances. It also covered the passing of time and battle rounds in game. This section concluded by describing the

forces available to each player and how to read the unit tactical profile, detailing the significance of each attribute. The next section explains activation.

Activation

Activation occurs when a player rolls under or equal to the LD of the unit attempting to activate. When a unit activates a player may choose for the unit to move, maneuver, or remain stationary. Units may move through other units but may not end in the same hex as any other unit. The activated unit can engage viable targets at any point during its activation. The average LD of most units is two and few CPT and MAJ tokens exceed three or four. The average units then have a 20% chance to activate outside of any additional effects granted by command units. The low LD values for each individual unit are not meant to indicate poor leadership on average but to reinforce the compounding effects of leadership throughout an organization. The wargame demonstrates the compounding effects of leadership through the mechanic of C2 ranges.

C2 Range

Unit	C2 Range
BN CDR	3
TAC	3
MAIN	8
CO	3

Figure 12. C2 Range

Source: Created by author.

A unit receives bonuses to LD from nearby command units (battalion commander, TAC, MAIN, and CO) that are within C2 range, seen in Figure 12. The mechanic encourages players to ensure that units are within C2 range to activate. The origin of the C2 range includes radio communications, leader's situational awareness and understanding, and their ability to lead across their span of control. Each unit in Figure 12 emits their own C2 range that provides their LD or M2 in the case of the MAIN in addition to a supported unit's LD when attempting to activate. The battalion commander does not have a token and instead shares the M2 value from the MAIN. The C2 range of the battalion commander and the MAIN do not stack. This mechanic enables players that appropriately manage C2 ranges to better manage and control their forces across the battlefield with less chance of failing activations. The wargame rewards this approach by granting automatic success to any accumulated values of LD that meet or exceed 10. LoS blocking terrain disrupts C2 range, reducing the leader's communication systems and situational awareness. The C2 range factors further into the C2 portion of the battle rounds. A similar mechanic to C2 range is Sustainment range.

Sustainment Range

Unit	S Range
UMCP	10
CTCP	8
DISTRO	6
XO	4

Figure 13. Sustainment Range

Source: Created by author.

Sustainment range is an aura emitted by the units listed in Figure 13 with respective ranges. Sustainment range represents the organization's operational reach of the organization, not as much the immediate logistical capability.³⁴ The key difference between sustainment range and C2 range is that players must chain their units via the sustainment range. The UMCP serves as the source of operational reach and sustainability for the organization. The CTCP and DISTRO platoon must be within the range of the UMCP to provide their sustainment range to the company XO units. All company units must be within the sustainment range of the respective company XOs. Any units not within sustainment range become unsupported which factors into combat and the sustainment phase. Unsupported does not indicate that the unit is suddenly unable to resupply or out of classes of supply. Rather, unsupported indicates a unit that is performing conservatively and is preserving combat power while the unit waits for leadership to bring it back within sustainable operational reach. Scout units are the only

³⁴ HQDA, ADP 3-0, 2-10.

units that do not receive the unsupported status outside of sustainment range as they often operate unsupported. LoS blocking terrain affects Sustainment range like C2 range. The next section explains combat.

Combat

Combat is the crucial sequence within the tactical phase that determines the results between engaging forces. The combat sequence balances tactical factors from the unit profile, unit actions, and the terrain to simulate the complexity of tactical execution. The sequence simulates an engagement between modern forces over a 15-minute period. Platoons of armored platforms can engage multiple times within 15 minutes; therefore, a single die roll does not equate to a single round fired. Instead the dice rolls represent a concerted effort from the entire unit. Furthermore, a target simultaneously defends itself against any attackers within any combat sequence. The combat sequence consists of steps that help simplify the execution of tactical factors.

The combat sequence consists of the following steps: select a unit to engage; determine viable targets and allocate fire power; determine accuracy and roll for results; determine damage and roll for results; and calculate and inflict damage. Once the player activates a unit and elects to engage a target, the player must determine that the target is within range of Vis/ID, range of selected weapon systems, and within LoS. These requirements for engagement also help a player understand the battlespace requirements in the tactical scenario. A player's units may be able to see them but not engage, suggesting that a player should develop their tactical plan to time when and where their units enter weapon system range.

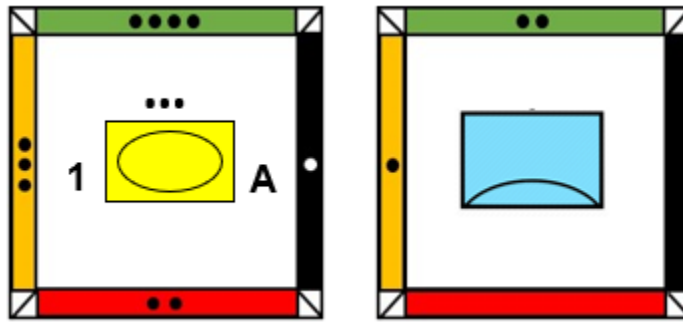


Figure 14. Unit Tokens

Source: Created by author.

Once the player identifies viable targets, the player allocates as many dice as the unit has steps per weapon system. Figure 14 provides examples of unit tokens and the step indicators are located on the outside boundaries of each token. A tank platoon with four steps would have four dice for its main gun and four dice for its machine guns given the target is in range of both weapon systems. The player may allocate those dice against any viable targets. This mechanic demonstrates a few tactical factors and dilemmas. The player balances between massing effects and economy of force, whether to distribute or focus fire power. It allows players to prioritize targets by appropriate weapon systems. A key dilemma activated by this mechanic is a subsequent effect that allows all engaged targets to defend against the attacking unit simultaneously.

Within 15 minutes of combat, large units of mechanized forces engage each other violently, capable of firing main gun weapon systems rapidly and effectively if coordinated. To demonstrate this, all targeted units engaged in a battle round simultaneously engage attacking units. The defending units only allocate their dice between units currently engaging them. This mechanic grants significant benefit to

defending units if the attacking player engages piece meal versus simultaneously. It helps reinforce the realistic benefit of a defending unit and the requirement of massed fires in the offense. An attacking player must determine if the tactical risk is acceptable engaging multiple units if each of defender retaliates. After this, with both attacker and defender having allocated their dice, the combat sequence continues.

Accuracy Modifiers	
Move and shoot	-3
Maneuver and shoot	-1
>half max range	-1
Target is moving	-1
Shooter Stationary	+1
Target in V Line	-3
Target in Mountains	-5
Target in Urban	-5
Target in Open	+1
UNSUPPORTED	-2

Figure 15. Accuracy Modifiers

Source: Created by author.

The next step in the combat sequence is to assess and roll for accuracy. Figure 15 shows the accuracy modifiers that may apply. Players apply each appropriate modifier to the accuracy value of the weapon system and roll a d10. A result lower than or equal to the modified accuracy value results in a hit. The accuracy modifiers enhance the tactical complexity and emphasize concepts of maneuver for each player. A player receives benefits from favorable terrain and must weigh the risks of engaging while moving or maneuvering. The defending unit counts as stationary when engaged which provides

further benefit. The later section on sustainment explains the “unsupported” modifiers later. Players determine successful hits and then roll those dice to determine damage.

Damage Modifiers	
A/L versus I Target	-1
L/I versus A Target	-5
I versus A/L Target	-5
(I) Target in Mountains	-3
(I) Target in Urban	-5
(A/L) Target in IV Line	-3
Target in Open	+1
UNSUPPORTED	-2

Figure 16. Damage Modifiers

Source: Created by author.

Before players roll dice to determine damage, they must determine the threshold of success. Each weapon profile has a damage value, like accuracy, which determines the initial threshold. Players reference the Damage Modifiers Table, seen in Figure 16, for adjustments. The damage modifiers adjust based upon the target and the terrain. Some weapon types are less ideal for certain targets, such as I or L/I weapon types like machine guns and mortars versus A targets, main battle tanks. Specific types of targets in certain terrain also receive defensive bonuses. Infantry may take cover in mountainous or urban terrain while vehicles use IV lines as cover. A target in the open becomes easier to inflict damage upon because it has no cover or concealment to protect it. Once players have determined the adjusted values, the rolls for defender and attacker occur simultaneously. Players then determine the successful rolls and allocate one step loss to each unit

damaged. With damage inflicted, the combat sequence ends, and the unit(s) resolve the remainder of their activation.

This section covered combat. The section broke down the combat sequence and explained each step. The section explained the accuracy and damage modifiers and the relevance of the mechanics to real world circumstances modeled in the operational environment and between units. The next section covers the Tactical Execution Phase.

Tactical Execution

This section explains the Tactical Execution Phase, the second phase of the game. The section explains how players execute the second phase of the wargame and the importance of the mechanics. The section covers the two subphases, planning and execution, and the conclusion of the game with the assessment.

Planning

The Tactical Execution Phase of the game divides into two subphases, planning and execution. The first phase establishes initiative and deployment and the second phase entails the ensuing actions over six battle rounds. The first phase begins with a roll off between players to determine who deploys first. The player with a higher C2 value receives a bonus to this roll, representing a staff that was able to communicate and deploy their plan more effectively. The player that wins the roll off chooses to deploy first or second. The first phase is critical as the deployment of units procedurally develops the enemy disposition for each player. Players may want to allow the opposing player to deploy first to provide any indication of the respective player's plan. Players alternate deploying their scout elements first. The scout units deploy no further than four hexes

beyond each player's respective front line of troops (FLOT). This represents the battalion's scout platoon having deployed ahead of the main advance with dismounted teams, screening forward of the battalion's FLOT. The deployment of the maneuver units follows.

Player's alternate deploying maneuver units by company. Players may attach their support units (engineers, mortar platoon, or ADA assets) to any company if the company does not exceed five total units, not counting the CO and XO. This limitation imposes the doctrinal span of control.³⁵ Players may task organize their team within that limitation. This allows players to emulate real world tactics where company teams form with tank and mechanized infantry platoons. Once all maneuver elements have deployed, each play deploys their battalion leadership (battalion commander, TAC, and MAIN) and support units (CTCP, DISTRO platoon, and UMCP). The UMCP cannot move once deployed, which factors later in the explanation on sustainment. The designer purposefully arranged the deployment process by reconnaissance, maneuver, command, and sustainment units to emphasize the planning priorities for each player. Given the victory conditions and the mission of the combined arms battalion, the sustainment plan needs to know what to support in the maneuver plan that deploys first. After the sustainment units have deployed, the players make one last planning check.

The last step in the planning subphase is to make an intelligence check. This check simulates the capability of the respective team to properly analyze and detect the enemy plan. Failing the intelligence check allows the opposing player to redeploy an

³⁵ HQDA, ADP 6-0, 4-14.

entire company along with any attached units. This is a crucial opportunity for players to reposition their forces in a more favorable positioning prior to initiating the battle. If a player did not prioritize or neglected intelligence during the team building phase, this is the first major event where the wargame tests the WfF values established through team building. This order of priority for WfF continues into the next subphase of tactical execution.

Execution

After the planning subphase, the wargame enters the execution subphase of tactical execution. The execution subphase consists of six battle rounds in total. Each battle round begins when players establish initiative and then their following actions break down by WfF. Players establish battle round initiative by rolling off. The LD value of the battalion XO reduces the rolls for respective players. This mechanic represents the impact the battalion XO has on the organization, synchronizing (or failing) the systems of each WfF. Once players determine who has battle round initiative, they alternate each step of the battle round.

The order by WfF is Intelligence, Protection, Fires, C2, M2, and Sustainment. Like the planning phase, the designer arranged the WfF in each battle round to condition players to plan and execute accordingly. Realistically, the WfFs occur simultaneously. This sequence helps instruct players and junior leaders the importance of how each WfF affects the next and builds. The designer made sustainment last in the battle round, immediately after M2 to reinforce how sustainment supports the maneuver plan but also to demonstrate how sustainment builds momentum for the follow-on battle rounds. The first WfF of each battle round is intelligence.

Intelligence

The intelligence WfF step checks FoW and enables the players to activate their scout units. Doctrinally, the intelligence WfF consists of systems and actions that enable understanding of the battlefield.³⁶ Players must roll off against their own intelligence values to determine if FoW resets for those units that have passed outside of ID range. A failure at this roll is an abstract representation of an organization unable to battle track and maintain situational awareness of the operating environment. The scout units then have an opportunity to activate. The player rolls one die for the entire platoon to activate. This represents the decentralized capability of forward reconnaissance units. The scouts are the first unit to activate but the armored force outpaces the dismounted units in the following battle rounds. This simulates a forward passage of lines for the battalion's maneuver units through a screen established prior to the movement to contact. Once both players have completed the intelligence step, they proceed to protection.

Protection

The protection WfF focuses on the engineer and ADA assets. Both assets have limited interaction with the existing movement to contact scenario but are enduring assets of the organization that require management. The ADA asset in this scenario that denies the opposing player from access to air support. Once a player destroys an opposing ADA asset, they then gain access to air support during the following fires step. The ADA deters air support by its presence on the battlefield where contested air space diminishes each player's respective prioritization by their higher command. Players roll a protection check

³⁶ HQDA, ADP 3-0, 5-4.

and if successful, then activate their engineer and ADA units. Neither unit has any further interaction beyond movement. After the protection step is the fires step.

Fires

The fires WfF begins with the activation of the mortar unit based upon the LD of the mortar platoon leader, factoring in C2 range benefits as well. The mortar weapon system can establish LoS to any target within range from any friendly unit, simulating indirect fires with observer capability. The mortar system also ignores all accuracy and damage modifiers provided by terrain to reflect the indirect fire capability. The damage roll for mortar systems is unique to fire missions. A player rolls equal to or under a three for armor units, five for light armor units, and seven for infantry. The scaled damage accounts for indirect weaponry's scaled effectiveness against the respective targets, also considering the dispersal of vehicles within the kilometer of battle space. After attempting to activate the mortar unit, the fires step continues with Cff mission.

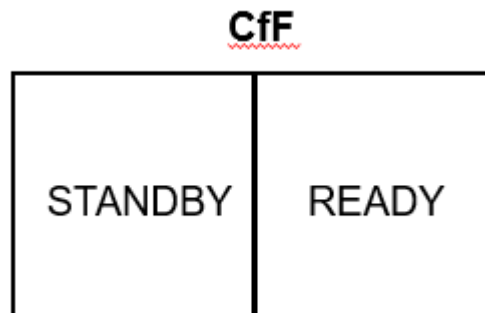


Figure 17. Cff Tracker

Source: Created by author.

The wargame begins with the CfF marker positioned at STANDBY in the CfF tracker, seen in Figure 17. Each player rolls a fires check to determine if they can perform a CfF mission. A successful fires check moves the marker from STANDBY to READY, then ending the fires step for that turn. This represents the battalion fires cell coordinating with higher echelons to request brigade fires assets. On the following turn, given the player makes another successful fires check, the player performs the following steps. The player must establish LoS from a viable target within visual range, the first value of the Vis/ID attribute. The next step simulates clearing and coordinating the fire mission. The player making a fire mission moves the marker on the Air Support tracker, seen in Figure 18, to OFF STATION. The benefit of waiting one turn to coordinate fires is that the CfF process does not require the player to roll to hit. The player rolls for damage like mortar weapon systems, ignoring terrain modifiers and preventing infantry from moving in the next turn. After resolving the damage of the CfF, the player declares if they intend to continue the fire mission or end it. If they continue into the next battle round, then the player may shift within one hexagon of the original target and conduct another fire mission. Otherwise, the simulated fire mission ends, and the marker moves to STANDBY. CfF missions are highly effective in the wargame versus dismounted units, less so against armor. The wargame enables players to develop the judgment of when and where to employ fires more effectively. The last process in the fires step is Air Support.

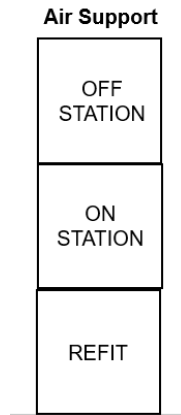


Figure 18. Air Support Tracker

Source: Created by author.

Air support is only available for a player after eliminating the opposing ADA asset. If a CfF mission is underway, the air support tracker cannot adjust from OFF STATION until the player ends the fire mission. This represents brigade prioritizing assets and the fires cells clearing fires accordingly. With the CfF tracker on STANDBY, the marker moves to ON STATION on the Air Support Tracker. It is realistically possible to coordinate both indirect fires and aviation within the same battle space however the designer implemented exclusive phasing to create a dilemma for players to manage and that is mitigated with a strong fires cell value. The player requires another fires check to utilize air support. If successful, the player determines any one identified target. The player rolls for accuracy and then damage equal to or under a value of eight, regardless of modifiers. If successful, the air support inflicts one step loss of damage. Regardless if the air support's attack inflicted damage or not, the marker moves from ON STATION to REFIT. This simulates the temporary presence of air support on the battlefield. The designer reduced the real-world effectiveness of air support in this mechanic to

emphasize the tactical execution of the organic units. If a battle round begins the fires step and the marker is on REFIT, then a player rolls a fires check to move the marker to ON STATION, enabling Air Support in the following battle round. With the conclusion of air support, the players move onto the next WfF, C2.

Command and Control

The C2 step begins with a roll to achieve below or equal to the team's C2 value. If the WfFi of the battalion XO is C2, then the player may add the associated COM to the roll. This mechanic emphasizes the strengths of the battalion XO and how they reinforce the systems within the staff as the manager and leader at the MAIN. A failed result reduces the C2 range of the MAIN by half until the next C2 step in the following battle round. This failure indicates a breakdown in communication that significantly limits the capabilities of the MAIN. The reduced MAIN range can significantly hinder the organization if the player did not plan for redundant C2 ranges. This factor emulates an organization's ability to plan and execute a PACE (primary, alternate, contingency, emergency) communication plan. The next process in the C2 step is a key mechanic to the overall game.

Players have the opportunity during the C2 step to make a LD check by company. A success for a given company means that in the following M2 step, the entire company (or company team) with attachments may activate simultaneously. The players use only the LD value of the CO without any stacking benefits from C2 ranges. This mechanic emphasizes the importance of the individual LD capability of COs and their ability to inspire and lead their companies at the tactical level. In the following M2 step, the entire company activates, providing significant benefit towards maneuvering and massing

effects against enemy units. Furthermore, it reduces the amount of LD checks required as each subordinate unit no longer needs to make a check of their own. Simultaneously activating an entire company abstractly demonstrates the command and control that go into achieving results in a mission with a formation.³⁷ At this point in execution, players may recognize the significance of having a developed CPT with high LD as a CO. A CPT token that begins with a LD of four, with a positive leader behavior, and received development means the result became six. That CO would have a 60% chance to activate their company during this step. Furthermore, as a contingency, if the check failed, then the CO would add their LD to their subordinate units within C2 range, increasing most LTs to seven or nine. The simultaneous engagement coordinated at the company level is a major objective stressed in culminating training events, demonstrative of the inherent difficulty and skill required to perform. Once each player has completed LD checks by company, the wargame proceeds into the M2 step.

Movement and Maneuver

The M2 step begins with the companies that successfully made LD checks at the end of the C2 step. Players alternate activating whole companies. Afterwards, players alternate activating the remaining units on the map one by one, not counting support units such as the Distro PLT and the CTCP. The difference between simultaneous and individual activations emerges when units engage other units. Simultaneously activating units enables formations to mass fires against a target, while the target must defensively engage the attackers at once. Otherwise, if attackers engage individually, the defender

³⁷ HQDA, ADP 6-0, 1-16.

may engage each attacker separately, inflicting significantly more damage. The simultaneous engagements allow units to achieve offensive overmatch. The wargame emphasizes that individual activations are not as effective and are best used for maneuvering into favorable terrain and prioritizing against the least advantaged target available. With all units but for the support units activated, the M2 step concludes and the sustainment step begins.

Sustainment

The sustainment step begins with each player alternating LD checks to activate the DISTRO platoon and the CTCP. The players must be more mindful of the movements of these units given the sustainment ranges and available redundancies versus the C2 range because of the required chain from UMCP to DISTRO or CTCP to XO to maneuver units. After moving the support units, the players roll a sustainment check. Like the C2 step, if the battalion XO has a WfFi of sustainment, then the respective COM adds to the roll. If this check fails, players halve the sustainment ranges across the organization. In the later battle rounds as players advance across the map, the designer intended to create the dilemma for players where their operational reach begins to limit the options available to maneuver.

Given the sustainment ranges and limited movement of support units, not accounting for LoS blocking terrain, the players must pace their advance or risk suffering the unsupported status. By battle round two, the CTCP and DISTRO units can move beyond half the range of the UMCP. If the player fails a sustainment check during this step, and both support units are outside of the range, all units also out of range of the UMCP and forward become unsupported. If players do not build their sustainment value

to automatically succeed with a value of 10, and the sustainment check fails, the max sustainment range chain from UMCP to CTCP to DISTRO to XO to maneuver unit is 14 hexes. This means that without a sustainment value of 10, players must determine and accept risk in their maneuver plans. The designer intended for the sustainment step to occur immediately after the maneuver step to allow players to maneuver and then adjust their sustainment ranges to support the following battle round. With the conclusion of the sustainment step, the battle round ends, and the players begin again with determining battle round initiative until six rounds occur, resulting in the assessment phase.

Assessment

Once players have executed six battle rounds, they no longer roll for initiative but move to the assessment phase. In the assessment phase, each player calculates victory points. A player receives one victory point for every friendly unit that crosses the opposing FLOT. A player also receives one victory point for every enemy unit destroyed. A player may earn up to 49 victory points in total, as it is impossible for the UMCP or dismounted units to cross the enemy FLOT. The victory points represent the achieved results of everything invested and executed by the organization. Furthermore, the objectives emphasize the importance of LD. LD, leadership is the core value for activation. Activation is the only method in which units may maneuver and engage. All other actions defined by WfFs contribute and enable the team's success but how well the player enabled the leadership of the organization determines the real ability to perform in the tactical phase.

Summary

This chapter explained how the wargame models leader management and tactical execution. On leader management, the chapter explained the real-world correlation and where the values on leader tokens derive from. It explained the team building methodology and the similarities adapted between the in-depth and quick modes. The chapter explained the operating environment, the map and terrain, and how time passes in the wargame. The chapter then elaborated upon tactical execution, split by WfF, and the importance of the leader management phase and how they synergize. The chapter ended with the assessment phase, demonstrating how the first phase, leader management enables the second phase, tactical execution, of the wargame to achieve results, victory. The next chapter provides observations and recommendations for future research.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

This paper explained how the wargame *Leaders of Consequence* answers the question: can a competitive wargame effectively demonstrate the effect of leader management upon tactical performance? This paper described how the wargame model abstractly represented the leadership theory, then allowing players to manage a team and determine the effectiveness of that management in tactical execution. The wargame emphasizes and instructs the importance of appropriate leader management in formations that directly contributes to tactical execution and performance. This chapter details the observations made during research and development of the wargame and provides recommendations for further research.

Observations

Throughout research, development, and playtesting, the designer and play testers made several significant observations. The designer's key observations were on the variety of leader models and theories researched and the balance between simplicity and complexity required in designing an effective wargame. The play testers and designer made observations on the development of time to play, player engagement, and the relevance of core mechanics. The designer's initial observations arose during research on leadership.

While US Army doctrine establishes its own position on leadership, the designer found the academic study and research on leadership to be varied and in need of much

further study. The field of study on leadership has some established positions throughout psychology and sociology but frequently do not share the same terminology or differentiate on philosophical levels. Initially, the designer found the theory based on leadership traits and activation as the ideal vehicle to adapt for the wargame with some elements like Army Doctrine. However, after further study, the designer elected that the person-in-situation approach to leadership enabled the scenario more. The person-in-situation approach focused the application of the leader behaviors that require conditioning, or training and development in this case, to the specific situation, being combat. The next major observation that the designer made was the balance between simplicity and complexity required in designing an effective wargame.

Making an effective, inclusive wargame requires a delicate balance between a simplicity that enables gameplay alongside a complexity that meets the instructional objectives and meets the criteria fitting a wargame. The designer intends for *Leaders of Consequence* to be instructional for junior leaders and staffs on leadership and tactical execution. The wargame provided an engaging challenge in trying to achieve the balance while achieving the depth fitting a wargame for military professionals. With the limitations of the scenario and the time available, the designer observed the struggle with reducing elements of the game that would exclude junior leaders and members of the staff. By incorporating the elements as they are, the designer implemented a foundation for future development that offers more options for the WfFs in multiple mission sets. Also, the wargame's current tactical model provides a format that the designer intended across multiple tactical levels below the platoon level. By incorporating these elements, the designer noted the risk of the burdening tactical system overshadowing the leadership

mechanics of the first phase. To ensure the importance of the player's engagement in leader management, the designer ensured that the majority of the second phase was dependent upon the values established in the first phase. The other main observations arose through play testing with other individuals.

The play testers provided key observations in the development of the game. The first major point that the play testers observed was time. Play testers found the initial model of leader management extremely time intensive. While the effort involved in the first phase was an intended objective, the play testers and designer noted that the process surpassed the endurance of a newly introduced player. After multiple renditions, the developer settled on the two existing methods where the quick team building provides time-expedient version, allowing the players to transition to tactical execution faster where they can see the correlation between their team values and performance. Another key observation was the depth of leader management.

From the beginning, play testers observed that the depth of the leader management phase, specifically the inclusion of as many lieutenants for each team appeared unnecessary. The lieutenants consist of 29 of the 42 positions. The play testers noted that the management model spreads the weight of the values across more positions versus reducing the numbers to only the CPTs and above, with each of them carrying more weight. The suggested system of reducing the lieutenant positions moved away from the desired weight that the designer intended for the leader management model. The lieutenants represented an often-undervalued leadership position that if leaders managed correctly contributed to the whole organization. The contributions of the play testers and the observations of the designer resulted in the following section on recommendations.

Recommendations for Future Research and Development

The designer and play testers contributed to several recommendations for future research and development. The recommendations arose during development and play testing, some due to time constraints and others after development of the wargame where sequels or additional implementation are available. The first recommendation regards the research of leadership models.

Given the designer's observations during research of leadership, the designer recommends further research and follow through with the implemented leadership models. The person-in-situation method is newer and Army doctrine continues to update. Over time, the designer expects leadership models to improve with further research. The wargame's mechanics may need to update to appropriately represent any drastic changes that emerge.

The second recommendation is to reduce the scale of the teams. The designer can easily modify the maneuver structure of the organization to the company or platoon level. The major adjustment is the staff team sheet and the marginalization of the Wffs from the staff. This designer expects that a transition to company level would shift the staff team sheet to a company trains model that emulates the support structure of the company headquarters. Furthermore, using the doctrinal approach to lead down two subordinate levels, the PL positions would take the place of COs in the original model and tank commanders would replace the PLs.

The third recommendation is to expand the scale of the teams. With less adjustment than the second recommendation, the leader management phase can easily scale upward to a brigade level organization. However, the second phase requires further

expansion to encapsulate the capabilities available to a brigade formation. In this case, battalion commanders would replace the COs and COs would replace PLs. Furthermore, the designer acknowledges that this recommendation requires reduction and simplification of the engagement mechanic.

The fourth recommendation is a key addition to the game that brings the leader management model full circle, adding in a reconstitution and development phase after tactical execution. This phase would allow players to reconstitute any leaders lost in a previous mission and use experience gained from their previous encounters to develop and grow their team. Also implementing a mechanic for the regular rotation of leaders over time. This third phase enables campaign development and captures leader development between and during operations, a major element the designer desires to implement.

The fifth recommendation by the designer is to expand the tactical unit profiles for all BCTs. As mentioned in the forces available section in chapter four, implementing dismounts and other unit types compliments the development of additional mission types. The existing profiles provide standard values that the designer or others may easily adapt to fit other organizations. While the movement to contact is the only existing mission currently, the designer can develop a defensive or offensive mission set, giving one side proportionally relevant forces versus the other. This recommendation builds into the last recommendation.

As mentioned in the protection section in chapter four, the last recommendation is the expansion of capabilities available to other units, such as the engineers and ADA. The designer could develop other enablers such as psychological operations, intelligence

collection teams, or even retrain communication assets. The designer can develop mechanics that enable the engineers to emplace or reduce obstacles accordingly. These future recommendations are key developments towards including the entire staff at the battalion, brigade, or higher levels.

Conclusion

This paper explained how the designed wargame *Leaders of Consequence* answers the question: can a competitive wargame effectively demonstrate the effect of leader management upon tactical performance? This paper demonstrated the designer's response to the following secondary questions: whether competency by WfF is a factor that a competitive wargame can abstractly demonstrate, if personality is a factor that a competitive wargame abstractly demonstrates, then what aspects of personality are important to represent; and what are the impacts of an individual's competencies and personality within a competitive wargame. The designer answered the main research question and the secondary questions via wargame design.

The designer intended to achieve two major goals through *Leaders of Consequence*. First, by playing, that players learn the impact of leader management on tactical execution. Second, that the wargame provides a sufficient model for wargaming leadership in tactical execution for battalion staffs and military professionals in a training environment in preparation for real world execution. The designer intends to provide a foundation for further wargame design that contribute to the development of the military profession.

APPENDIX A

UNITS AND GAME PIECES

Game Pieces and Parts	
Piece	Quantity/ Sets
Map	1
Quick Reference Player Packets	2
Maneuver Team Sheets	A-F
Staff Team Sheets	A-F
Green Cubes	24
Red Team Pieces	26
Blue Team Pieces	26
10-sided die	1 required, 12 recommended
CfF tracker tokens	2
Air Support tracker tokens	2
Leader tokens	108

Quick Reference (QR) Player Packet	
Piece	Quantity
QR Rule Sheets	2
QR Unit/Combat Sheet	1
Leader Token Orientation Sheet	1
Blank Maneuver Team Sheet	1
Blank Staff Team Sheet	1

Quick Reference (QR) Player Packet	
Piece	Quantity
QR Rule Sheets	2
QR Unit/Combat Sheet	1
Leader Token Orientation Sheet	1
Blank Maneuver Team Sheet	1
Blank Staff Team Sheet	1

Leader Tokens	
By Rank	Quantity
MAJ	12
CPT	24
1LT	30
2LT	42

Red Team Pieces					
BN CDR	1/SCT/HHC	CO/A	CO/B	CO/C	ADA SCT
TAC	A/2/SCT/HHC	XO/A	XO/B	XO/C	EN PLT
CTCP	B/2/SCT/HHC	1 PLT/A	1 PLT/B	1 PLT/C	
UMCP	MTR/HHC	2 PLT/A	2 PLT/B	2 PLT/C	
DISTRO		3 PLT/A	3 PLT/B	3 PLT/C	

Blue Team Pieces					
BN CDR	1/SCT/HHC	CO/A	CO/B	CO/C	ADA SCT
TAC	A/2/SCT/HHC	XO/A	XO/B	XO/C	EN PLT
CTCP	B/2/SCT/HHC	1 PLT/A	1 PLT/B	1 PLT/C	
UMCP	MTR/HHC	2 PLT/A	2 PLT/B	2 PLT/C	
DISTRO		3 PLT/A	3 PLT/B	3 PLT/C	

APPENDIX B

RULES AND DESIGNER NOTES

A Description of Play:

Two players lead respective combined arms battalions, managing and developing officers based upon leadership values, behaviors, and propensity for war fighting functions. After players have managed their teams, each player deploys their organization in a tactical scenario. How well the player managed their team has complex effects on how the organization performs in the tactical phase. The tactical phase breaks down by war fighting function in each round, over six rounds total. The system of values is based on a d10. Rolling lower is always best. Players assign leader tokens to build teams with compiled values. Players must roll below the values to execute specific actions. Values once compiled may exceed 10 which results in an automatic pass. A value of 0 means the player cannot execute the action by a dice roll.

Components:

The game contains a tactical hex map. Blue and red blocks represent respective team units. Leader tokens sort by rank and WfF. Team sheets separate between blank team sheets and quick team sheets, further divided between staff and maneuver teams. Green cubes represent leader development during phase one after team building. Players use red cubes during phase two to indicate unsupported units outside of sustainment range. The wargame requires at least one 10-sided die. The zero on the 10-sided die represents a value of 10 in this game. Quick reference sheets are available for each player.

Map:

The tactical hex map is a rendition of the Central Corridor at the National Training Center at Fort Irwin. The map has four terrain types, described in further detail below: open, IV lines, mountains, and urban. The map has roads, two of which that the map labels red and blue to denote the FLOTs for each respective team at the beginning of the game. The relative scale of each hexagon on the map is 1km.

Terrain:

Four types of Terrain: Open, IV Lines, Mountains, and Urban.

1. Open Terrain: Has no impact on maneuver/movement. Consult the appropriate modifier table for accuracy and damage.

2. Inter-visibility (IV) Lines: A unit receives the benefit of an IV line when the unit is within a hexagon of IV lines. A unit cannot engage an enemy unit in a hexagon of IV lines unless they are within two hexes and have LoS. A unit can still draw LoS to a target in a hexagon of IV lines.

3. Mountains: Vehicles cannot traverse into or begin in a hexagon with mountains. A unit cannot draw C2 range through mountains. A unit cannot draw LoS through a mountain hex. A dismounted unit inside or adjacent to a mountain hex has LoS into adjacent mountain hexes.

4. Urban: Reduces movement values to one for all units inside urban hexes. A unit cannot draw C2 range through urban hexes. A unit inside or adjacent to an urban hex has LoS into adjacent urban areas.

Objective and Gameplay

Score the most victory points (VPs). VPs earned via accomplishing the tactical objectives and surviving LD of maneuver units.

Phase 1: Build the Team

Phase 2A: Plan

Phase 2B: Execute

Phase 3: Assess

1. Phase 1: Build the Team

1.A. Determine who is Red/Blue team.

1.B. Determine if players are using In-depth Team Building or Quick Team Building.

1.B.1. **In-depth Team Building:** Players alternate ‘assigning and training’ batches of leaders.

1.B.1.a. Roll to determine who chooses first (lowest score wins)

1.B.1.b. Each Player chooses six officers, one officer from each WfF. A player may choose from any rank until there are no assignments of that rank available any longer. For example, only two officers of the rank of MAJ may be selected because there are only two MAJ assignments available.

1.B.1.c. Place leaders in respective positions. Leaders must match rank of associated with position. Leaders cannot switch positions once placed.

1.B.1.d. Alternate until players assign all leaders in respective positions and each player has no further points to spend.

1.B.2. **Quick Team Building:** Each Player draws an organization card.

1.B.2.a. Roll to determine who chooses first (lowest score wins)

1.B.2.b. Each Player chooses a maneuver card.

1.B.2.c. Each Player chooses a staff card.

1.C. Opponent gets to swap one leader on opposing organization (1LT/2LT only). Write in the swapped values with Quick Team Building.

1.D. Each player gets to add 12 experience points (limit of 2 values upgraded per leader) to his organization. Any value may be upgraded in the LD, COM, and leader behavior. The cost to upgrade any value is annotated as “C: X” where X is the number of experience points required to upgrade a given value. For example, a 1LT with a C: 1 can be upgraded once for 1 experience point or twice for 2 experience points. Upgrading the leader behavior changes the stacking effect accordingly in the following step.

1.E. Add up War fighting Function (WfF) values for each specific WfF. Leaders halve their WfF values that do not match their assignment, rounding down. Any unfilled positions count as zero.

2.A. Phase 2A: Plan

2.A.1. Roll to see who goes first (lowest score wins). Player with higher C2 score receives (-1). The Front Line of Troops (FLOT) for Red team is MSR RED. The FLOT for Blue team is ASR BLUE.

2.A.2. Deploy reconnaissance assets (scouts) no further than four hexes beyond respective FLOTs.

2.A.3. Alternate deploying elements by company (A/B/C). Units can deploy no further than their team’s respective FLOT. Attach support elements accordingly. No more than five elements can deploy with one CO, not counting leaders (CO and XO). BN Leader units (BN CDR, TAC, MAIN) and support units (CTCP, DISTRO, UMCP) then deploy last. The UMCP cannot deploy within five spaces of the FLOT.

2.A.4. The UMCP cannot move once deployed. Ensure all units deploy within support range except scout units.

2.A.5. Players alternate making Intel checks. If player fails intel check, opponent can redeploy one entire maneuver company (with attached elements)

2.B. Phase 2B: Execute

2.B.1. **Battle Round Initiative:** Players roll off to see who goes first (lowest roll wins, subtract BN XO LD value from roll) then players alternate each WfFs. For example, the player who rolled the lowest value wins the Battle Round Initiative and executes

2.B.2. **Intelligence (I)**

2.B.2.a. Roll under Intel to confirm enemy positions (reset Fog of War if failed)

2.B.2.b. Roll LD to activate scouts (Add M2 value to LD if SCT PL is in MAIN comm range). Scouts cannot be UNSUPPORTED.

2.B.3. **Protection (P)** Roll Protection to activate ADA and EN asset (ADA and EN cannot activate if failed)

2.B.4. **Fires (F)**

2.B.4.a. Roll LD to activate mortars (add M2 value to LD if in MAIN comm range)

2.B.4.b. Roll Fires to initiate new call for fire mission (if no fire mission underway currently) or to move mission along fires track

2.B.4.c. Roll Fires to call Air Support (if players destroyed enemy ADA and no fire mission underway)

2.B.5. **Command and Control (C2)**

2.B.5.a. Roll C2 for MAIN comm range (add XO C2 value if applicable, halve MAIN range if failed)

2.B.5.b. Determine units outside of MAIN comm range (MAIN/S3/BC > CO > PL)

2.B.5.c. Roll C2 by CO in comm range to determine if company sized element can activate altogether.

2.B.6. **Movement and Maneuver (M2)**

2.B.6.a. Alternate activating unit(s) that passed C2 roll to activate company sized elements

2.B.6.b. Roll LD to activate remaining maneuver units one by one (add LD of CO/S3 if attached, add M2 value to LD if in MAIN comm range)

2.B.6.c. Roll LD for any unit that sustained damage (add LD of CO/S3 if attached, add M2 value if in MAIN comm range)

2.B.6.d. Any unit that fails break test moves half distance directly away from nearest enemy

2.B.7. **Sustainment (S)** Players may conduct the Sustainment phase simultaneously.

2.B.7.a. Roll LD to activate Support units (Distro PLT, CTCP). The UMCP cannot move.

2.B.7.b. Roll Sustainment for Support range of Support units (add BN XO S value if applicable, halve support range if failed)

2.B.7.c. Verify Support range and Support chain (UMCP > CTCP > DISTRO > company XOs) (maneuver units outside of support range become UNSUPPORTED until the following sustainment step. Place a red marker by UNSUPPORTED units.)

3. Phase 3: Assess

3.A. Calculate VPs:

3.A.1. One VP for every friendly unit that crosses the opposing FLOT.

3.A.2. One VP for each enemy unit destroyed.

3.B: The player with the most VPs wins.

4. Activating a Unit:

4.A. When a maneuver unit activates on the tactical map, the activated unit chooses one option:

4.A.1. Maneuver (and engage) the first value displayed in the Mnvr/Move column in the Quick Reference Unit/Combat Sheet.

4.A.2. Move (and engage) the second value displayed in the Mnvr/Move column in the Quick Reference Unit/Combat Sheet.

4.A.3. Remain stationary (and engage).

4.B. **Activating multiple units:** when a player activates multiple units, they execute simultaneously, and players resolve all engagements simultaneously.

5. Engagements

5.A. A unit can engage any enemy unit identified within line of sight, the second value displayed in the Vis/ID column and within the value displayed in the Range column. A unit can engage with all weapons in range in the Quick Reference Unit/Combat Sheet. The enemy returns fire when engaged. The enemy's return engagements occur simultaneously. Support elements cannot engage. Units roll as many dice as they have hit points.

5.A.1. Determine range from unit to target. Every step available to a unit provides a die to roll. (e.g. four for vehicles and two for dismounts)

5.A.2. Determine all accuracy modifiers. Add all modifiers to appropriate accuracy value. Roll to determine if the unit hit by rolling under the modified value. If the rolled value is under the modified value, the engagement continues, otherwise it is a miss and the activation ends.

5.A.3. Determine weapon type versus target type.

5.A.4. Determine all damage modifiers. Add all modifiers to 9. Roll to determine if the unit inflicted damage by rolling under the modified value.

5.A.5. If the damage roll is under the modified value, the target suffers one step of damage and the unit's activation ends.

5.B. Engagements with multiple units: The target of an engagement by multiple units returns fire against only one of the engaging units. If multiple targets are engaged, each target returns fire simultaneously. A single unit can engage multiple, eligible units.

6. Health and Damage

6.A. Reference the Quick Reference Unit/Combat Sheet for each unit to determine starting health and remainder of steps.

6.B. A unit rotates counterclockwise for each step of health lost. When a unit has no more steps, remove it from the table.

7. Maneuver/Move (Mnvr/Move)

7.A. A unit moves from its initial position up to the value displayed in the Mnvr/Move column.

7.B. Vehicles cannot move through mountains.

7.C. Reduce the value by one, to a minimum of one, in IV lines, and increase movement by no more than one if a unit lands on a road space during its activation.

8. Line of Sight (LoS)

8.A. A player establishes LoS by the shortest possible distance of hexagons between one unit and another up to the distance of the first value displayed in the Vis/ID column in the Quick Reference Unit/Combat Sheet.

9. Call for Fire (CfF)

If the CfF tracker is on STANDBY, roll Fires to move to READY and end the CfF sequence for this turn. If the CfF tracker is on READY, follow the steps below after a successful Fires roll:

9.A. Establish line of sight from observer to target.

9.B. Coordinate and clear air space. No air support allowed this battle round or the next battle round. Move the Air Support tracker to OFF STATION.

9.C. Observe and report effects. Roll equal to or under a 3/5/7 to inflict a step of damage in the targeted grid square against A/L/I, respectively. Infantry hit by CfF cannot move in the next turn.

9.D Continue or end fire mission. If the fire mission continues, shift fire to grid square within one hexagon and repeat step 3 in the next battle round. If the fire mission ends, then move the CfF tracker to STANDBY.

10. Air Support

Follow the track below. If the enemy ADA asset exists, then the tracker begins and remains at OFF STATION. If a player destroys the enemy ADA asset, then Air Support moves to ON STATION in the following turn unless a fire mission is underway in the steps described above. If the tracker is ON STATION, then Air Support executes after a successful Fires roll as follows:

10.A. Determine target of Air Support.

10.B. Roll for accuracy equal to or under a value of 8.

10.C. Roll for damage equal to or under a value of 8. Deal one step of damage if successful.

10.D. Regardless if the engagement was successful or not, Air Support is not available in the following battle round after engaging. Move the tracker from ON STATION to REFIT.

If the tracker is on REFIT after Air Support executes in the previous turn, then roll Fires to move the tracker to ON STATION to make Air Support available in the following turn

APPENDIX C

PLAYER PACKET

Objective: Score the most victory points (VPs). VPs earned via accomplishing the tactical objectives and surviving LD of maneuver units.

Phase 1: Build the Team
Phase 2A: Plan
Phase 2B: Execute
Phase 3: Assess

Phase 1: Build the Team

- 1.1. Determine who is Red/Blue team.
- 1.2. Players alternate 'assigning and training' leaders.
 - 1.2.a. Roll to determine who chooses first (lowest score wins)
 - 1.2.b. Each Player chooses six officers, one officer from each WFF.
 - 1.2.c. Place leaders in respective positions. Positions are limited only by rank. Leaders cannot switch positions once placed.
 - 1.2.d. Alternate until all leaders are placed in respective positions and each player has no further points to spend.
- 1.3. Opponent gets to swap one leader on opposing organization (1LT/2LT only).
- 1.4. Each player gets to add 12 experience points (limit of 2 per leader) to his organization.
- 1.5. Add up War fighting Function (WFF) values for each specific WFF. Leaders halve their WFF values that do not match their assignment, rounding down. Any unfilled positions count as zero.

Phase 2A: Plan

- 2A.1. Roll to see who goes first (lowest score wins and may choose to deploy first or second). Player with higher C2 score receives (-1). The Front Line of Troops (FLOT) for Red team is MSR RED. The FLOT for Blue team is ASR BLUE.
- 2A.2. Deploy reconnaissance assets (scouts) no further than four hexes beyond respective FLOTS.
- 2A.3. Alternate deploying elements by Company (A/B/C). Units can deploy no further than their team's respective FLOT. Attach support elements accordingly. No more than five elements can deploy with one CO, not counting leaders. BN Leader units (BN CDR, TAC, MAIN) and support units (CTCP, DISTRO, UMCP) are then deployed last.
- 2A.4. The UMCP cannot move. Ensure all units are deployed within support range except scout units.
- 2A.5. Players alternate making Intel checks. If player fails intel check, opponent can redeploy one entire maneuver company (with attached elements)

Phase 2B: Execute

2B.1. **Battle Round Initiative:** Players roll off to see who goes first (lowest roll wins, subtract BN XO LD value from roll) then players alternate each step in the WFFs. See the opposite side for each WFF.

Phase 3: Assess

3.1 Calculate VPs:

- 3.1.a. One VP for every friendly unit that crosses the opposing FLOT.
- 3.1.b. One VP for each enemy unit destroyed.

Quick Reference Rules Sheet 1/2

2B.2 Intelligence

- a. Roll under Intel to confirm enemy positions (reset Fog of War if failed)
- b. Roll LD to activate scouts (Add M2 value to LD if SCT PL is in MAIN comm range). Scouts cannot be UNSUPPORTED.

2B.3. Protection Roll Protection to activate ADA and EN assets (cannot activate if failed)

2B.4. Fires

- a. Roll LD to activate mortars (add M2 value to LD if in MAIN comm range)
- b. Roll Fires to initiate new call for fire mission (if no fire mission underway currently) or to move mission along fires track
- c. Roll Fires to call Air Support (if enemy ADA has been destroyed and no fire mission underway)

2B.5. C2

- a. Roll C2 for MAIN comm range (add BN XO C2 value if applicable, halve MAIN range if failed)
- b. Determine units outside of MAIN comm range (MAIN/S3/BC > CO > PL)
- c. Roll C2 by CO in comm range to determine if company sized element can activate altogether, including all attachments.

2B.6. M2

- a. Alternate activating unit(s) that passed C2 roll to activate Company sized elements
- b. Roll LD to activate remaining maneuver units one by one (add LD of CO/S3 if attached, add M2 value to LD if in MAIN comm range)

2B.7. Sustainment Players may conduct the Sustainment phase simultaneously.

- a. Roll LD to activate Support units (Distro PLT, CTCP). The UMCP cannot move.
- b. Roll Sustainment for Support range of Support units (add BN XO S value if applicable, halve support range if failed)
- c. Verify Support range and Support chain (UMCP > CTCP/ DISTRO > Company XO's) (maneuver units outside of support range are considered UNSUPPORTED until the following sustainment step. Place a red marker by UNSUPPORTED units.)

Quick Reference Unit/Combat Sheet

	Steps	Mnvr/Move	Armor	Vis/ID	Range	Target	Accuracy	Damage	Rules
TANK	4	2/6	A	10/7					
120mm					4	A/L	9	9	No (-) modifier for mnvr/move and shooting
50/240C					1	I	7	6	
IFV	4	2/5	L	10/7					
30mm					2	L	7	7	
240C					1	I	6	6	
TOW					3	A/L	8	9	Cannot mnvr/move and shoot
Dismounts	2	1/1	I	6					
Javelin					2	A/L	9	9	Cannot mnvr/move and shoot, no (-) modifier for > half max range.
M1/240B					1	I	5	6	
MORTAR	2	1/4	L	6					
120mm					4	L/I	7		LoS can be drawn from other friendly units. Ignore all modifiers provided by terrain.
CMD TANK	2	2/6	A	10/7					
CMD IFV	2	2/5	L	10/7					
Support Unit	2	1/4	L	4					

Accuracy Modifiers	
Move and shoot	-3
Maneuver and shoot	-1
>half max range	-1
Target is moving	-1
Shooter Stationary	+1
Target in IV Line	-3
Target in Mountains	-5
Target in Urban	-5
Target in Open	+1
UNSUPPORTED	-2

Damage Modifiers	
A/L versus I Target	-1
L/I versus A Target	-5
I versus A/L Target	-5
(I) Target in Mountains	-3
(I) Target in Urban	-5
(A/L) Target in IV Line	-3
Target in Open	+1
UNSUPPORTED	-2

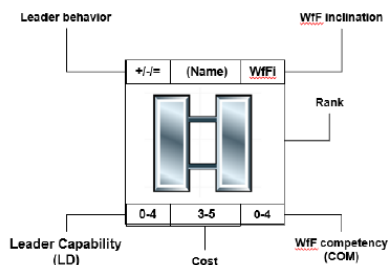
Unit	C2 Range	FAIL
BN CDR	3	
TAC	3	
MAIN	8	
CO	3	
Unit	S Range	FAIL
UMCP	10	
CTCP	8	
DISTRO	6	
XO	4	


Leader Tokens Orientation Sheet


+ Positive leadership behaviors in tactical situations (+1)
 = Sustaining leadership behaviors (0)
 - Negative leadership behaviors (-1)


Establishing chains of leadership behaviors has compounding effects on an organization and unit. A (+) leader grants a +1 to all LD and WfF checks made by themselves and subordinates. E.g. A (+) CO grants the XO and PLs in his unit +1 to LD checks. A (-) leader grants a -1 to all LD and WfF checks made by themselves and subordinates. A (-1) leader does not grant the benefit of +1 from (+) leaders. A (-1) leader disrupts the chain of command and halts the +1 effect of a (+) leader. E.g. the BN XO is (+), the S2 CPT is (-), and the AS2 LT is (=). The (+) benefit of the BN XO is halted by the (-) S2 and does not affect the (-) S2 or the (=) AS2.


War fighting Functions
 I – Intel
 C2 – Command and Control
 P - Protection
 F - Fires
 M2 – Movement and Maneuver
 S - Sustainment



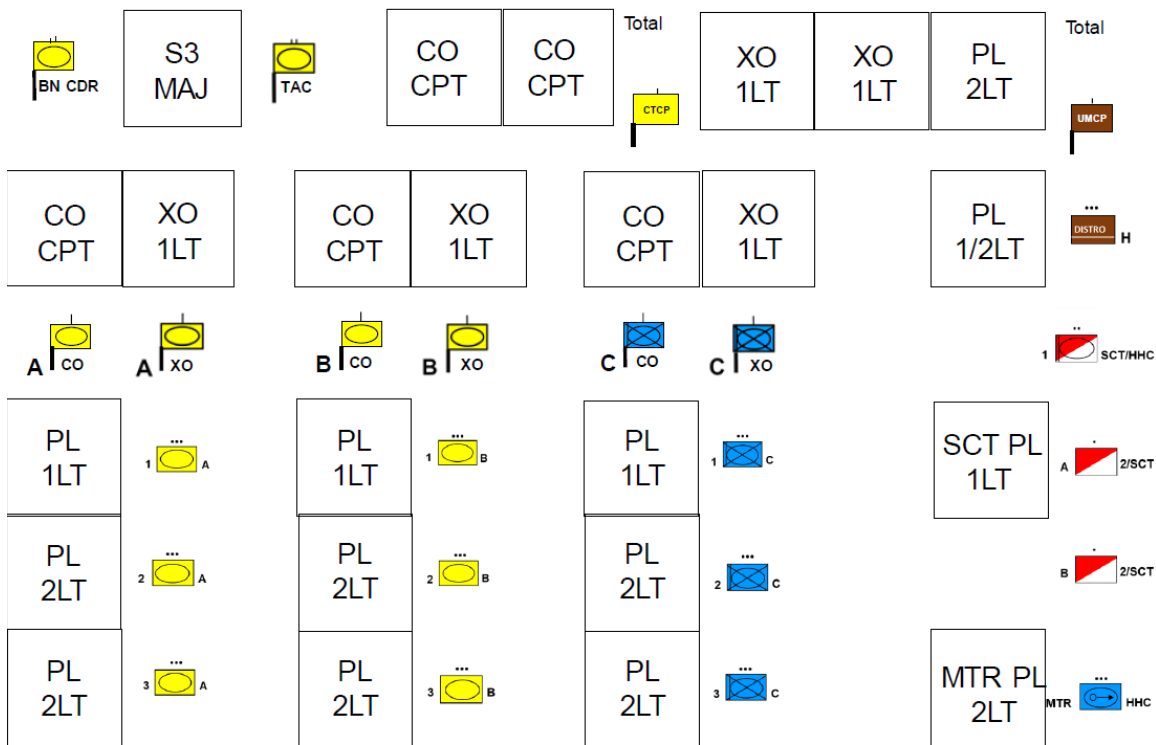
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0-4	3-5	0-5

+/=/=	(Name)	WfFi
		
0-3	2-4	0-4

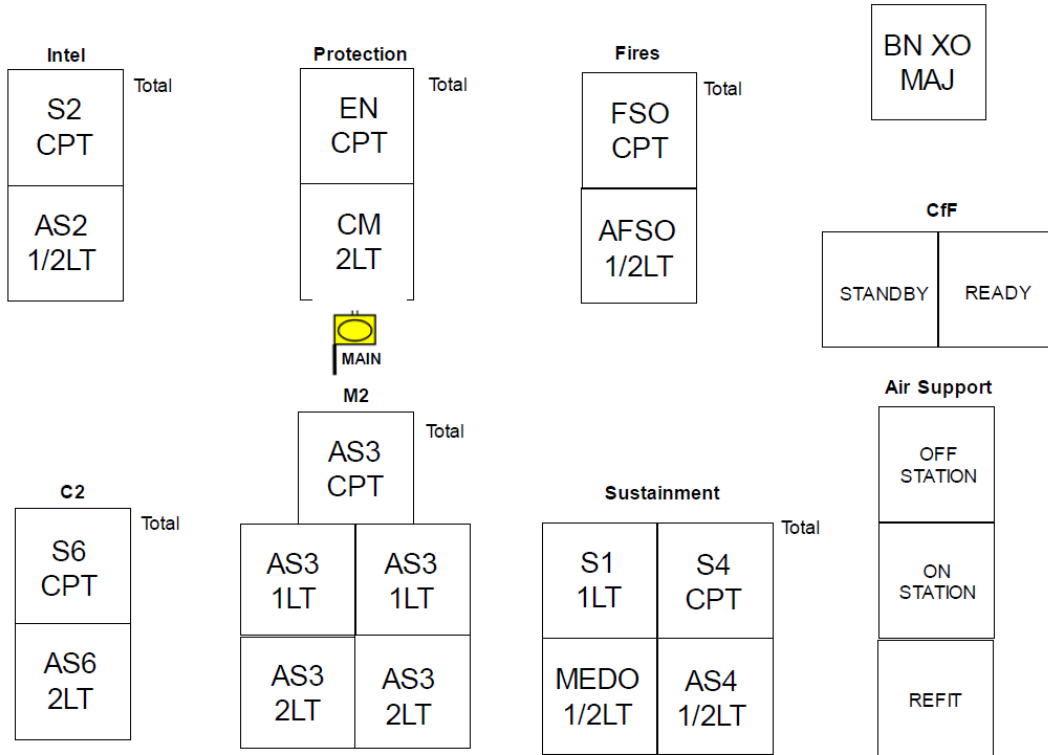
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0-2	1-3	0-3

+/=/=	(Name)	WfFi
		
0-1	1-2	0-2

Maneuver Team Sheet




Staff Team Sheet





APPENDIX D


PRE-MADE TEAM SHEETS

Intro Maneuver Team Sheet A


=	MAJ	M
		
4	C:4	3


=	CPT	S
		
TAC		


=	CPT	S
		
2	C:3	3


=	CPT	S
		
2	C:3	2

Total


=	1LT	S
		
CTCP		


=	1LT	S
		
2	C:2	2


=	1LT	M
		
1	C:2	2


-	2LT	S
		
0	C:2	1


Total


=	1LT	S
		
UMCP		


=	CPT	P
		
3	C:3	2


=	1LT	S
		
1	C:2	2

+	CPT	I
		
4	C:2	3


-	1LT	I
		
2	C:3	0


-	CPT	C
		
3	C:4	1


=	1LT	F
		
2	C:2	2


=	1LT	M
		
2	C:2	1


DISTR0 H


A	CO
	


A	XO
	


B	CO
	


B	XO
	


C	CO
	


C	XO
	


1	SCT/HHC
	


-	1LT	C
		
1	C:3	0


1	A
	


-	1LT	M
		
0	C:3	2


1	B
	


+	1LT	I
		
1	C:1	3


1	C
	


+	1LT	S
		
2	C:1	1


A	2/SCT
	


=	2LT	M
		
1	C:1	0


2	A
	


+	2LT	S
		
1	C:1	1


2	B
	


+	1LT	I
		
1	C:1	1


3	C
	


+	2LT	M
		
1	C:1	0

B	2/SCT
	










+	2LT	P
		
0	C:1	1









3	C
	








=	2LT	F
		
1	C:1	0











MTR	HHC
	











Intro Maneuver Team Sheet B











-	MAJ	M			+	CPT	S	-	CPT	S	Total	=	1LT	S	=	1LT	M	+	2LT	S	Total	
																						
3	C: 3	3			2	C: 2	3	2	C: 4	2				2	C: 2	2	1	C: 2	2	0	C: 1	1











=	CPT	P	=	1LT	S	+	CPT	I	=	1LT	I	=	CPT	C	=	1LT	F	+	1LT	M	***	DISTRO	H
																							
2	C: 3	2	1	C: 2	2	3	C: 2	3	1	C: 3	0	3	C: 3	1	2	C: 2	2	2	2	C: 1	1		











A	CO	A	XO	B	CO	B	XO	C	CO	C	XO	1	SCT/HHC
													











=	1LT	C	=	1LT	M	+	1LT	I	=	1LT	S	=	1LT	S	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	F	MTR	HHC	
																																
2	C: 2	0	1	***	A	0	C: 2	2	1	C: 1	3	1	***	C	2	***	A	1	C: 1	1	1	***	A	1	C: 1	1	0	***	B	2	***	B

=	1LT	C	=	1LT	M	+	1LT	I	=	1LT	S	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	F	MTR	HHC	
																																
2	C: 2	0	1	***	A	0	C: 2	2	1	C: 1	3	1	***	C	2	***	A	1	C: 1	1	1	***	A	1	C: 1	1	0	***	B	2	***	B

=	1LT	C	=	1LT	M	+	1LT	I	=	1LT	S	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	F	MTR	HHC	
																																
2	C: 2	0	1	***	A	0	C: 2	2	1	C: 1	3	1	***	C	2	***	A	1	C: 1	1	1	***	A	1	C: 1	1	0	***	B	2	***	B

=	1LT	C	=	1LT	M	+	1LT	I	=	1LT	S	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	F	MTR	HHC	
																																
2	C: 2	0	1	***	A	0	C: 2	2	1	C: 1	3	1	***	C	2	***	A	1	C: 1	1	1	***	A	1	C: 1	1	0	***	B	2	***	B

=	1LT	C	=	1LT	M	+	1LT	I	=	1LT	S	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	F	MTR	HHC	
																																
2	C: 2	0	1	***	A	0	C: 2	2	1	C: 1	3	1	***	C	2	***	A	1	C: 1	1	1	***	A	1	C: 1	1	0	***	B	2	***	B

=	1LT	C	=	1LT	M	+	1LT	I	=	1LT	S	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	M	=	2LT	F	MTR	HHC	
																																
2	C: 2	0	1	***	A	0	C: 2	2	1	C: 1	3	1	***	C	2	***	A	1	C: 1	1	1	***	A	1	C: 1	1	0	***	B	2	***	B

Intro Staff Team Sheet A

Intel Total

=	CPT	I
1	C:3	4
=	2LT	I
0	C:1	1

Protection Total

=	CPT	P
2	C:3	3
=	2LT	P
0	C:1	1

Fires Total

-	CPT	F
1	C:4	1
+	2LT	F
1	C:1	1

-	MAJ	S
3	C:5	2

CfF

STANDBY	READY
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M2 Total

+	CPT	M
3	C:2	4

C2 Total

=	CPT	C
1	C:3	3
-	2LT	C
0	C:2	1

+	1LT	M	-	1LT	F
2	C:1	3	0	C:3	1
-	2LT	P	-	2LT	I
0	C:2	1	0	C:2	1

Sustainment Total

=	1LT	S	=	CPT	M
0	C:2	2	3	C:3	2
=	2LT	C	=	1LT	P
1	C:1	0	1	C:2	2

Air Support

OFF STATION
ON STATION
REFIT

Intro Staff Team Sheet B

Intel Total

=	CPT	I	
1	C:3	3	
=	2LT	I	
0	C:1	2	

Protection Total

=	CPT	P	
2	C:3	3	
=	2LT	P	
0	C:1	2	

Fires Total

+	CPT	F	
2	C:2	4	
=	2LT	F	
1	C:1	2	

-	MAJ	C
3	C:3	4

CfF

STANDBY	READY
---------	-------



M2 Total

=	CPT	M	
3	C:3	2	

C2 Total

-	CPT	C
1	C:4	3
=	2LT	C
0	C:1	2

=	1LT	M	=	1LT	F
2	C:1	2	0	C:2	2
=	2LT	P	=	2LT	I
0	C:1	1	0	C:1	2










Sustainment Total









=	1LT	S	+	CPT	M
0	C:2	1	3	C:2	1
=	2LT	C	=	1LT	P
1	C:1	1	1	C:2	1








Air Support










OFF STATION
ON STATION
REFIT









Maneuver Team Sheet C






=	MAJ	M			+	CPT	S	=	CPT	S	Total	=	1LT	S	=	1LT	M	-	2LT	S	Total		
																							
4	C:4	3			2	C:2	3	2	C:3	2			2	C:2	2	1	C:2	2	0	C:2	1		

-	CPT	P	=	1LT	S	+	CPT	I	-	1LT	I	+	CPT	C	=	1LT	F	-	1LT	M	***	DISTRO	H		
																									
3	C:4	0	1	C:2	2	4	C:3	3	2	C:3	0	3	C:4	1	2	C:2	2	2	2	C:3	1				

A	CO	A	XO	B	CO	B	XO	C	CO	C	XO	1	SCT/HHC
													



=	1LT	C	1	***	A	-	1LT	M	0	***	B	=	1LT	I	1	***	C	-	1LT	S	1	***	A	2/5CT
																								
1	C:3	0					0	C:3	2			1	C:2	3			2	C:2	1					

+	2LT	M	2	***	A	+	2LT	S	1	***	B	+	2LT	C	2	***	C	-	1LT	M	2	***	A	2/5CT
																								
1	C:1	0					1	C:1	1			2	C:1	1			3	C:1	1					



+	2LT	M	3	***	A	=	2LT	P	0	***	C	-	2LT	F	1	***	MTR	HHC
																		
1	C:1	1					1	C:2	0									

Staff Team Sheet C



Intel Total


=	CPT	I	
			
1	C:3	4	
=	2LT	I	
			
0	C:1	1	

Protection Total

=	CPT	P	
			
2	C:3	3	
=	2LT	P	
			
0	C:1	1	

Fires Total

-	CPT	F	
			
1	C:4	1	
+	2LT	S	
			
1	C:1	1	


-	MAJ	C
		
3	C:5	2

CfF



STANDBY	READY
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M2 Total



+	CPT	M	
			
3	C:2	4	

C2 Total

=	CPT	C	
			
1	C:3	3	
=	2LT	C	
			
0	C:2	1	

+	1LT	M	-	1LT	F
					
2	C:1	3	0	C:3	1
=	2LT	M	-	2LT	I
					
0	C:2	1	0	C:2	1

Sustainment Total



=	1LT	S	=	CPT	M	
						
0	C:2	2	3	C:3	2	
=	2LT	C	=	1LT	P	
						
1	C:1	0	1	C:2	2	

Air Support



OFF STATION
ON STATION
REFIT

Staff Team Sheet D



Intel Total


=	CPT	I
		
1	C:3	3
-	ZLT	M
		
0	C:2	2

Protection Total

=	CPT	P
		
2	C:3	3
=	ZLT	P
		
0	C:1	2

Fires Total

+	CPT	F
		
2	C:2	4
=	ZLT	F
		
1	C:1	2


-	MAJ	S
		
3	C:3	4

CfF



STANDBY	READY
---------	-------





M2 Total





=	CPT	M
		
3	C:3	2

C2 Total

=	CPT	C
		
1	C:3	3
=	ZLT	M
		
0	C:1	2

=	1LT	M	=	1LT	I
					
2	C:1	3	0	C:2	1
=	ZLT	P	=	ZLT	I
					
0	C:1	1	0	C:1	1


Sustainment Total


=	1LT	S	-	CPT	M
					
0	C:2	2	3	C:4	2
=	ZLT	C	=	1LT	P
					
1	C:1	1	1	C:2	2


Air Support

OFF STATION
ON STATION
REFIT


EX Maneuver Team Sheet E


=	MAJ	M
		
4	C:4	3

		
TAC		


=	CPT	S	=	CPT	S
					
2	C:3	3	2	C:3	2


Total


		
CTCP		


=	1LT	S	=	1LT	M	-	2LT	S
								
2	C:2	2	1	C:2	2	0	C:2	1


Total

		
UMCP		


=	CPT	P	=	1LT	S
					
3	C:3	2	1	C:2	2


=	CPT	I	-	1LT	I
					
4	C:3	3	2	C:3	0


=	CPT	C	=	1LT	F
					
3	C:3	1	2	C:2	2


=	1LT	M
		
2	C:2	1


DISTRO H


	
A CO	


	
A XO	




	
B CO	


	
B XO	


	
C CO	


	
C XO	




1  SCT/HHC


-	1LT	C
		
1	C:3	0
-	2LT	M
		
1	C:2	0
=	2LT	M
		
1	C:1	1


1  A


2  A




3  A


-	1LT	M
		
0	C:3	2
=	2LT	S
		
1	C:1	1
=	2LT	M
		
1	C:1	0


1  B


2  B


3  B


=	1LT	I
		
1	C:2	3
=	2LT	C
		
1	C:1	1
=	2LT	P
		
0	C:1	1


1  C


2  C


3  C

=	1LT	S
		
2	C:2	1


A  2/SCT


B  2/SCT


=	2LT	F
		
1	C:1	0

MTR  HHC


EX Maneuver Team Sheet F


=	MAJ	P
		
3	C:3	3


	
TAC	


=	CPT	S	-	CPT	S
					
2	C:2	3	2	C:4	2

Total


	
CTCP	

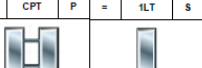
=	1LT	S
		
2	C:2	2


=	1LT	M
		
1	C:2	2


=	2LT	S
		
0	C:1	1


Total

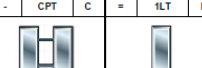
	
UMCP	


=	CPT	P
		
2	C:3	2


=	1LT	S
		
1	C:2	2

-	CPT	I
		
3	C:4	3


=	1LT	I
		
1	C:3	0


-	CPT	C
		
3	C:4	1


=	1LT	F
		
2	C:2	2


=	1LT	M
		
2	C:2	1


DISTRO H


	
A CO	


	
A XO	

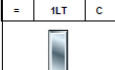
	
B CO	


	
B XO	

	
C CO	


	
C XO	


1		
SCT/HHC		


=	1LT	C
		
2	C:2	0


1		
*** A		


=	1LT	M
		
0	C:2	2

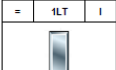
1		
*** B		


=	2LT	S
		
1	C:1	1


2		
*** A		


=	2LT	M
		
1	C:1	1


3		
*** A		


=	1LT	I
		
1	C:2	3


1		
*** C		


=	2LT	C
		
1	C:2	1


2		
*** C		


=	2LT	P
		
0	C:1	1


3		
*** C		


=	1LT	S
		
1	C:2	1

1		
*** A 2/SCT		

=	2LT	F
		
1	C:1	0

1		
*** B 2/SCT		

=	2LT	F
		
1	C:1	0

MTR		
*** HHC		

EX Staff Team Sheet E

Intel

-	CPT	M	Total
1	C:4	4	
=	2LT	I	
0	C:1	1	

Protection

=	CPT	P	Total
2	C:3	3	
=	2LT	P	
0	C:1	1	

Fires

-	CPT	F	Total
1	C:4	1	
=	2LT	F	
1	C:1	1	

-	MAJ	C
3	C:5	2

CfF

STANDBY	READY
---------	-------



M2

=	CPT	M	Total
3	C:3	4	

C2

-	CPT	C	Total
1	C:4	3	
=	2LT	C	
0	C:2	1	

=	1LT	M	-	1LT	F	Total
2	C:1	3	0	C:3	1	
=	2LT	M	-	2LT	I	
0	C:1	1	0	C:2	1	

Sustainment

=	1LT	S	-	CPT	M	Total
0	C:2	2	3	C:4	2	
=	2LT	C	=	1LT	P	
1	C:1	0	1	C:2	2	

Air Support

OFF STATION
ON STATION
REFIT

EX Staff Team Sheet F

Intel Total

=	CPT	I
1	C:3	2
=	ZLT	I
0	C:1	2

Protection Total

=	CPT	P
3	C:3	2
=	ZLT	P
0	C:1	2

Fires Total

=	CPT	F
3	C:3	1
=	ZLT	F
1	C:1	2

-	MAJ	S
3	C:3	2

CfF

STANDBY	READY
---------	-------



M2 Total

-	CPT	M
3	C:4	3

C2 Total

-	CPT	C
1	C:4	3
+	ZLT	F
0	C:1	2

=	1LT	M	=	1LT	F
2	C:1	3	0	C:2	1
=	ZLT	P	=	ZLT	I
0	C:1	1	0	C:1	1

Sustainment Total





































-	1LT	S	-	CPT	S
0	C:3	2	3	C:4	2
=	ZLT	C	=	1LT	P
1	C:1	1	1	C:2	2

Air Support

OFF STATION
ON STATION
REFIT

APPENDIX E

UNIT AND LEADER TOKENS

+	HIGGINS	M		+	PHILIPS	I		=	RUC	F		=	DRON	P		-	WBIT	C		-	PHIZ	S	
4	C: 3	5		4	C: 3	5		4	C: 4	3		2	C: 4	5		2	C: 5	2		1	C: 5	2	
-	SPRICE	M		-	REED	I		=	NBIT	F		=	WHITE	P		+	JACQUE	C		+	BARNES	S	
1	C: 5	3		2	C: 5	2		3	C: 4	4		4	C: 4	4		2	C: 3	3		4	C: 3	4	
+	HART	M		+	CARL	I		+	FIELD	F		+	DAVIS	P		+	OWEN	C		+	HODG	S	
3	C: 2	4		4	C: 2	3		4	C: 2	3		4	C: 2	3		3	C: 2	3		3	C: 2	3	
=	TATE	M		=	DAY	M		=	BAKER	I		=	POPE	I		=	KELLY	F		=	NORM	F	
3	C: 3	2		3	C: 3	3		3	C: 3	3		1	C: 3	4		2	C: 3	3		3	C: 3	2	
=	CLAPP	P		=	SOLO	P		=	SHAW	C		=	WOLF	C		=	LANE	S		=	WALT	S	
3	C: 3	2		2	C: 3	3		3	C: 3	3		1	C: 3	3		2	C: 3	2		2	C: 3	3	
-	SCOTT	M		-	REED	I		-	HANS	F		-	FRANK	P		-	ROWE	C		-	MCGEE	S	
1	C: 4	2		2	C: 4	2		1	C: 4	1		2	C: 4	1		3	C: 4	1		1	C: 4	2	

+	HUGHES	M
2	C:1	3
=	BLAIR	M
0	C:2	3
=	ORTIZ	F
2	C:2	2
=	WELLS	C
2	C:2	1
-	RYAN	M
0	C:3	2

+	MILES	I
1	C:1	3
=	RYAN	M
2	C:2	1
=	WHITE	F
1	C:2	3
=	TYLER	C
1	C:2	2
-	GRUBB	I
2	C:3	0

+	WENZEL	F
2	C:1	2
=	HENRY	M
1	C:2	2
=	HARDY	F
0	C:2	3
=	RUGG	C
1	C:2	0
-	GREEN	F
0	C:3	1

+	COLE	P
2	C:1	3
=	BUSH	I
2	C:2	3
=	FISCH	P
2	C:2	1
=	BROCK	S
0	C:2	2
-	WELCH	P
0	C:3	2

+	DRAVIS	C
0	C:1	3
=	BALL	I
1	C:2	1
=	MATHIS	P
1	C:2	2
=	MASON	S
2	C:2	2
-	GLAVER	C
1	C:3	0

+	COX	S
2	C:1	1
=	MOORE	I
1	C:2	2
=	HALL	P
1	C:2	1
=	LUCAS	S
1	C:2	2
-	RICE	S
1	C:3	1

+	TANNER	M
1	C:1	2
+	HENLE	M
0	C:1	1
=	GUY	M
2	C:1	2
=	TEFTZ	M
2	C:1	1
=	KELL	M
0	C:5	2
-	KERN	M
0	C:5	2
-	SELL	M
0	C:5	2

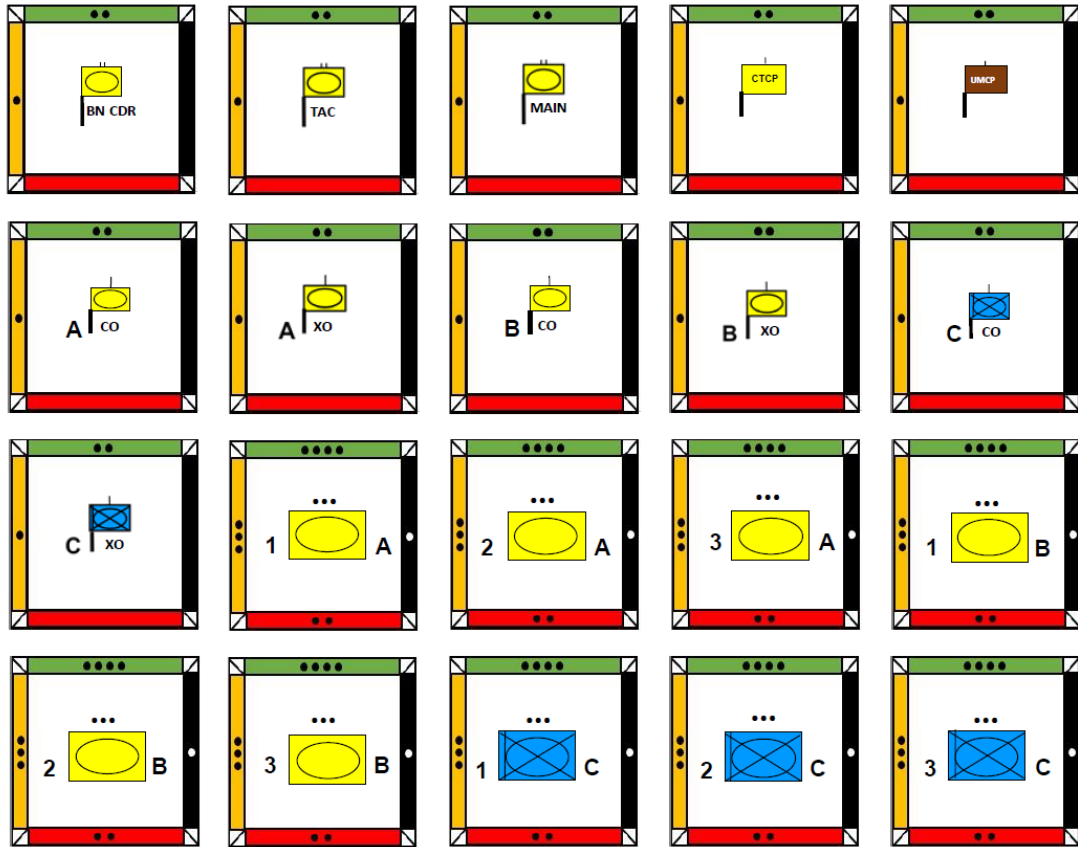
+	CRIPP	I
1	C:1	2
+	PERNE	I
0	C:1	1
=	MCHE	I
1	C:1	3
=	SALVE	I
1	C:1	2
=	PERI	I
2	C:4	0
-	HONEY	I
2	C:4	0
-	JENNI	I
2	C:4	0

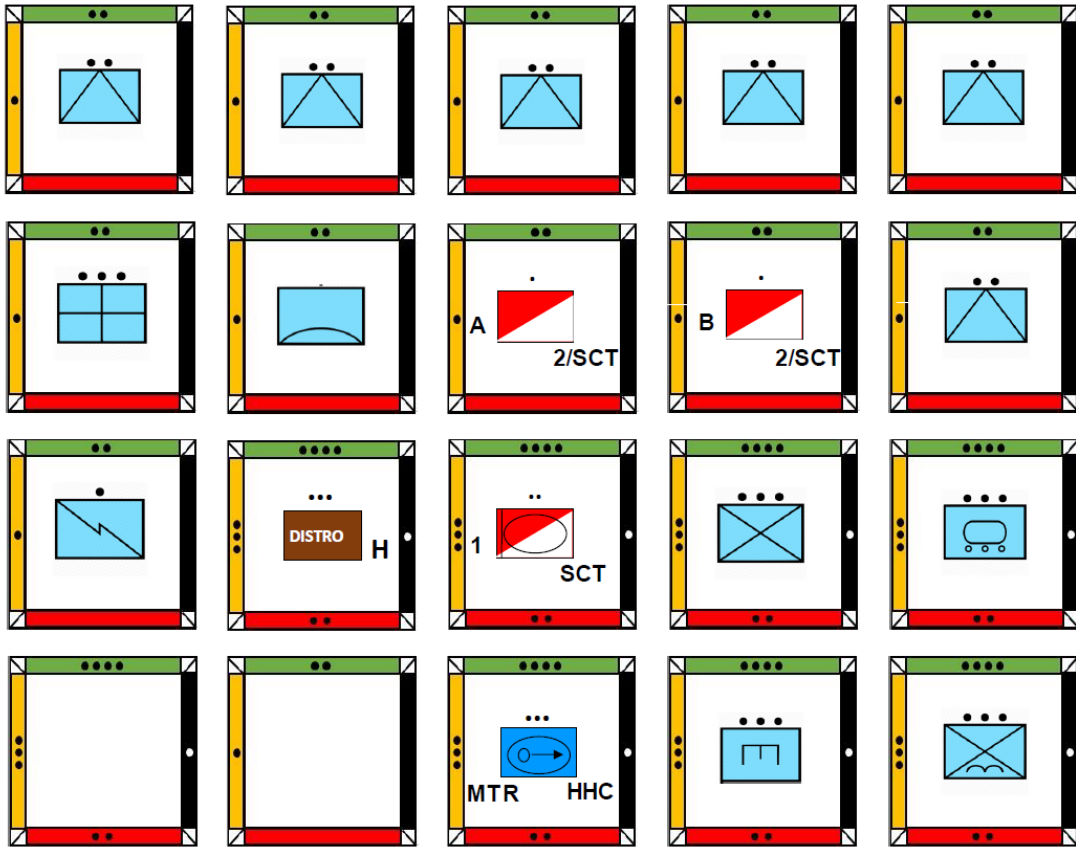
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1	C:1	2
+	LEGER	F
0	C:1	1
=	BLAKE	F
0	C:1	3
=	RENZ	F
1	C:1	0
=	WAUGH	F
0	C:2	1
-	PHILL	F
0	C:2	1
-	HOSAKI	F
0	C:2	1

+	ROEL	P
1	C:1	2
+	VIGLI	P
0	C:1	1
=	DENO	P
2	C:1	1
=	MCCALL	P
0	C:1	2
=	THOMBS	P
0	C:3	2
-	GIBBLE	P
0	C:3	2
-	LANDER	P
0	C:3	2

+	HEKE	C
1	C:1	2
+	MESR	C
0	C:1	1
=	MCCABE	C
1	C:1	2
=	MCFADD	C
2	C:1	2
=	TICHE	C
1	C:3	0
-	OPANA	C
1	C:3	0
-	BARAS	C
1	C:3	0

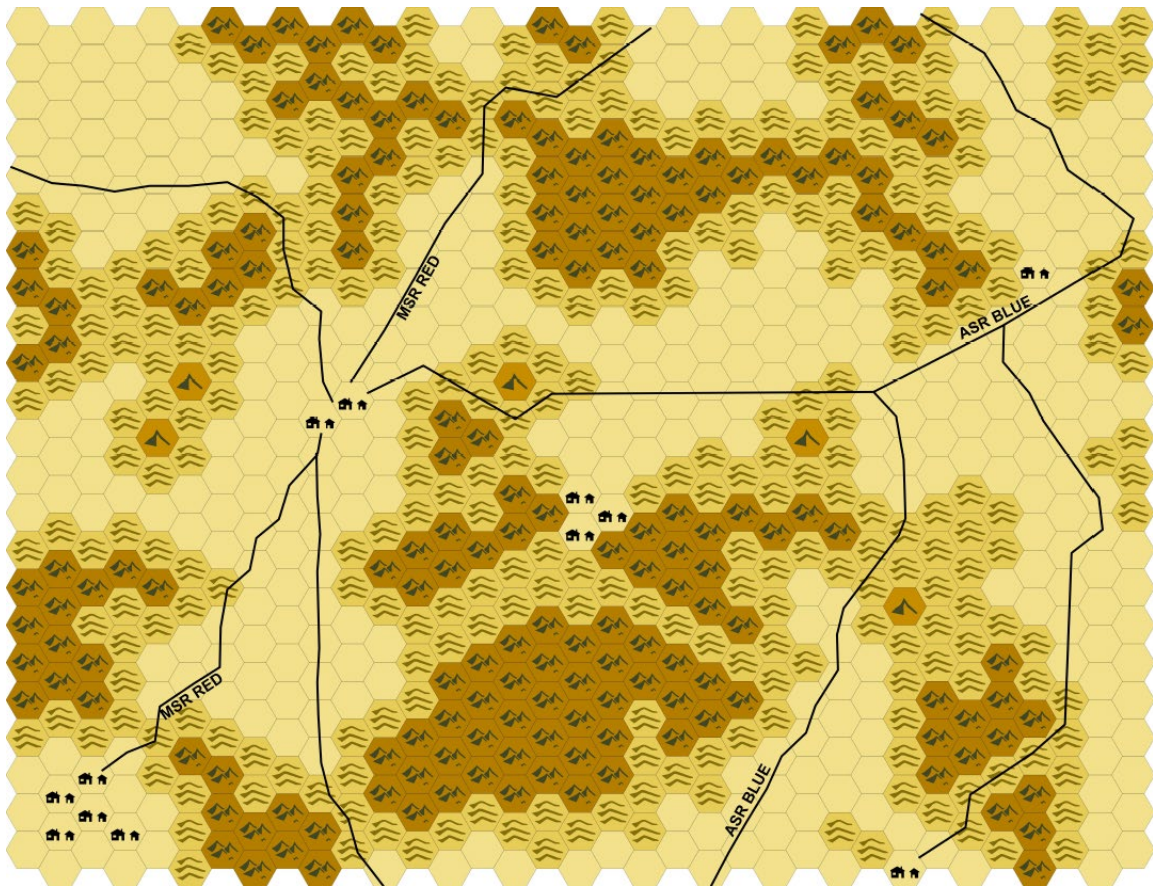
+	HECK	S
1	C:1	2
+	JARRO	S
0	C:1	1
=	HOFF	S
1	C:1	1
=	MILLEN	S
1	C:1	2
=	CILL	S
1	C:3	1
-	PICK	S
1	C:3	1
-	GIST	S
1	C:3	1





APPENDIX F

MAP



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