ARMY AVIATION AND THE MISSION COMMAND WARFIGHTING FUNCTION

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MASTER OF MILITARY ART AND SCIENCE
Art of War Scholars

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This qualitative research in the field of the Mission Command Warfighting Function with a focus on Army Aviation battalions, examines Army and Army Aviation doctrine to assist commanders, staffs, and aviators in the execution of operations. The research explores ways that Army Aviation battalions can train the Mission Command Warfighting Function at home station.

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ABSTRACT

ARMY AVIATION AND THE MISSION COMMAND WARFIGHTING FUNCTION, by MAJ Wyatt Anthony Britten, 82 pages.

This qualitative research in the field of the Mission Command Warfighting Function with a focus on Army Aviation battalions, examines Army and Army Aviation doctrine to assist commanders, staffs, and aviators in the execution of operations. The research explores ways that Army Aviation battalions can train the Mission Command Warfighting Function at home station.

ACKNOWLEDGMENTS

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ACRONYMS

ADP   Army Doctrine Publication

ADRP   Army Doctrine Reference Publication

AFATDS   Advanced Field Artillery Tactical Data System

AMPS   Aviation Mission Planning System

ATP   Army Techniques Publication

ATX   Aviation Training Exercise

AVCATT   Aviation Combined Arms Tactical Trainer

BAE   Brigade Aviation Element

BCT   Brigade Combat Team

BFT   Blue Force Tracker

BFTII   Blue Force Tracker II

CAB   Combat Aviation Brigade

CAS   Close Air Support

COP   Common Operational Picture

CPOF   Command Post of the Future

CPX   Command Post Exercise

CUOPs   Current Operations

DCGS-A   Distributed Common Ground System Army

DS   Direct Support

FM   Field Manual

FTX   Field Training Exercise

FUOPs   Future Operations

JCATS   Joint Conflict and Tactical Simulation

JCR	Joint Capabilities Release
JCR-L	Joint Capabilities Release Logistics
MCIS	Mission Command Information System
MCN	Mission Command Network
MCS	Mission Command System
MCWFF	Mission Command Warfighting Function
MTC	Mission Training Complex
OC-T	Observer Coach Trainer
OSRVT	One System Remote Viewing Terminal
PED	Processing Exploitation and Dissemination
SOP	Standing Operating Procedure
STAFFEX	Staff Exercise
TAC	Tactical Command Post
UAS	Unmanned Aircraft System
VBS3	Virtual Battlespace 3

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CHAPTER 1

INTRODUCTION

I was an Observer Coach-Trainer (OC-T) at the National Training Center from September of 2014 to May of 2016. My duties allowed observation of section, platoon, and company maneuver of attack helicopters working independently and in a combined arms role with ground forces. The OC-T radio network and observation role created a unique perspective where I had situational understanding of enemy and friendly maneuver plans, a real-time observation of the actions by attack helicopters, and a rudimentary understanding of the aviation task force staff's read on the battle. Although the Aviation Training, Analysis, and Feedback Facility didn't explicitly track the time gap of understanding between aviators who were in the fight and the aviation task force staff, my personal qualitative assessment was a general range between fifteen and thirty minutes from the time of action to the time of information received by the aviation task force staff. Within the maneuver distances of the National Training Center, thirty minutes was sufficient time for enemy mechanized infantry to infiltrate friendly lines to attack and destroy command posts. Army attack aviation's superior maneuverability provides brigade, division, and corps commanders an agile and lethal force to reinforce vulnerabilities and exploit successes. Timely and effective employment of the mission command warfighting function (MCWFF) is a linchpin in correctly orienting this agile and lethal maneuver force. Army Aviation commanders and staffs can improve the MCWFF. They can do this by understanding how to conduct mission command, how their Mission Command System (MCS) connects forces in the tactical environment and being aware of ways to train the MCWFF at home station. Attack aviation companies,

troops, battalion and task force staffs should understand and execute mission command as members of the combined arms team. The purpose of this study is to understand how Army Aviation battalions execute the MCWFF to aid commanders, staffs, and aviators in its effective application.

<u>The Research Question</u>

This paper will attempt to address an Army Aviation battalion's capability to execute the MCWFF. The primary research question asks how does an aviation battalion execute the MCWFF? Two secondary questions follow. First, how does an aviation battalion's MCS facilitate the MCWFF? Secondly, what ways are available to aviation units for home station training their MCS?

<u>Assumptions</u>

(1) Rotary wing aviation will play decisive roles in unified land operations while operating across the depth and breadth of the area of operations. (2) The capability to maneuver long distances, at high speed, and avoid detection will be sought by commanders to gain marked advantages over enemy forces. (3) Long maneuver distances will challenge the range and reliability of mission command information systems (MCIS) to communicate between aviators and their staffs. (4) Airspace will be contested by the enemy.

Interoperability is a challenge to the Army's MCISs amongst ground maneuver, aviation maneuver, and fires platforms. Each branch of the Army is constrained by the size, weight, and power requirements of MCISs. Space is a constraint on helicopters, ground vehicles, and foot Soldiers and this limitation will affect the size of systems

allocated to each branch. The weight of the MCIS is a concern to helicopters as it affects

center of gravity and decreases the available power margin to the helicopter. The amount

of power that an MCIS requires to operate correlates to the number of power supplies that

must be carried. This requirement may have little consequence to the mounted Soldier,

but it will have a significant effect on the foot Soldier.[1]

Definition of Key Terms

The Army defines mission command as, "The exercise of authority and direction

by the commander using mission orders to enable disciplined initiative within the

commander's intent to empower agile and adaptive leaders in the conduct of unified land

operations."[2] The Army's Mission Command Philosophy is a concept of control. Within

this concept, higher commanders issue directives and intent to subordinate commanders.

The subordinate commanders are trusted to deviate from the directives, when conditions

at the point of action differ from those anticipated in the planning process, and when the

subordinate commander can act to accomplish the mission within the boundaries of his

higher commander's intent. This philosophy is rooted in the acknowledgment that Army

operations are executed by humans, and takes advantage of the human potential for

making decisions at the point of action.

The MCWFF is comprised of the systems and processes that define the

operational environment, allow staffs to support their commanders, enable

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[1] Charles Chamberlain, interviewed by author, Fort Leavenworth, KS, April 12, 2017.

[2] Headquarters, Department of the Army, Army Doctrine Publication (ADP) 6-0, *Mission Command* (Washington, DC: Government Printing Office, 2012), Glossary-2.

communication of information, receive and issue guidance, with higher, lower, and adjacent units, to accomplish missions. Mission Command Philosophy is an idea whereas the MCWFF is the collection of systems and process that executes synchronization, coordination, and direction. The MCWFF gets work done. The Army defines the MCWFF as, "The related tasks and systems that develop and integrate those activities enabling a commander to balance the art of command and the science of control in order to integrate the other warfighting functions."[3]

Mission orders are the mechanism through which directives are issued in the Army. Mission orders follow a format that allocates resources through task organization. The task organization is the official composition of units that are available for the conduct of the operation. Mission orders explain the operating environment, provide a purpose for the operation through the mission statement and provide focus areas in the commander's intent. Mission orders describe the concept of the operation, give a minimum number of tasks to subordinate units for execution, and provide minimal coordinating instructions. The concept is for the higher commander, supported by his staff, to macro-manage. The higher commander is not focused on detailed planning so as not to limit the initiative of the subordinate commander. This is not to imply that the higher commander issues mission orders and then forgets about the operation. The higher commander remains engaged to re-allocate resources as necessary to achieve the overall

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[3] Ibid., Glossary-2.

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concept of the operation and ensure mission accomplishment.[4] The Army defines mission orders as, "Directives that emphasize to subordinates the results to be attained, not how they are to achieve them."[5]

An MCS is the arrangement of personnel, networks, information systems, processes & procedures, and facilities & equipment that supports the philosophy of mission command as well as the mission command war fighting function.[6]

Limitations

This thesis uses unclassified information only. "For Official Use Only" material was not used in the formation of this body of work. This increases the distribution breadth for the work but constrains the depth of information to which it will analyze, describe, and make conclusions from.

The bias of the investigator should be recognized as an aviation practitioner and observer who watched MCISs fail to connect aviators and staffs within an actionable timeframe in high-intensity conflict during live simulations at the National Training Center. This preconceived idea of the effectiveness of MCISs could obscure the researcher's in-depth understanding of system capabilities, limitations, and alternatives to the current systems.

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[4] Headquarters, Department of the Army, Army Doctrine Reference Publication (ADRP) 6-0, *Mission Command* (Washington, DC: Government Printing Office, 2012), 2-4.

[5] Ibid., Glossary-2.

[6] Ibid.

Scope and Delimitations

This study will assess the efficacy of Army Aviation battalion staffs to execute the MCWFF and provide actionable information to aviation pilots and staffs at echelons of command from brigade to section. The application of the MCSs is focused on major campaigns and operations. Major campaigns and operations are combat actions against opponents of similar organization and equipment. This does not detract from the study's applicability to contingency operations, but the logic is to primarily consider combat against a near-peer threat in a contested environment. This study will explore ways of communicating across the breadth and depth of the area of operations with a maneuver asset that has a deep reach with the ability to exceed line of sight communications.

This study acknowledges that there are interoperability challenges with MCISs connecting joint and multinational partners; however, this challenge exceeds the scope of this study and shall be excluded from the analysis. Furthermore, and quite significantly, there exist great threats to the connectivity of the MCISs, in domains of air, space, and cyber. Again, these challenges, though significant to the functionality of MCISs, present too many variables to analyze with the resources available to this study. Therefore, this study will analyze the efficacy of MCISs while operating under normal conditions. Normal conditions imply no jamming, spoofing, or atmospheric degradation that would impair the intended functionality of the MCIS.

Significance of Study

This study will describe how an Army Aviation battalion staff executes the MCWFF. Through this understanding, commanders, executive officers, operations officers, and aviation leaders will have a better understanding of how to employ and train

their staff. The reader will develop an understanding of the major nodes and linkages of the MCIS. From this understanding, will flow the logic of how aviators and staffs are using the systems to fight formations. Finally, this study will describe methods of training aviation staffs to exercise the MCWFF at home station. The methods provided will help commanders, executive officers, and operations officers program mission command training into their training calendar.

The results of this study could help commanders and staffs understand how the MCIS fits into their mission command process. Additionally, it may prevent an overreliance on the MCIS for over the horizon communications in the deep zone and offer solutions to this challenge. Advances in technology throughout warfighting functions have changed the ways in which the next war will be fought. Army Aviation should leverage all mission command tools, to include networks, orders, trust, and acceptable risk. This study could help commanders and staffs leverage the MCSs strengths and mitigate its weaknesses to achieve overmatch against enemy forces.

Summary and Conclusions

Understanding how Army Aviation employs its MCWFF will allow commanders, staffs, and aviators to thrive and innovate within their organization. This study will broaden the reader's considerations on how Army Aviation battalion staffs execute the MCWFF. It will challenge the weight that Army Aviation places on MCISs and offer a way to train battalion staffs at home station. Lastly, from an improved understanding of Army Aviation mission command, the reader will form questions to ask in the event that MCISs are not operating in a normal environment.

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CHAPTER 2

LITERATURE REVIEW

Introduction

The purpose of this study is to understand how Army Aviation battalions execute the MCWFF to aid commanders, staffs, and aviators in its effective application. The primary research question asks how does an aviation battalion execute the MCWFF? Two secondary questions follow. First, how does an aviation battalion's MCS facilitate the MCWFF? Secondly, what ways are available to aviation units for home station training on their MCS? This chapter will discuss the literature that has been written on Army Aviation mission command and explains the additions that this paper will make to Army Aviation mission command.

Relevant Writings

Army Aviation Branch is guided by the Army Doctrine Reference Publication (ADRP) 6-0, Mission Command. This capstone piece of Army doctrine explains mission command in three chapters. The first chapter explains the exercise of mission command through the nature of military operations, Unified Land Operations and Mission Command, and the Army's approach to mission command. The second chapter describes the mission command philosophy of by using principles of command, art of command, science of control, and application of the mission command philosophy. Chapter three

explains the Army's approach to the MCWFF. Three sections are used in chapter three, the definition and purpose of the MCWFF, MCWFF tasks, and MCSs.[7]

ADRP 6-0 is foundational to Army Aviation mission command doctrine. To achieve combined arms maneuver, solely within the Army service, Army branches must collaborate in their efforts for systems development and to reach the goal of shared understanding. ADRP 6-0 begins by describing the operational environment of war. The manual describes the nature of military operations as complex and ever changing. Each side, enemy and friendly, have their own objectives; and, neither side will remain stationary to allow the other to execute plans as planned. The human variables do not allow an algorithm to solve the problem of military conflict. Leaders must be able to work in complex environments, with a fluid state of operational variables, and utilize their experiences to anticipate outcomes, and implement timely actions that are more successful than their enemy.[8]

The Army's approach to mission command begins with, "To function effectively and have the greatest chance for mission accomplishment, commanders, supported by their staffs, exercise mission command throughout the conduct of operations."[9] Further, the "exercise of mission command" is defined as how staffs and commanders combine mission command as a philosophy and as a warfighting function. Mission command philosophy acknowledges that war is a human endeavor and is filled with the

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[7] Headquarters, Department of the Army, ADRP 6-0, i.

[8] Ibid., 1-1.

[9] Ibid., 1-2.

complexities of human behavior. It trusts in the individual discipline of subordinates and

avoids levying discipline from above. Mission command philosophy is akin to art. There

is not a checklist to follow to be successful at the mission command philosophy. Too

many variables exist to form an equation that will always yield a favorable outcome. In

light of this reality, ADRP 6-0 instead offers principles to follow: trust, shared

understanding, clearly communicated commander's intent, disciplined initiative, use of

mission orders, and accepting prudent risk are guideposts for leaders. The MCWFF is the

science of mission command. It is a collection of systems and processes that are

observable, measurable, and repeatable. The MCWFF connects commanders and staffs to

higher, lower, and adjacent units. ADRP 6-0 defines Mission Command as a Philosophy

and Mission Command as a Warfighting Function as follows.

> As the Army's philosophy of command, mission command emphasizes that command is essentially a human endeavor. Successful commanders understand that their leadership directs the development of teams and helps to establish mutual trust and shared understanding throughout the force. Commander's provide a clear intent to their forces that guides subordinates' actions while promoting freedom of action and initiative. Subordinates, by understanding the commander's intent and the overall common objective, are then able to adapt to rapidly changing situations and exploit fleeting opportunities. They are given the latitude to accomplish assigned tasks in a manner that best fits the situation. Subordinates understand that they have an obligation to act and synchronize their actions with the rest of the force. Likewise, commanders influence the situation and provide direction and guidance while synchronizing their own operations. They encourage subordinates to take actions, and they accept prudent risks to create opportunity and to seize the initiative.[10]

> Mission command – as a warfighting function – assists commanders in balancing the art of command with the science of control, while emphasizing the human aspects of mission command. A warfighting function is a group of tasks and systems (people, organizations, information, and processes) united by a

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[10] Ibid., 1-4.

common purpose that commanders use to accomplish missions (ADRP 3-0). The MCWFF consists of the MCWFF tasks and the mission command system.[11]

The MCS is the support network that facilitates operations. This network is built with personnel, networks, information systems, processes, and procedures, facilities and equipment. These components are organized in a fashion that allows connectivity of nodes and supports mission accomplishment. ADRP 6-0 makes a point to state that of the five components in the MCS, people are the most important. The characteristics of the personnel and their level of training on the systems, processes, procedures, and facilities are essential for mission command to function.[12]

"Control is the regulation of forces and warfighting functions to accomplish the mission in accordance with the commander's intent."[13] Staffs support their commander's ability to exercise control through coordination, integration, and synchronization. While the overall philosophy of mission command is to allow the subordinate commander flexibility to accomplish the mission, military operations require mass at decisive points. Control is the mechanism that allows a higher commander to mass forces at the time and location that will determine the outcome of an operation. "The science of control consists of systems and procedures used to improve the commander's understanding and support accomplishing missions."[14] It is based upon hard evidence. Rates of march, logistics consumption factors, capabilities of friendly and enemy troops and equipment, the

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[11] Ibid.

[12] Ibid., 1-5.

[13] Ibid., 2-12.

[14] Ibid., 2-13.

mathematics of war are the bedrock of the science of control. Information, communication, structure, and the degree of control comprise the science of control. Information is necessary to illustrate the operating environment and from that understanding, commanders are able to make decisions. Information requirements are any information that the commander and staff require to successfully conduct operations. For information to answer an information requirement, that information must be accurate, timely, usable, complete, precise, and reliable. Commanders must consider how they configure their MCS to account for the increased volume of information and the potential for misinformation that has come of age in digitally connected battlefields. Overburdening staffs with the desire for complete information is time-consuming, normally unreasonable, and can demoralize staff officers. Prioritizing information requirements is essential to avoiding the pitfall of excessive tasking.[15]

Communication is important in the conduct of mission command. It is the pathway to creating common operating picture amongst interested parties. There are multiple means to communicate: face to face, telephone, e-mail, the internet, radio, etc. Leaders must choose the best means of communicating for the situation and employ communication through multiple means to reach the targeted audience. The flow of information is in all directions. Higher, lower, and adjacent units share information to collaborate for mission accomplishment. In person contact is normally the preferred means of communication because non-verbal cues are best-communicated face to face. A shortcoming of communicating in person is that the principle record is memory.

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[15] Ibid., 2-13.

Memories change over time and this necessitates creating a record of what was said in verbal exchanges. Records of verbal communication clarify what was said and provide a record for future analysis of operations.[16]

Commanders orchestrate the MCWFF through the organization of their MCS. The MCS supports decisionmaking, manages information, plans operations, and provides the structure for communicating information with interested parties. Personnel, networks, information systems, processes and procedures, facilities and equipment are the five components of an Army MCS. Warfighting is a human endeavor, and in recognition of this reality, personnel is an important component in the MCS. Their education and training determine their effectiveness of the other four components of the MCS. People manage and use networks, information systems, processes and procedures, and facilities and equipment. The key personnel in the MCS are seconds in command, command sergeants major, and staffs. Seconds in command are the principal assistant to the commander and can have the authority of the commander delegated to them. The executive officer is normally the second in command at the battalion echelon and he must be ready to assume command at any time. This implies that the commander should routinely communicate with the second in command to help him understand the situation in the event that he must take over command. The command sergeant major is the senior noncommissioned officer in the unit. He advises the commander on enlisted matters and enforces standards of performance throughout the formation. The command sergeant major extends the influence of command throughout the formation, provides the

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[16] Headquarters, Department of the Army, ADRP 6-0, 2-14.

commander feedback on the morale of the troops, and applies command emphasis at the point of decisive events. The staff is the final entity that comprises the key leaders of the personnel component of the MCS. The staff supports the commander by allowing him to visualize the environment. The staff supports the commander, assists subordinate units, and informs higher, lower, and adjacent units. Staffs support the commander by providing him current information on their particular area of expertise. Staffs assist subordinate units by coordinating resources, processing information, and representing subordinate units' concerns to the commander. Staffs collaborate with the staffs of interested parties to solve problems. Staffs provide the majority of thinking power for the unit.[17] Staffs inform units and organizations outside the headquarters by passing relevant information quickly. The relevance of information to the receiver is more important than the completeness of the information. The information should be accurate to minimize confusion and the staff is responsible for providing context to the receiver. Knowledge management of databases is a way of sharing information; however, without the human relaying why the information is important to the receiving headquarters, the information may be unusable. The staff manages the volume of information that is shared outside of the headquarters to prevent information overload and analysis paralysis.

The second component of the MCS is networks. Networks connect various parties that have a need to collaborate towards a common goal. They allow commanders to communicate and control subordinates in dynamic and static situations. Networks are not only technological; they can also be social. The commander can create a network of two

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[17] Ibid., 3-9.

people who are acting towards a common objective. Networks help commanders connect interested parties and move them towards a common goal.[18]

The third component of the MCS is information systems. Information systems are hardware based and managed by personnel. These systems are used to collect, analyze, and disseminate information based on the commander's information requirements.[19]

The fourth component of the MCS is processes and procedures. Processes and procedures organize activities within the headquarters and throughout the organization. The military decision making process is an example of a process that the staff uses to understand problems and develop solutions and communicate mission orders to the organization. A process is not restrictive in nature and allows deviation to get to the desired end state. A procedure is a detailed list of steps that should be completed in order to accomplish a task or perform a function. Procedures are prescriptive in nature and should not be deviated from. Processes and procedures increase the efficiency and effectiveness of a staff.[20]

The final component of the MCS is facilities and equipment. Facilities and equipment are arranged by the commander to accomplish his mission. Facilities range from vehicles and tentage to hardened structures. Equipment is that which is required to

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[18] Ibid., 3-10.

[19] Ibid.

[20] Ibid.

sustain the MCS. Examples include vehicles, radios, signal equipment, generators, and

lighting. Information systems are not included in facilities and equipment.[21]

Unified Land Operations
How the Army seizes, retains, and exploits the initiative to gain and maintain a position of relative advantage in sustained land operations through simultaneous offensive, defensive, and stability operations in order to prevent or deter conflict, prevail in war, and create the conditions for favorable conflict resolution.

One of the foundations is...

Nature of Operations

Military operations are human endeavors.

They are contests of wills characterized by continuous and mutual adaptation by all participants.

Army forces conduct operations in complex, ever-changing, and uncertain operational environments.

To account for this, the Army exercises...

Mission Command Philosophy

Exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations.

Guided by the principles of...

- Build cohesive teams through mutual trust
- Create shared understanding
- Provide a clear commander's intent
- Exercise disciplined initiative
- Use mission orders
- Accept prudent risk

The principles of mission command assist commanders and staff in blending the **art of command** *with the* **science of control**.

Executed through the...

Mission Command Warfighting Function
The related tasks and systems that develop and integrate those activities enabling a commander to balance the art of command and the science of control in order to integrate the other warfighting functions.

A series of mutually supported tasks...

Commander Tasks:
- Drive the operations process through the activities of understand, visualize, describe, direct, lead, and assess
- Develop teams, both within their own organizations and with unified action partners
- Inform and influence audiences, inside and outside their organizations

Leads

Supports

Staff Tasks:
- Conduct the operations process (plan, prepare, execute, and assess)
- Conduct knowledge management and information management
- Synchronize information-related capabilities
- Conduct cyber electromagnetic activities

Additional Tasks:
- Conduct military deception
- Conduct civil affairs operations
- Conduct airspace control
- Install, operate, and maintain the network
- Conduct information protection

Enabled by a system...

Mission Command System:
- Personnel
- Networks
- Information systems
- Processes and procedures
- Facilities and equipment

Together, the mission command philosophy and warfighting function guide, integrate, and synchronize Army forces throughout the conduct of unified land operations.
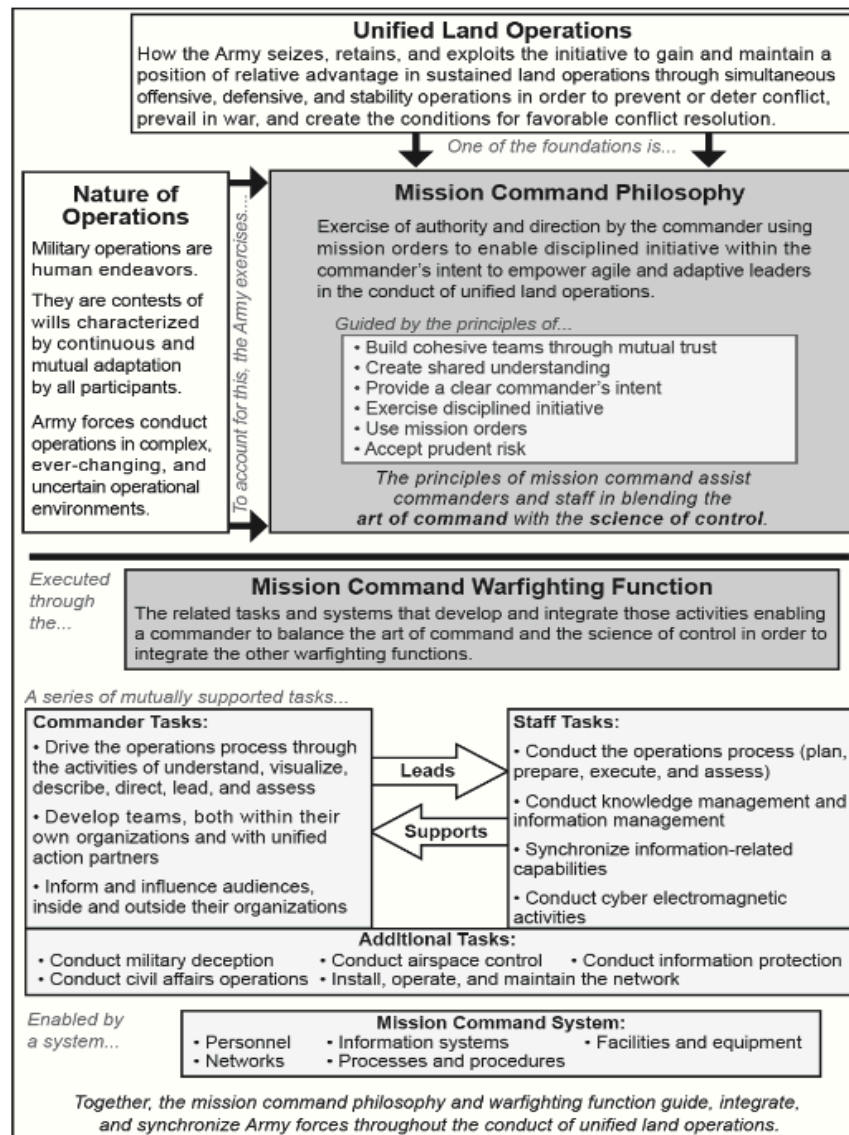
Figure 1.   Overview of the Exercise of Mission Command

Source: Headquarters, Department of the Army, Army Doctrine Reference Publication (ADRP) 6-0, *Mission Command* (Washington, DC: Government Printing Office, 2012), 1-3.

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[21] Ibid., 3-11.

<u>Aviation Doctrine</u>

Army Training Publication 3-04.1, Aviation Tactical Employment, discusses the use of various MCSs to supplement standard radio communications. The Command Post of the Future is the primary means of facilitating current and future operations. Blue Force Tracker, internet chat programs, and voice over secure internet protocol phones provide the communication infrastructure to coordinate with aircraft, higher and adjacent units.[22] Digital information networks created a way for the seamless and timely flow of information between ground and air units displaced across broad space. This media provides current operational information from a variety of sources to formations prior to launch. These systems build the situational understanding for the staff and through the staff's synthesis of the current operating picture, aid in the placement of aviation formations at decisive points. When digital systems fail, the staff must be able to quickly identify the source of the failure, troubleshoot, and simultaneously maintain situational understanding with analog systems. Electrical or power generation failures, electromagnetic attacks, environmental and severe weather, higher or adjacent echelon node failures will degrade or cause the loss of digital systems. In the event of a degraded network, the staff will transition to analog battle tracking and communication. The degree of success of the staff correlates to their proficiency in operating with analog systems. Additionally, the staff must be trained and rehearsed in order to manage the transition between digital and analog MCSs.

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[22] Headquarters, Department of the Army, Army Techniques Publication (ATP) 3-04.1, *Aviation Tactical Employment* (Washington, DC: Government Printing Office, 2012), 1-3.

The Army uses FM 3-52, Airspace Control, as the doctrinal reference for exercising airspace control and the Army refers to Joint Publication 3-52 as its parent reference. JP 3-52 defines Airspace control as,

> Airspace control increases operational effectiveness by promoting the safe, efficient, and flexible use of airspace while minimizing restraints on airspace users. Airspace control includes coordinating, integrating, and regulating airspace to increase operational effectiveness. Effective airspace control reduces the risk of unintended engagements against friendly, civil, and neutral aircraft, enhances air defense operations, and permits greater flexibility of joint operations.[23]

Airspace management coordinates and synchronizes the missions of various users to include aviation, fires, and maneuver to reduce risk to friendly personnel and equipment and enable mission accomplishment. The "big sky, little bullet" concept of airspace management places aircrews and aircraft in mitigatable risk and is an abdication of a commander's responsibility according to JP 3-52 and FM 3-52. While the commander is responsible for airspace control, his staff supports him in this role. Aviation staffs manage airspace through coordination with higher, lower, and adjacent units; and use their MCSs to build and distribute graphics and control measures through the planning, preparation, and execution phases of the operations process.

<u>Mission Command Center of Excellence</u>

The Mission Command Network Vision and Narrative published by the Combined Arms Center at Fort Leavenworth, Kansas and Army Capabilities Integration Center at Fort Eustis, Virginia offers a narrative on how the MCN will "enable our Army to prepare, educate, train, and fight. Its vision will help the Army drive our training,

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[23] Joint Chiefs of Staff, Joint Publication (JP) 3-52, *Joint Airspace Control* (Washington, DC: Government Printing Office, 2014), vii.

organizations, and tactics to a new level of effectiveness."[24] This document asserts that the utilization of the MCN should facilitate information exchange through voice, video, email, or platform control that warfighters require at every echelon. The key to achieving this tenant of Mission Command are training environments that routinely employ MCSs while deployed and at home station. Home station training critical locations, nodes, and conditions are described in table 1.

Table 1.   Home Station

Critical Locations/Nodes	Conditions
• Home Station Mission Command centers • Commander, Leaders • Unit work & training areas • Mission Training Complex • Education & training facilities	• Information systems in garrison connected to deployed systems (training and/or real-world) • Connection to the Learning Environment (education & training) over the network • Capacity for force projection, operations, Integrated Training Environment • Quality: train as you fight and readiness

Source: Combined Arms Center and Army Capabilities Integration Center, *Mission Command Network Vision and Narrative* (Fort Leavenworth, KS: Government Printing Office, 2015), 10.

Corps and divisions are tactical headquarters that organize units to accomplish missions. These organizations integrate multiple warfighting functions and require a command and control network that can communicate through voice and data media to disparate headquarters, subordinates, and enablers. "The division headquarters must maintain a common operational picture (COP), create and disseminate orders and

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[24] Combined Arms Center and Army Capabilities Integration Center, *Mission Command Network Vision and Narrative* (Fort Leavenworth, KS: Government Printing Office, 2015), 1.

graphics, control and synchronize operations, and share full motion video. This occurs internal to the command post, across formations, between command posts, and with Unified Action Partners."[25] The Mission Command Narrative points out that division and corps headquarters have a unique ability transform into a Joint Task Force Headquarters to command and control joint and coalition forces and thereby have a need for MCS interoperability throughout the unified action combined arms team. Division and corps headquarters must have friendly force situational awareness and possess a COP to understand the operating environment.[26]

Over the course of the wars in Afghanistan and Iraq, Army attack aviation assumed the role of rotary wing close air support (CAS). Army Training Publication (ATP) 3-04.1 made a point to distance the Army from the CAS mission in April of 2016 when it asserted that, "although the Army does not consider its aircraft a CAS system, they can conduct attacks employing CAS joint TTP when operating in support of other forces."[27] Army attack aviation continues to search for balance across the spectrum of conflict as it juggles combat missions in Iraq and Afghanistan while simultaneously preparing to fight a near-peer threat at combined training centers. The ever-changing utility of attack aviation that has caused confusion within the Army Aviation community has bled over to the ways that divisions and brigade combat teams employ attack aviation. Brigade combat teams are accustomed to direct support (DS) relationships with

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[25] Ibid., 12.

[26] Ibid.

[27] Headquarters, Department of the Army, ATP 3-04.1, 2-26.

attack aviation units. DS is feasible within the framework of contingency operations; however, attack aviation units will not have an unending DS relationships to brigade combat teams in major operations and campaigns.[28] Most division headquarters have one combat aviation brigade and three brigade combat teams. Limited resources will prevent attack aviation from DS relationships with the BCT and aviation will be retained at the division or corps echelon.

In major operations and campaigns, command and control will likely be held at the corps and division echelon. Given the agility, lethality, and maneuverability of attack aviation, corps and division headquarters will use aviation formations to gain and maintain contact with enemy formations, conduct decisive offensive engagements, pursue and exploit successes, and rapidly reinforce tactical vulnerabilities. Corps and division headquarters should retain a direct communication linkage to aviation formations to rapidly reorient the force; however, while attack aviation is fighting for division and corps purposes, they will fight alongside brigade, battalion, company, and even platoon formations at the FLOT. MCSs should connect aviation formations with corps or division headquarters while permitting information sharing between aviation formations and friendly elements engaged in combat. Effective MCSs are able to rapidly share battle assessments on a COP to achieve unity of effort and shared understanding.

The Mission Command Network Vision and Narrative identifies that the MCN will enable training and education by connecting the operating and generating forces. The learning infrastructure will enable the adaptive application of live and synthetic domains

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[28] Joint Chiefs of Staff, Joint Publication (JP) 3-0, *Joint Operations* (Washington, DC: Government Printing Office, 2011), V-1.

through connecting virtual, constructive, and gaming with live training.[29] Admittedly, the full functionality and implementation of this concept is immature; however, it is in development and may significantly enhance training in coming years. Figure 2, illustrates how constructive, virtual, and live training on unclassified networks could connect to existing classified MCISs.

The Army Operating Concept Win in a Complex World 2020-2040 describes how the Army will fight as a member of the Joint and Multinational force. This document is a guideline that prioritizes Army capability requirements to strategic objectives. US Training and Doctrine Command identified that science and technology must focus on MCISs that give the commander overmatch against enemies. Additionally, the MCISs should be interoperable with allies and allow synchronization of joint, Army, interorganizational, and multinational efforts.[30]

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[29] Combined Arms Center and Army Capabilities Integration Center, *Mission Command Network Vision and Narrative*, 18-19.

[30] Training and Doctrine Command, TRADOC Pamphlet 525-3-1, *The US Army Operating Concept. Win in a Complex World 2020-2040* (Washington, DC: Government Printing Office 2014), 37.
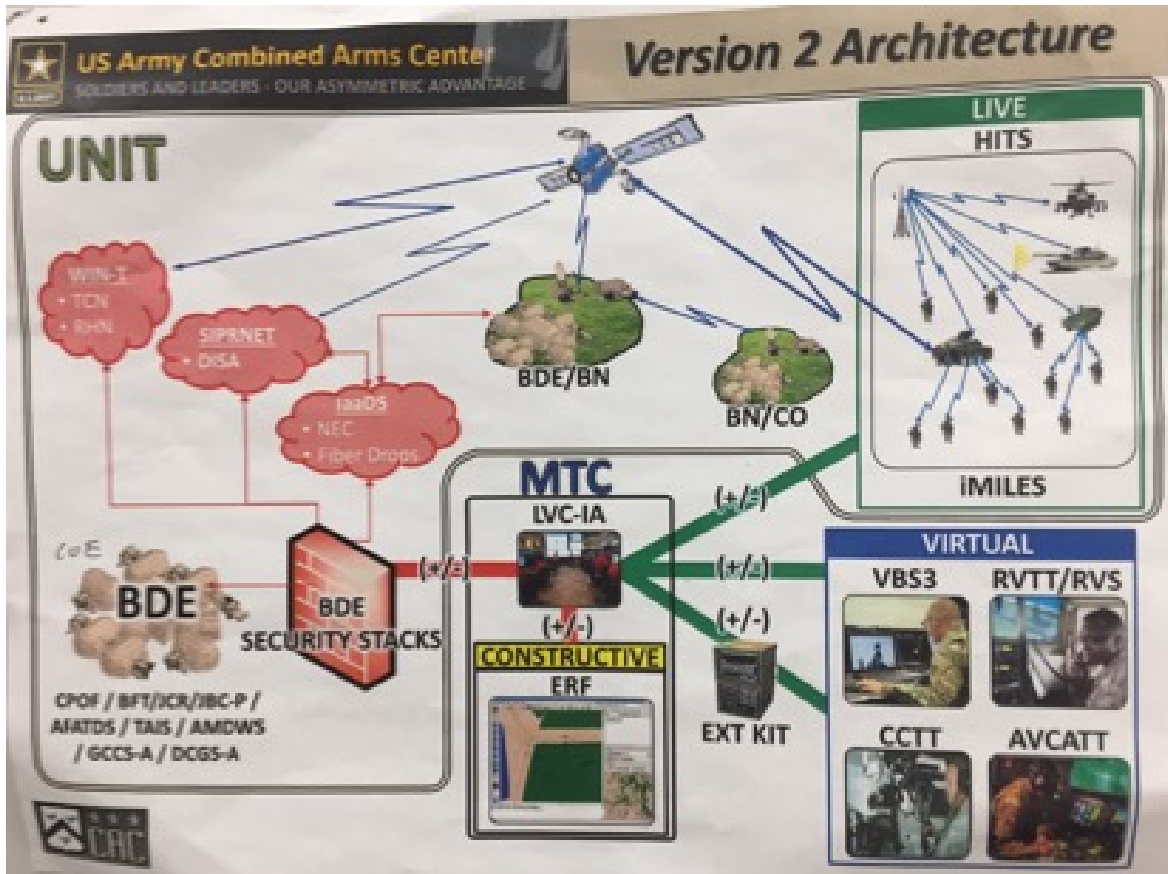
Figure 2.   Constructive, Virtual, and Live Training Concept Sketch

Source: Mission Command Capability Development Integration Directorate. "Constructive, Virtual, and Live Training Concept Sketch," Fort Leavenworth, KS, January 18, 2017, Photo by author.

Contribution of this Work

There exists an abundance of literature in doctrine, SOPs, and MCCOE documents on the mission command philosophy and the MCWFF. How then will this study add to the body of knowledge? First, this work will critically examine how Army Aviation doctrine aligns with Army doctrine in the mission command domain. Through this comparison, the reader will gain an understanding of how the Army Aviation conducts the MCWFF within the Army doctrine framework. The reader will notice the propensity of the Army Aviation community to focus on MCISs, as the MCS focal point.

This study provides a general understanding of the MCISs, networks, and facilities and equipment that connect command nodes and platforms across the aviation area of operations. Additionally, this study will describe the functions of personnel within an Army Aviation headquarters and will identify the systems and processes that are used within the MCS. Lastly, this study will provide examples of units training the MCWFF at home station. These examples may help Army Aviation leaders plan unit training that will train the staff on its MCS and train subordinate echelons how to interface with the staff.

CHAPTER 3

RESEARCH METHODOLOGY

<u>Introduction</u>

The purpose of this study is to understand how Army Aviation battalions execute the MCWFF to aid commanders, staffs, and aviators in its effective application. The primary research question asks how does an aviation battalion execute the MCWFF? Two secondary questions follow. First, how does an aviation battalion's MCS facilitate the MCWFF? Secondly, what ways are available to aviation units for home station training on their MCS? This chapter explains the steps that were taken by the researcher to collect information to answer the primary and secondary research questions. Next, the research methodology is explained with the analytical framework according to which the evidence will be presented. Lastly, this chapter will explain how the methodology will facilitate the analysis in chapter 4.

<u>Information Collection for Research Questions</u>

To address the research question, initial information collection was conducted through observations as an Observer Coach-Trainer at the National Training Center from September of 2014 through May of 2016. The observations were made from an OH-58C helicopter in pursuit of Army attack aviation sections (two Apache helicopters), Army attack aviation platoons (four Apache helicopters), and Army attack aviation companies (eight Apache helicopters). The observations were made listening to radios that connected the helicopters, helicopters to aviation task force headquarters, ground

platoons, companies, battalions, and brigades. Additional observations were gathered in after action reviews conducted at the section, platoon, company, and task force echelons.

The Combined Arms Research Library executed research on the researcher's behalf. Their efforts produced multiple documents ranging from articles, military history, past and present doctrine, Masters of Military Arts and Sciences theses, School of Advanced Military Studies monographs, operations, and reports. The researcher used the internet to find current relevant Army doctrine and MCIS information from Program Executive Office Command Control Communications. Additionally, the researcher went to the Mission Command Center of Excellence Simulations Center and received an in-person brief on the conceptual framework of MCISs. The researcher also went to the Mission Command Center of Excellence for an understanding of current systems. The researcher interviewed the Deputy for Mission Command Network Integration at the Mission Command Center of Excellence. The researcher interviewed the Tactical Systems Branch Chief for Mission Command-Command Post at the Mission Command Center of Excellence. The researcher contacted the TRADOC Capabilities Manager for Aviation Brigades at Fort Rucker, AL and conducted a telephonic interview discussing the current MCISs interoperability gaps with Army Aviation platforms. The researcher interviewed an instructor at the Digital Master Gunners Course at the Mission Command Center of Excellence. The researcher traveled to the Army Aviation Center of Excellence and interviewed the Director for the Directorate of Simulations, the Tactics Branch Chief for the Directorate of Training and Doctrine, Doctrine and Collective Branch Chief for the Directorate of Training and Doctrine, and the Deputy Commander of the Aviation Center of Excellence.

Methodology

This study examines Army Aviation's MCWFF through the lenses of doctrine and training. The first step of the research is information collection and a review of the literature in chapter two. The literature review in chapter two shows information sources to include doctrine and institutional information. The second step of the research describes Army Aviation's MCWFF doctrine at battalion echelon using the framework of doctrine and training. The analysis draws out areas of omission and opportunity within doctrine and in institutions. The fourth and final step presents findings, conclusions, and recommendations in chapter five.

Summary and Conclusion

This study will enable the reader to understand how aviation staffs conduct mission command. This paper will illustrate how MCSs link aviators and staffs across the space of the battlefield. Through this understanding, the reader can formulate a plan to exploit advantages and mitigate shortcomings. Lastly, the reader will understand ways of training Army Aviation battalion staffs to exercise the MCWFF.

CHAPTER 4

ANALYSIS

<u>Introduction, Purpose, and Organization</u>

The purpose of this study is to understand how Army Aviation battalions execute the MCWFF to aid commanders, staffs, and aviators in its effective application. This paper attempts to address an Army Aviation battalion's capability to execute the MCWFF. The primary research question asks how does an aviation battalion execute the MCWFF? Two secondary questions follow. First, how does an aviation battalion's MCS facilitate the MCWFF? Secondly, what ways are available to aviation units for home station training on their MCS?

First, this chapter will answer how an aviation battalion executes the MCWFF according to Army and Army Aviation doctrine. Second, it will explain how an aviation battalion's MCS allows a battalion commander to execute the MCWFF. Last, this chapter will describe the ways available to aviation units to train the MCWFF at home station. This chapter will use Doctrine and Training as the framework to answer the above questions.

<u>Types of Command Posts</u>

FM 3-04, Army Aviation, is Army Aviation's capstone doctrinal publication for describing how Army units will employ aviation. The manual describes two nodes that are the hub of activity for mission command in an aviation battalion, the main command post, and the tactical command post. The main command post, much like its name implies, is the primary hub of information receipt and dissemination for the aviation

battalion. When operating alone, without the tactical command post in operation, the

main command post is the location of the commander and from this location, the

commander exercises mission command. "The main command post controls operations,

maintains situational understanding, informs the commander's decisions, and prepares

and publishes orders and plans."[31]

Table 2.   Main CP's Primary Functions

• Communicates and informs subordinate, higher, and adjacent units.
• Informs and assists the commander and subordinate commanders.
• Prepares and issues fragmentary orders, operation orders, operational plans, intelligence summaries, intelligence reports, and situation reports.
• Operates on a 24-hour basis.
• Conducts future planning continuously.
• Maintains running estimates continuously.
• Maintains situational understanding and a common operational picture across the Army warfighting functions.
• Receives, evaluates, and processes combat information from subordinate units and higher headquarters.
• Maintains the necessary products to further the commander's situational understanding.
• Processes information into intelligence.
• Performs limited PED for UAS and AH-64 sensor data.
• Conducts fire support planning.
• Conducts airspace control planning and coordination.
• Coordinates terrain management.
• Coordinates and tracks sustainment requirements (logistics, air and ground maintenance capabilities, and status).
• Makes recommendations to the commander.
• Plans and orchestrates briefings, debriefings, and rehearsals.

Source: Headquarters, Department of the Army, Field Manual (FM) 3-04, *Army Aviation* (Washington, DC: Government Printing Office, 2015), 2-18.

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[31] Headquarters, Department of the Army, Field Manual (FM) 3-04, *Army Aviation* (Washington, DC: Government Printing Office, 2015), 2-18.

"The tactical CP (TAC) is a facility containing a tailored portion of a unit headquarters designed to control portions of an operation for a limited time."[32] The TAC is useful for planning operations with higher or subordinate units that are not in proximity to the Main CP. The minimum warfighting functions for a TAC include operations, fires, and intelligence with the operations cell as the responsible party for the TAC. The TAC must have the capability to communicate with higher headquarters, adjacent units, employed subordinate units, and the main CP. Although the TAC is separate from the Main CP, it remains dependent upon the Main CP for planning, detailed analysis, and coordination. The limited scale and scope of the TAC CP's purpose, lends itself to a minimal size while remaining maneuverable under its own power. That is to say, that the TAC has the vehicles necessary to move without outside assistance. The security of the TAC is resident in its economy of force and maneuverability. The standing operating procedures (SOPs) of the employing unit provide the guidebook for the normal composition of the TAC. There is not a "one size fits all" solution for the TAC. The size and composition of the TAC are directly related to its mission. That mission could be planning for future operations, controlling operations beyond the reach of the main CP, or as the element that leads the displacement of the tactical assembly area, just to name a few.[33]

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[32] Headquarters, Department of the Army, Field Manual (FM) 6-0, *Commander and Staff Organization and Operations* (Washington, DC: Government Printing Office 2014), 1-2.

[33] Headquarters, Department of the Army, FM 3-04, 2-18.

A commander can organize his command post into cells (akin to working groups) to disperse the expertise of his staff and equip them with communications and information systems that enable it to plan and control operations. The inherent command posts that are resident in a combat aviation brigade, battalion, and task force are the Main Command Post, the Tactical Command Post, and the Subordinate Command Post. All CPs manage information, control operations, develop and disseminate orders, assess operations, maintain running estimates, coordinate with higher, lower, and adjacent units, and maintain a common operational picture.[34]

FM 3-04 alludes to the commander's location when it states, "the commander operates from the main CP when not operating from the tactical CP, command vehicle, or an aircraft."[35] Even though FM 3-04 does not name the command vehicle or aircraft that the commander is in as command posts, battle staffs should understand the effects that the commander makes on operations while dislocated from the main CP or the TAC CP. Reality is relative to perspective. Furthering the aforementioned thought, there are as many realities as perspectives on a battlefield; those perspectives are only as joined as the rapid and accurate sharing of information allows them to be. The situation that is developed inside of the main CP will not be the same as the situation inside of the TAC CP, or the command vehicle, or the aircraft that are executing operations. When the commander makes a decision in his aircraft or vehicle, which is not shared with the other command nodes, the aviation battle staff's effort may diverge from the commander's

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[34] Headquarters, Department of the Army, ATP 3-04.1, 1-2.

[35] Headquarters, Department of the Army. FM 3-04, 2-18.

intent. Admittedly, the commander is not a facility or structure, but he is a node for whom the main CP and the TAC CP exist, and the effects of his decisions from his location and linkages must be considered for the battalion staff in the mission command process.

Command Post Organization

> Commanders organize their CPs by functional and integrating cells. The five functional cells group personnel and equipment by warfighting function (minus mission command). Integrating cells group personnel and equipment by planning horizon (current operations, future operations, and plans). In aviation formations, flight operations are integral to current operations.[36]

The Army isn't prescriptive in how to organize the command post. Doctrine explains that the commander is responsible for organizing the staff and may do so by integrating five functional cells (with the exception of mission command) into current operations (CUOPs), future operations (FUOPs), and plans cells. Section IV of Chapter 1 in ATP 3-04.1 is titled Command Post Organization and posits that commanders can organize their command posts by function and integration. The paragraph concludes by stating that "flight operations are integral to current operations." The only other time flight operations are mentioned in ATP 3-04.1 is in chapter 8, Personnel Recovery. The organization and routine functions of flight operations are not described in ATP 3-04.1.

The CUOPs cell provides continuous situational awareness of ongoing operations. This cell is composed of personnel who are tracking what is going on right now and helps the commander understand the current environment and visualize desired outcomes. CUOPs are led by the Operations Officer (S3) and it is his responsibility to maintain

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[36] Headquarters, Department of the Army, ATP 3-04.1, 1-3.

situational understanding of the environment and direct the mission within the scope of his delegated authority from the commander to achieve the commander's intent. Generally, the Assistant S3 (AS3) is the executor of the aforementioned responsibilities and is colloquially referred to as the Battle Captain. This substitution of the AS3 for the S3 allows the S3 to manage all operations cells. CUOPS is normally fully integrated with representation from all warfighting functions. The integration of the warfighting functions into the CUOPs cell facilitates control of current operations, rapid decisionmaking within the boundaries of delegated authority from the commander, and immediate planning and synchronization of ongoing operations. The CUOPs cell is responsible for accurate and timely sharing of information and intelligence with ground maneuver commanders. Army Aviation staffs use the processing, exploitation, and dissemination (PED) process for the suitable conversion of information into intelligence. The Army Aviation staff collects information from their units' manned and unmanned aircraft and is responsible for conducting PED with the information that is collected.

Army Aviation lists two cells that could plan operations, future operations and plans. The first cell is future operations and is responsible for planning mid to long range operations. The second cell is named plans and is responsible for long-range planning. The figure below provides a concept of plans cells arranged by time and suggests that short-range planning, which is in the realm of CUOPS, occurs in the timespan of days to hours. Mid-range planning, the responsibility of FUOPs, occurs in the range of weeks to days. Lasty, long-range planning, is a plans function and exists in months to weeks in the future.

The commander and the chief of staff set priorities and provide direction and guidance.

Long-Range Planning

Plans

- Develops initial OPLAN and OPORD
- Plans for follow-on phases (sequels)
- Develops branch plans
- Assesses long-range progress of operations

"What next?"

Mid-Range Planning

Future Operations

- Refines and modifies OPLANs and OPORDs based on current situation
- Develops branch plans
- Assesses mid-range progress of operations

"What if?"

Short-Range Planning and Execution

Current Operations

- Issues OPORDs, FRAGORDs, and WARNORDs
- Monitors, evaluates, directs, and controls execution of orders
- Conducts limited short-term planning
- Conducts operations update and assessment brief

"What is."

OPLAN/ OPORD → Transition → OPLAN/ OPORD FRAGORD → Transition → OPORD FRAGORD → Execution

Months-Weeks * | Weeks-Days * | Days-Hours *

*Note: Planning horizons vary based on the situation to include time, events, and anticipated decisions.

FRAGORD fragmentary order   OPLAN operation plan   OPORD operation order   WARNORD warning order

Figure 3.   Planning Cells Time Horizon

Source: Headquarters, Department of the Army, Army Doctrine Publication (ADP) 5-0, *The Operations Process* (Washington, DC: Government Printing Office 2012), 3-4.

Mission Command System

A mission command system is the arrangement of personnel, networks, information systems, processes and procedures, and facilities and equipment that enable commanders to conduct operations. Commanders organize their mission command system to support decisionmaking and facilitate communication.[37]

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[37] Headquarters, Department of the Army, ADP 6-0, 11.

Using the framework of the Army MCS, the following sections will analyze how Army Aviation battalions form and use their MCS in the domains of personnel, networks, information systems, processes and procedures, and facilities and equipment.
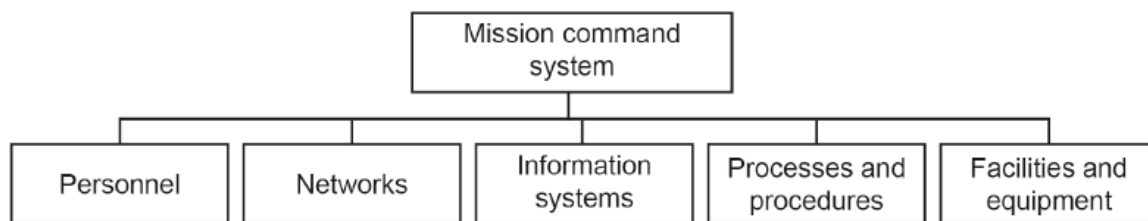

Figure 4.   Mission Command System

Source: Headquarters, Department of the Army, Army Doctrine Reference Publication (ADRP) 6-0, *Mission Command* (Washington, DC: Government Printing Office, 2012), 3-8.

Personnel

A commander's mission command system begins with people. Therefore, commanders base their mission command system on human characteristics and abilities more than on equipment and procedures. An effective mission command system requires trained personnel; commanders must not underestimate the importance of providing training. Key personnel dedicated to mission command include seconds in command, command sergeants major, and staff.[38]

The battalion commander should understand the operational environment in which his force is operating. The commander's understanding should encompass the friendly and enemy situation. The commander relies on his staff for all of the functions for which he is responsible. He trains his staff so that they are able to continue the mission in his absence or death. The commander is the catalyst in the operations process

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[38] Ibid., 11.

and is continuously applying pressure in planning, preparing, executing, and assessing operations.[39]

Common staff expectations are that each person understands his or her role and the roles of fellow staff members. A staff officer is expected to understand the current situation and have the wit to know when they are responsible for processing and disseminating information. Finally, all staff members should be ready to offer recommendations to the commander for decision.[40]

The executive officer is second in line of command behind the battalion commander. He compels integration and collaboration amongst the staff. The schedule is a primary vehicle through which the executive officer achieves unity of effort and mission accomplishment. Though the executive officer has responsibility over many area, a main concern is logistics. Fuel and ammunition are of critical importance to an aviation unit, and have the same importance to an executive officer in an aviation battalion. Finally, the executive officer must maintain situational awareness so that he is prepared to assume command in the absence or death of the battalion commander.[41]

The battalion commander has a personal staff that includes a command sergeant major. A command chief warrant officer is not included in the personal staff of a battalion commander, though a CAB commander does have a command chief warrant officer on his personal staff. There are instances in which a battalion commander has

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[39] Headquarters, Department of the Army, ATP 3-04.1, 1-7.

[40] Ibid., 1-6.

[41] Ibid., 1-7.

chosen to name a command chief warrant officer, but that practice is a technique not

declared as a doctrinal practice. The command sergeant major acts in the name of the

commander and extends command influence throughout the formation. He is the primary

advisor to the battalion commander on Soldiers. The command sergeant major assesses

morale, training, and enforces standards throughout the organization. He provides

oversight for protection in tactical assembly areas and exercises control where

necessary.[42]

Coordinating staff are principle assistants to the battalion commander who work

under the guidance of the executive officer. The human resources officer, or S-1, is

responsible for maintaining a personnel strength assessment for the unit. The S-1

manages replacement operations and conducts casualty operations management. The

intelligence officer, or S-2, conducts intelligence operations to understand the terrain and

strives for predictive analysis to mitigate risk to aviation operations. The operations

officer, or S-3, is responsible for organizing, training, planning, and coordinating

operations for the unit. He must understand the current situation and be ready to take

command. The S-3 monitors current and future operations.[43] He also includes a fire

support officer into his section to integrate indirect fires. The logistics officer, or S-4,

manages internal and external logistical support to the organization. He manages aviation

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[42] Ibid., 1-9.

[43] Ibid., 1-11.

and ground maintenance support.[44] The signal officer, or S-6, does not have a duty

description in the ATP 3-04.1.

Army Aviation doctrine provides a general description of each of the staff

positions. The descriptions provide Army Aviation leaders with a general understanding

of how the system should work. The broad boundaries permit tailoring duty descriptions

to individual unit needs and requirements for mission execution. Army Aviation doctrine

shorts the signal officer duty description. In a time when MCSs are focused on digital

networks, this is an important omission.

<div align="center">Networks</div>

> Social and technical networks enable commanders to communicate
> information and control forces, leading to successful operations. Generally, a
> network is a grouping of people or things interconnected for a purpose.
> Commanders develop and leverage various social networks—individuals and
> organizations interconnected by a common interest—to exchange information and
> ideas, build teams, and promote unity of effort. Technical networks also connect
> people and allow sharing of resources and information. For example,
> LandWarNet (the Army's portion of the Department of Defense information
> networks) is a technical network. It encompasses all Army information
> management systems and information systems that collect, process, store, display,
> disseminate, and protect information worldwide.[45]

Army Aviation battalions are dependent on social and technical networks for

communication within their MCS. Social networks are the arrangement of personnel

connections within and outside of the aviation battalion. Official internal social networks

are organized by the commander.[46] The executive officer establishes and monitors liaison

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[44] Ibid., 1-16.

[45] Headquarters, Department of the Army, ADP 6-0, 11.

[46] Headquarters, Department of the Army, ATP 3-04.1, 1-2.

team activities outside of the organization.[47] The operations officer conducts liaison activities with supported and higher units.[48] An aviation liaison element, normally comprised of an aviation officer, a senior warrant officer, and a flight operations specialist, but tailorable for the needs of a mission, serve as the aviation battalion's envoy to higher and supported units for planning, synchronization, and coordination. The cohort moves between the aviation battalion's headquarters and the higher or supported unit to accomplish its functions.[49] The aviation liaison element monitors aviation unit location, fuel and ammunition status (Class III-V), aircraft maintenance status, aircrew availability, and provides continuous situational reports to the battalion commander and the supported commander.[50] In the composition of the aviation liaison element, aviation doctrine calls for an "experienced and knowledgeable team."[51] Often times, battalions allocate a first lieutenant to the position of liaison officer in the operations section of a battalion headquarters. This officer's experiences include graduating from flight school and waiting for a platoon leader position to open in a line company. The first lieutenant is likely full of energy and optimism, but void of the knowledge and experience necessary to plan an aviation operation. Based upon the personnel availability, the commander, executive officer, or operations officer will seek an experienced aviation officer for the

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[47] Ibid., 1-8.

[48] Ibid., 1-12.

[49] Ibid., 1-18.

[50] Ibid.

[51] Ibid.

aviation liaison element. The choices for an experienced aviation officer are two assistant S-3s, the S-2, the S-4, and five company commanders. Assuming an operations section is organized into a CUOPs and a FUOPs cell, both of the assistant S-3s are gainfully employed. The S-2, S-4, and company commanders all have functions that require their attention for the battalion to operate as an organization. There is a rift between the expectations of aviation doctrine and aviation organization with respect to the aviation liaison element.

The Brigade Aviation Element (BAE), is a cohort internal to a brigade combat team (BCT) that assists aviation battalions by incorporating Army Aviation maneuver into the BCT's mission planning process. The BAE manages airspace control, coordinates with Joint air assets, and fires. The battalion commander and operations officer are fully engaged in the aviation planning process and do not rely on the BAE for mission planning.[52]

Technical networks are the pathways that connect maneuvering units and command posts across the breadth and depth of the battlefield. Given the sensitive nature of the specifics of this topic, a general explanation will have to suffice for this study. Aviation is connected by two general categories, systems that require satellites, and systems that use radios. The systems that use satellites are constrained by their equipment, training, environmental conditions, and the enemy. Satellite systems provide connectivity across the entire battlefield and are commonly referred to as over the horizon communications systems. Radio networks are constrained by the range of the

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[52] Ibid.

radio, terrain, and the ability of the unit to increase the reach of the radio network.

Satellite and radio networks present the enemy with opportunities to influence the

aviation network. The opportunities to influence the aviation network exceed the

classification of the study; however, an understanding of vulnerabilities associated with

technical networks are important planning considerations for commanders and staff

officers.

<p align="center">Information Systems</p>

> In order to accurately coordinate, track, and synchronize operations, the main CP S-3 or designated representative (typically the battle captain), employs various mission command systems. The primary means of facilitating current and future operations is through the Command Post of the Future (CPOF). Supporting systems include internet chat programs, Blue Force Tracking hardware and software, and voice over secure internet protocol communication systems. These systems supplement standard radio communications with aircraft during operations and exist to coordinate with higher and adjacent units. Additionally, the one system remote viewing terminal (OSRVT) enables enhanced situational awareness and understanding by providing real-time unmanned aircraft system (UAS) or manned aircraft video to the CP.[53]

The Army Aviation doctrine above states that the "S-3 or designated

representative (typically the battle captain), employs various mission command systems."

The use of MCSs in this manner is a divergence from ADP 6-0 which explains an MCS

as "the arrangement of personnel, networks, information systems, processes and

procedures, and facilities and equipment that enable commanders to conduct

operations."[54] The more accurate term to use in this explanation in place of mission

command systems is mission command information systems. "An information system

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[53] Headquarters, Department of the Army, ATP 3-04.1, 1-3.

[54] Headquarters, Department of the Army, ADP 6-0, Glossary-2.

consists of equipment that collect, process, store, display, and disseminate information. This includes computers-hardware and software-and communications, as well as policies and procedures for their use."[55] The focus of aviation doctrine is the technology used to conduct the MCWFF. Instead of considering information systems as components in a wider apparatus to synchronize, coordinate, and direct combat power to accomplish missions, there is a disproportionate weight on them as the solution to the MCWFF.

The MCISs an aviation battalion uses are CPOF, Distributed Common Ground System Army (DCGS-A), Advanced Field Artillery Tactical Data System (AFATDS), Joint Capabilities Release (JCR), Blue Force Tracker (BFT), Blue Force Tracker II (BFTII), Joint Capabilities Release – Logistics (JCR-L), One System Remote Video Terminal (OSRVT), FalconView on the Aviation Mission Planning System (AMPS), and radios. Each of these systems classifies into one of three categories, analog, lower tactical internet, or upper tactical internet. Analog systems are supportable without power generation. Printed maps and radios, powered by batteries or vehicle generators, are used to maintain a COP and control units. Lower tactical internet has limited computing power and bandwidth. Lower tactical internet systems rely upon satellites for connectivity. As the situation permits, it is a means of over the horizon communication and provides mission command on the move. The limited bandwidth of lower tactical internet systems can cause a slow update to the COP. The upper tactical internet is the only category that integrates all MCISs. Upper tactical internet is functional subject to environmental conditions and has extremely limited capability to conduct mission command on the

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[55] Ibid., 12.

move. Figure 5 compares categories of analog, lower tactical internet, and upper tactical internet.[56]

A comprehensive guide to employ the MCISs is void from Army and Army Aviation Doctrine. The Combined Arms Doctrine Directorate does not employ a technical writer that could explain in an operational narrative how the systems interface and create the common operating picture for the combined arms team. The onus rests on the commander and staff who are fielded the equipment to make it work within their command posts and mobile platforms. In developing future generations of MCISs, there should be firm governance in place to compel Army branches to field interoperable systems.

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[56] Mission Command Digital Master Gunners Course, "Pre-Command Course" (Brief, Fort Leavenworth, KS, October 28, 2016), Slide 5.
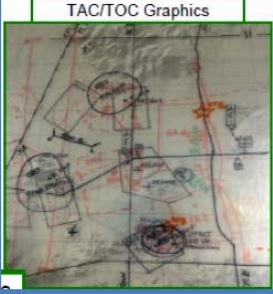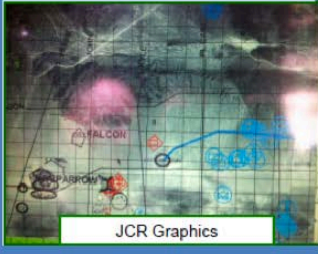
ANALOG	JCR (Lower T/I)	CPOF (Upper T/I)
TAC/TOC Graphics		TRM Graphics
	JCR Graphics	
• Analog is a known capability. • It has obvious limitations but can NOT be replaced by a digital system. • Digital systems can be used to support analog and help cover its limitations.	• Limited computing power. • Not capable of cross talk directly to other ABCS. • Is capable of talking to CPOF. • Recommend: Limited Maneuver Graphics, PLI, Chat Rooms (A&L, R&S, OPS etc), limited FSCMs, and normal messaging.	• Has limited band width and requires the architecture to be establish. • Is capable of too much to be effective on the network. • Only system that can integrate all of the ABCS. • Extremely limited on the move capability. • Recommend: Airspace deconfliction, BDE ISR, Asset Visibility, Security Zone, and redundancy for the other ABCS systems.

Figure 5.   Common Operational Picture Mediums

Source: Mission Command Digital Master Gunners Course, "Pre-Command Course" (Brief, Fort Leavenworth, KS, October 28, 2016), Slide 5.

<u>Processes and Procedures</u>

Processes and procedures help commanders organize the activities within the headquarters and throughout the force. Processes and procedures govern actions within a mission command system to make it more effective and efficient. A process is a series of actions directed to an end state. One example is the military decisionmaking process. Procedures are standard, detailed steps, often used by staffs, which describe how to perform specific tasks to achieve the desired end state. One example is a standard operating procedure. Adhering to processes and procedures minimizes confusion, misunderstanding, and hesitation as commanders make frequent, rapid decisions to meet operational requirements.[57]

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[57] Headquarters, Department of the Army, ADP 6-0, 12.

Operations Process

Army Aviation commanders use the operations process to plan, prepare, execute, and assess operations.[58] The main command post provides the functionality for commanders and their staffs to execute the operations process. The Army provides three methodologies for planning. The army design methodology, the military decision making process, and troop leading procedures. TLPs are allocated to commanders devoid of the staff support to conduct the more involved processes that a staff can accomplish.[59] Acknowledging the fluidity of combat, the army provides the rapid decisionmaking and synchronization process for the execution phase of operations.[60]

Army design methodology helps commanders understand complex problems. The process uses critical thinking to allow commanders and staffs to understand the environment, define the problem, and create an operational approach for solving the problem. Most problems encountered at the battalion are well defined; therefore, this process is seldom employed at the aviation battalion echelon.[61]

The military decisionmaking process is the most common planning methodology employed in the aviation battalion. This process starts with the receipt of the mission, progresses to the analysis of the mission, development of courses of action, analysis of

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[58] Headquarters, Department of the Army, FM 3-04, 2-17.

[59] Headquarters, Department of the Army, ADP 5-0, 7.

[60] Headquarters, Department of the Army, Army Doctrine Reference Publication (ADRP) 5-0, *The Operations Process* (Washington, DC: Government Printing Office, 2012), 4-6.

[61] Headquarters, Department of the Army, ADP 5-0, 7.

courses of action, compare courses of action, the course of action approval, and the execution order issued to subordinate units. This process facilitates collaboration with higher, lower, and adjacent headquarters. The military decisionmaking process is a thorough and proven method to develop an understanding for the commander and staff of the operating environment. Training and repetition improve the quality and speed of this process.[62]

The last planning methodology, troop leading procedures, is intended for use by small unit leaders. Company and troop commanders in aviation battalions lack the staff to conduct in-depth analysis. Troop leading procedures allow them to quickly develop, issue, and execute plans. Troop leading procedures begin with receipt of the mission, issuing a warning order, making a tentative plan, initiating movement, conducting reconnaissance, completing the plan, issuing the order, and supervising and revising the plan.[63]

The rapid decisionmaking and synchronization process is a relatively new term in doctrine, though not in practice. Doctrine writers codified a process that was happening ad hoc. The rapid decisionmaking and synchronization process acknowledges that operational and mission variables are constantly changing, especially during execution. This reality of combat invalidates the course of action criteria that were applied in the military decisionmaking process course of action comparison. The rapid decisionmaking and synchronization process begins with two steps that occur in any order or

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[62] Ibid., 8.

[63] Ibid., 9.

simultaneously. Compare the current situation to the order and determine that a decision, and what type, is required. Then leaders develop a course of action, refine and validate the course of action, and implement the new guidance.[64]
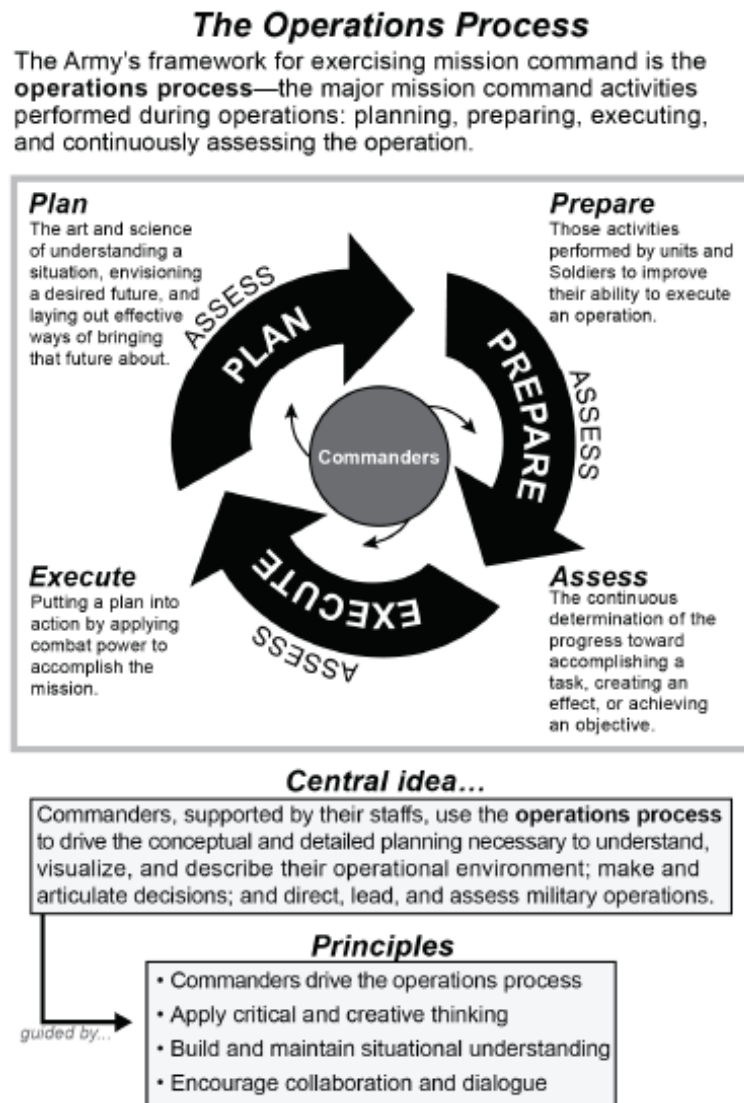
The Operations Process

The Army's framework for exercising mission command is the **operations process**—the major mission command activities performed during operations: planning, preparing, executing, and continuously assessing the operation.

Plan
The art and science of understanding a situation, envisioning a desired future, and laying out effective ways of bringing that future about.

ASSESS
PLAN

Prepare
Those activities performed by units and Soldiers to improve their ability to execute an operation.

PREPARE
ASSESS

Commanders

Execute
Putting a plan into action by applying combat power to accomplish the mission.

EXECUTE
ASSESS

Assess
The continuous determination of the progress toward accomplishing a task, creating an effect, or achieving an objective.

Central idea...
Commanders, supported by their staffs, use the **operations process** to drive the conceptual and detailed planning necessary to understand, visualize, and describe their operational environment; make and articulate decisions; and direct, lead, and assess military operations.

guided by...

Principles
• Commanders drive the operations process
• Apply critical and creative thinking
• Build and maintain situational understanding
• Encourage collaboration and dialogue

Figure 6.   The Operations Process Underlying Logic

Source: Headquarters, Department of the Army, Army Doctrine Publication (ADP) 5-0, *The Operations Process* (Washington, DC: Government Printing Office, 2012), iv.

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[64] Headquarters, Department of the Army, ADRP 5-0, 4-6.

<u>Standard Operating Procedures</u>

Standard operating procedures (SOP), also known as standing operating procedures, are operations that are well defined. Because some operations are well defined, it is possible to create procedures, practice and improve those procedures, and align those procedures to specific units.[65] In sports terms, a unit SOP is its playbook. SOPs explain the ways that units operate to accomplish assigned missions and save leaders' time in the execution of operations. SOPs preserve the creative problem-solving capacity of senior leaders and permit them to focus on the most pressing challenges of the current situation. They create shared understanding amongst organizations and empower mid and lower echelon leadership. SOPs take advantage of the lessons promulgated in doctrine, and explain who, when, how, and why tasks should be performed. What to do if circumstances are different than expected, and who and how to report when tasks are accomplished.[66] The Army published ATP 3-90.90 Army Tactical Standard Operating Procedures to facilitate the efficient development of effective SOPs. Additionally, the Army has a secure web-based portal to aid in the development of SOPs and share examples. Collaboration and effectiveness of a unit SOP can be improved through the content located on the secure site at https://www.milsuite.mil/wiki/Portal: Standard_Operating_Procedures.

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[65] Joint Chiefs of Staff, Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: Government Printing Office, 2016), 224.

[66] Headquarters, Department of the Army, Army Techniques Publication 3-90.90, *Army Tactical Standard Operating Procedures* (Washington, DC: Government Printing Office, 2011), 2-4.

Battle Drills

In sports terms, battle drills are plays out of the playbook. All the players understand when the play is called what is expected of them. Battle drills are pre-planned, pre-practiced procedures that permit immediate action without a decisionmaking process.[67] They are techniques repetitively practiced to build teams that have shared understanding within predicted circumstances. The most expected situations are the priority for battle drill rehearsal in the operations process. During execution, all members of the organization are rapidly employed through the use of battle drills.

Army Aviation battalion leaders employ the operations process to solve complex and simple problems in a range of time from large to small. SOPs assist battalion leadership by preserving intellectual capital for new problems and empowering mid to low echelon leadership. Battle drills are techniques that are used when time is too short for a decisionmaking process and immediate action is necessary to preserve combat power.

The operations process, SOPs, and battle drills are well known and generally well-trained processes and procedures. Army Aviation leaders should dedicate more time in effort to developing living SOPs that reflect the operations process and are inclusive of their battle drills. A living SOP is routinely used by leaders throughout the unit, easily adjusted in accordance with the battle rhythm, and is easily accessible through print or digital media.

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[67] Headquarters, Department of the Army, FM 6-0, 12-2.

<u>Facilities and Equipment</u>

Facilities and equipment include command posts, signal nodes, and all mission command support equipment, excluding information systems. A facility is a structure or location that provides a work environment and shelter for the personnel within the mission command system. Facilities range from a command post composed of vehicles and tentage to hardened buildings. Examples of equipment needed to sustain a mission command system include vehicles, generators, and lighting.[68]

FM 6-0 provides considerations and factors for command posts. Army Aviation command posts should be able to communicate with higher and lower units. The command post facilities and equipment must rapidly break down, move, re-establish systems, and control operations. The factors that contribute to the success of the command post meeting this end are design and layout, standardization, continuity, deployability, and capacity and range.[69] Communication and coordination amongst cells are paramount when considering the design and layout of the CP.[70] Army Aviation doctrine omits to describe the facilities and equipment of Army Aviation battalion command posts. My observations at the NTC from 2014 to 2016 revealed that 19 of 19 Army Aviation task forces used tents to house their main command post. As a general observation, it took about two to four hours to collapse the main CP and about the same to re-establish it. Add the time required to move to the next location and it becomes evident that the brain of an Army Aviation task force is non-operational for a significant amount of time. This is time lost for planning, preparing, and executing operations with

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[68] Headquarters, Department of the Army, ADP 6-0, 12.

[69] Headquarters, Department of the Army, FM 6-0, 1-3.

[70] Ibid.

the most agile and lethal assets in the Army inventory. MAJ Jaimie Jordahl, the

Command Post Branch Chief at the TRADOC Capability Manager Mission Command-

Command Posts, in an e-mail to the author said the following about mobile CP

development.

> The Mission Command Center of Excellence is writing a Command Post infrastructure capability development document. It addresses CP's from BN to Corps to include TAC, Main, and Command Group. The basis of issue plan is focused on Armor, Infantry, Stryker BCTs, all active Divisions, and 3 Corps. Based off guidance from Headquarters Department of the Army the basis of issue does not include functional or multi-functional brigades. Finally, these CP's are not exclusive to any one unit and these capabilities could be expanded to include functional and multi-functional brigades should the funding come available and HQDA approves the fielding. [71]

Army Aviation's combat power, in the form of attack, cargo, reconnaissance, and

utility-aerial platforms is constrained by the facilities and equipment that contribute to the

efficacy of the MCS. Current facilities and equipment are slow to displace and emplace at

the rate that may be necessary to support rapid maneuver. Army Aviation should design

and test vehicle-mounted command post facilities and equipment. These mobile

command posts should support mission command on the move with satellite

communications, mounted MCISs, shelter with radar camouflage, power generation, and

an environmental control system.

Training

Members of the battalion staff are given introductory level instruction on MCIS in

their entry-level training at the Army Aviation Center of Excellence. Depending on the

time elapsed and the quality of the instruction provided at the center of excellence,

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[71] Jaimie Jordahl, e-mail message to author, April 27, 2017.

atrophy of technical skills is expected upon arrival to a unit. The aviation unit assumes responsibility for individual and collective training to accomplish the unit's missions. The task of mission command can be confused in the garrison environment where it seems as though mission command is being executed. Information from higher headquarters is coming into the subordinate headquarters. There is some level of analysis and information is disseminated. Missions and tasks are assigned and accomplished. Plans are formed and briefed. At the surface, there are plenty of mission command functions being performed, and this can lull leaders into the belief that mission command is being trained. There is a critical flaw in this logic. That is the principle of train as you fight.[72] The mission command functions that were previously explained in this paragraph are examples of mission command on e-mail and phone. E-mail and phone are in the MCISs and used in tactical operations; but there are several others that are ignored altogether. CPOF, TAIS, AFATADS, BFT, BFTII, JCR, JCR-L, and radios are either not used at all or used sparingly. Ignoring these systems in day to day operations causes a loss of proficiency and understanding how the information systems will be used in the MCS. About 75 years after Jomini's *Traite de Grande Tactique,* his work seemed forgettable. Not because his tactics were without value, but because those tactics were well studied and incorporated in most military's methods of conducting war. It is the principle of learning and forgetting. Train until a task is second nature and the mechanics cease to be

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[72] Headquarters, Department of the Army, Army Doctrine Publication (ADP) 7-0, *Training Units and Developing Leaders* (Washington, DC: Government Printing Office, 2012), 5.

a thought. They just exist. So too should aviation battalion staffs pursue training on the MCWFF.

While the commander is ultimately responsible for everything that does, or doesn't happen in the unit, the chief of staff, more commonly called the executive officer, has the responsibility of supervising the staff in the main CP.[73] As the chief supervisor and integrator of the staff, the executive officer should have a plan on how to train the staff. Fortunately for the XO, much of the work of developing a training plan for building proficiency at mission command has already been completed and there is simulations support available to provide subject matter expertise to the XO and staff.

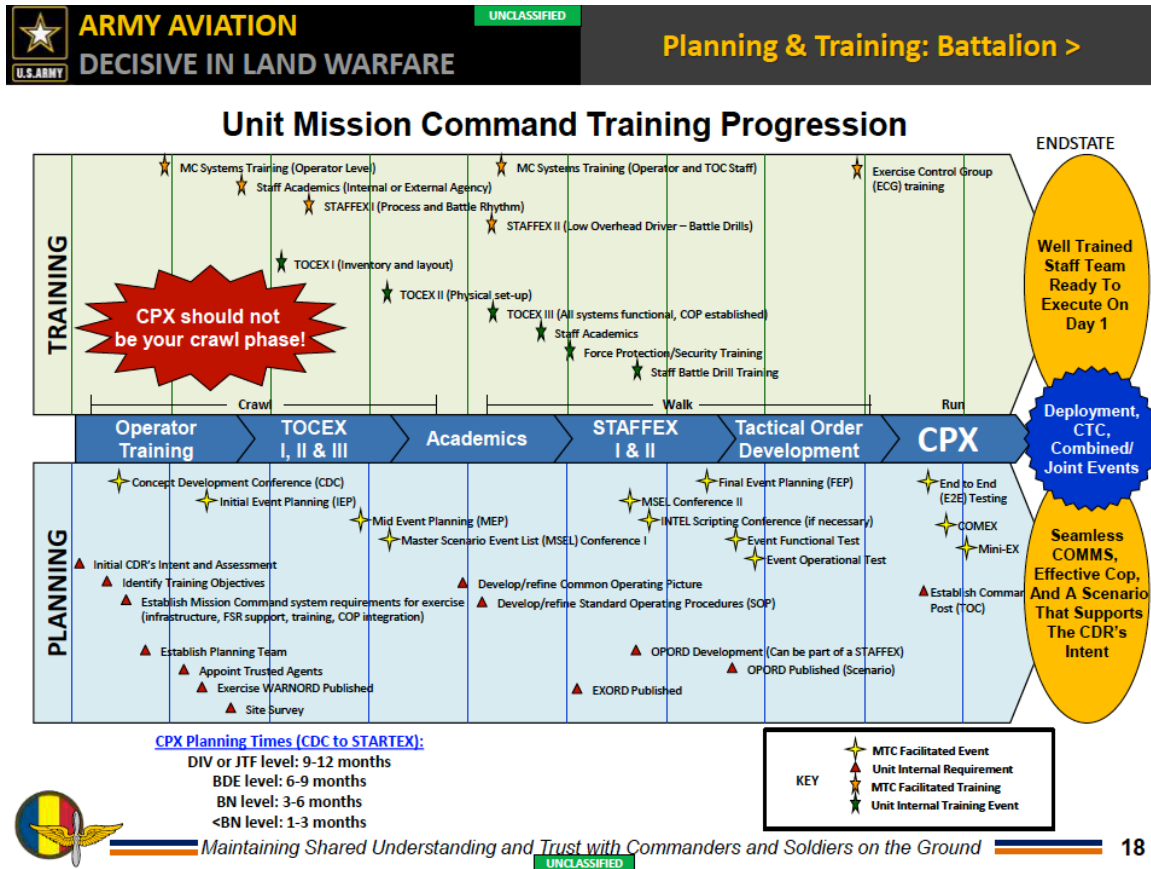[73] Headquarters, Department of the Army, FM 6-0, 1-2.

Figure 7.   Unit Mission Command Training Progression

Source: Army Aviation Directorate of Simulations, "Enhancing Home Station Training with Live, Virtual, Constructive, Gaming (LVCG) and Mission Command (MC) Enablers" (Aviation Pre-Command Course Brief, Fort Rucker, AL, January 23, 2017), Slide 18.

The Directorate of Simulations at the Army Aviation Center of Excellence created a mission command training progression. The plan is illustrated in figure 7 above. There are three terms that require an explanation for this graphic to make sense. First, a staff exercise (STAFFEX) is a focus on the staff itself. In this action, the staff is trained and evaluated on the tasks it is required to perform. Second, a command post exercise (CPX) includes simulated forces that are directed by the commander with staff support and

communication amongst the headquarters elements of the organization. Last, a field

training exercise (FTX) is conducted in the field with the full participation of the

organization. Soldiers and equipment are present and placed into operation and missions

are executed against a simulated enemy force.[74]

The Unit Mission Command Training Progression is accomplished with help from

the mission training complex (MTC) at the unit's home station. MTCs are facilities

designed and operated to support training at home station. In the crawl phase of the

training progression, the MTC facilitates operator training to refresh or train users on how

to operate MCISs and provides the staff with academics. The staff academics educate the

staff on the expectations of how it will operate. Following the staff academics is the first

practical application with STAFFEX I. STAFFEX I educates the staff on processes and

procedures. The unit is responsible for a TOCEX. TOCEX I is an inventory and layout of

the equipment and information systems that will be used in the mission command

training progression. TOCEX II is the physical setting up of the facilities, equipment, and

MCISs. The next phase is the walk phase. In this phase, the MTC facilitates additional

MCISs training and a second STAFFEX. STAFFEX II gives the TOC staff a chance to

work together, using their MCISs, and learning battle drills. The unit is responsible for

establishing a fully functional TOC with a COP, providing additional staff academics to

reiterate or introduce new techniques, conduct force protection and security training, and

execute staff battle drills. The final phase is the run phase. In this phase, the unit conducts

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[74] Joint Chiefs of Staff, CJCSM 3500.03E, *Joint Training Manual for the Armed Forces of the United States* (Washington, DC: Government Printing Office, 2015), D-B-13.

a CPX. The MTC facilitates the training with objectives to include a communications exercise, a tactical exercise to meet the commander's intent, and a fully functional COP.

Army Aviation units can conduct an aviation training exercise (ATX) at their home station MTC. An example of an exercise where a combat aviation brigade (CAB) took advantage of their MTC is the 16th CAB. The 16th CAB executed an ATX at Joint Base Lewis-McChord in January of 2017. The purpose of the exercise was to validate task force level command teams to prepare for an upcoming deployment to a combat zone. This brigade level exercise incorporated Live, Virtual, and Constructive Integrating Architecture. The exercise used JCATS, VBS3, two AVCATTS and incorporated white box mission command systems to include the task force staff in the training exercise.

Table 3.   16th CAB ATX Training Objectives

1.	Exercise realistic aviation scenarios
2.	Exercise the CONOP approval process for missions requiring high-risk approval
3.	Validate the Task Force Staff's ability to plan and synchronize multi-functional aviation operations, to include time-sensitive target operations
4.	Validate information and knowledge management systems and processes
5.	Exercise the intelligence process that drives aviation maneuver and enables timely decision making by air mission commanders
6.	Exercise MEDEVAC Operations that focus on the defined processes for both mission and launch approval
7.	Exercise mission command systems utilized in theater and TOC operations that result in a constant COP across the operational environment
8.	Validate unit SOPs, Battle Books, and Battle Drills at echelon.

Source: 16th Combat Aviation Brigade, Aviation Training Exercise, Exercise Summary January 17, 2017–January 20, 2017, Joint Base Lewis-McChord, WA. Email received by author.

The unit mission command training progression described and illustrated above fits nicely into Army Aviation's Training Strategy: Training Aviation Warfighters for Decisive Action published in January 2016. The training strategy emphasizes the importance of units training the way they will fight. It declares the importance of training to standard and that "Practice makes permanent, not perfect." Leaders are encouraged to make on the spot corrections, reset the training to achieve a repetition to standard, and when that is not possible, to conduct an after action review to capture the lessons learned and improve on the next iteration.[75] The training strategy states that leaders must use a crawl, walk, run approach to training; with most of the focus on the crawl and walk phases of training. The aviation training strategy offers principles of quality training. Of note among them are that training is driven by the commander, that it is led by leaders, and that leaders are trained first.[76] Lastly, the Army Aviation Training Strategy directs aviation leaders to, "Execute every training event within a realistic, doctrinally-based training environment that ties task accomplishment (individual, leader, and collective) to mission success."[77] With this in mind, aviation leaders should develop ways of training the MCWFF in the steady state operations of the garrison environment. Consider how to use the unit MCS in routine garrison operations. There are opportunities to execute functionality checks on MCISs during battle rhythm events from motor stables to daily

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[75] Headquarters, Army Aviation Center of Excellence, *Training Aviation Warfighters for Decisive Action* (Fort Rucker, AL: Army Aviation Center of Excellence, 2016), 4.

[76] Ibid.

[77] Ibid.

flight operations. Through the repetitive employment of the unit's MCS, the battalion

staff will build, maintain, and improve proficiency on information systems, processes and

procedures, optimize facilities and equipment, and build understanding of the networks
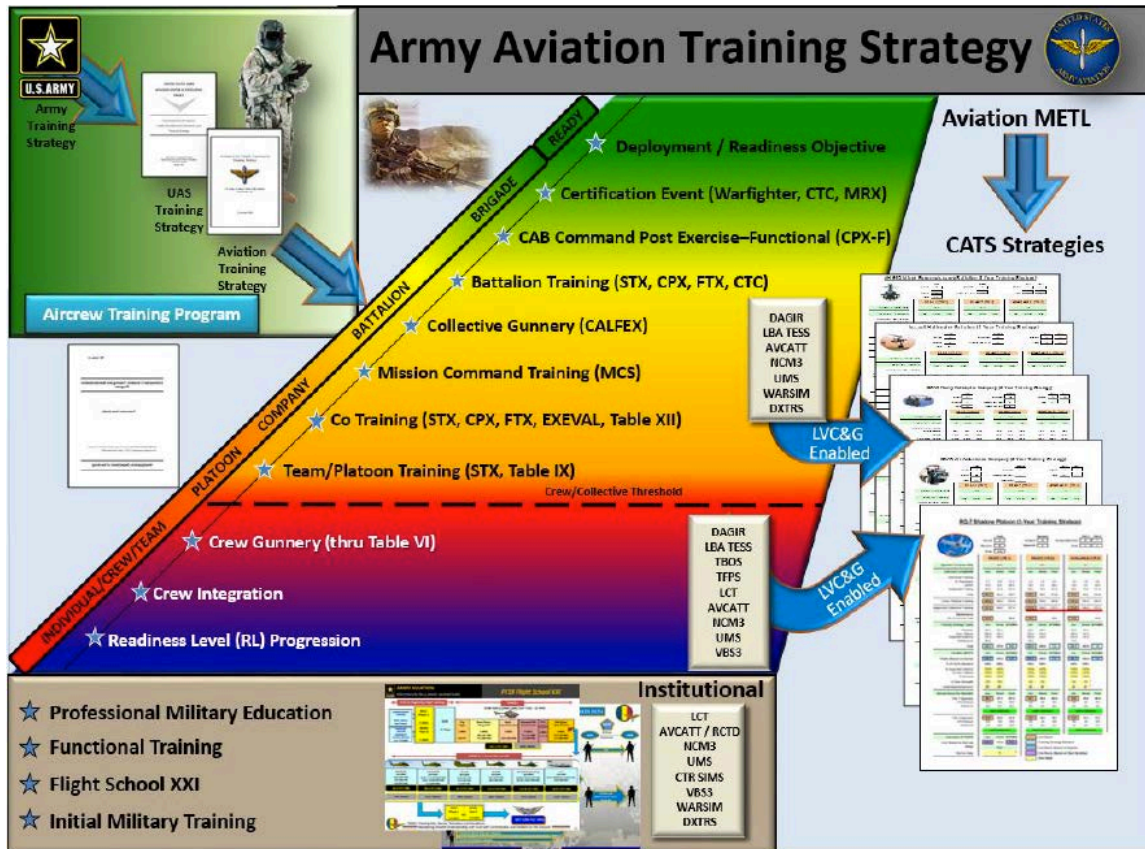
that link the headquarters and warfighters.

Figure 8.   Army Aviation Gated Training Strategy

Source: Headquarters, Army Aviation Center of Excellence, *Training Aviation Warfighters for Decisive Action* (Fort Rucker, AL: Army Aviation Center of Excellence, 2016), 3.

Conclusion

Aviation battalions execute the MCWFF through their MCS. The MCS is a collection of personnel, networks, information systems, process and procedures, and facilities and equipment. Army Aviation battalion staffs use networks and information systems to include CPOF, DCGS-A, BFT, JCR, AFATADS, JCR-L, AMPS, OSRVT, and radios to create a systematic linkage in the tactical environment. These technologies provide line of sight and over the horizon connectivity to facilitate the MCWFF. Lastly, aviation battalions have opportunities to build, develop, and improve their MCS through routine operations at home station. MTCs at Army installations have the personnel, expertise, facilities and equipment to enhance mission command training at home station.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATION

Introduction, Purpose, and Organization

The purpose of this study was to understand how Army Aviation battalions execute the MCWFF to aid commanders, staffs, and aviators in its effective application. The primary research question asked how does an aviation battalion execute the MCWFF? Two secondary questions followed. First, how does an aviation battalion's MCS facilitate the MCWFF? Secondly, what ways are available to aviation units for home station training on MCSs? The analysis revealed a bias towards MCISs as the focal point for the Army Aviation MCS, the need for MCIS integration into combined arms simulations trainers, and that current facilities and equipment are not compatible with rapid employment and displacement.

Summary, Interpretation, and Implications of Findings

Army Aviation doctrine confuses terms by using MCSs as the term for MCISs. ADP 6-0 defines MCSs as, "the arrangement of personnel, networks, information systems, processes and procedures, and facilities and equipment that enable commanders to conduct operations."[78] ATP 3-04.1 states that, "the main CP S-3 or designated representative (typically the battle captain), employs various mission command systems. The primary means of facilitating current and future operations is through the CPOF."[79]

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[78] Headquarters, Department of the Army, ADP 6-0. Glossary-2.

[79] Headquarters, Department of the Army, ATP 3-04.1, 1-3.

The focus of aviation doctrine is the technology used to conduct the MCWFF. This partiality to information systems disproportionately weights them as the solution to the MCWFF; instead of considering them as a piece of a wider apparatus to synchronize, coordinate, and direct combat power to accomplish missions. Lastly, favoritism of information systems increases the risk to the MCWFF in contested environments and harsh climates.

ATP 3-04.1 does not provide a duty description for the communications officer. The communications officer is responsible for establishing radio and internet systems but specific tasks to this officer were omitted from this piece of aviation doctrine. The implication is that Army Aviation has not thought through how to employ the communications officer in the MCS.

Army and Army Aviation doctrine is void of a reference that describes how to employ its information systems across multiple branches at echelon. The challenges to creating such a publication are many. A writer with the technical expertise, tempo of technological advancement, and providing flexibility to commanders are valid reasons not to produce such a document. The onus, as in most Army doctrine, falls to the commander to solve the problem. The challenge is not a simple one to disentangle with the information systems available to aviation commanders.

Army Aviation doctrine expects a knowledgeable and experienced officer for an aviation liaison element; however, the organization of an Army Aviation battalion allocates an unknowledgeable and inexperienced officer in the form of a first lieutenant to the position of liaison officer. Headquarters that receive an aviation liaison are expecting an officer with the experience and knowledge to assist them in planning and

executing operations; however, aviation is not resourcing its organizations with the officer that has the qualifications to meet the expectation.

The Aviation Combined Arms Tactical Trainer (AVCATT), is limited in its ability to incorporate MCIS training. The simulator does not allow staff to train on their equipment with the form and function that the staff will use in combat. Effects of this omission are that the staff misses an opportunity to train in the execution phase of the operation and the aviators miss the chance to interact with the staff. A possible effect of practicing without staff participation, is that the aviators diminish the importance of reporting to their higher headquarters. Aviators' understanding of the coordination necessary at higher headquarters is slight to non-existent and staff understanding of their role in a fight is on par with the aviators. This practice is contributing to echelons fighting large-scale operations without an understanding of how they fit into the fight

Unexpected Findings

First, given the number of users of information systems within the Army, a complete publication from an authoritative source on the employment of these systems is void from the Army's body of knowledge. The scope and scale of technical writing, the pace of technological advancement, the resources required, and the leadership focus necessary to publish such a document are among the obstacles to creating a concept of employment. A common theme amongst the leaders at the combined arms doctrine directorate, the Army Aviation directorate of training and doctrine, and the deputy director of simulations at the aviation center of excellence, was to permit Army Aviation commanders to organize their information systems in a manner that supported their mission. In spite of the fact that combat training centers have a grading metric to evaluate

Aviation units on the employment and effectiveness of their information systems, Army Aviation doctrine does not provide a process of employment. Given the importance of information systems in the current fight, the omission of the communications officer's roles and responsibilities in aviation doctrine was a surprise.

Second, the Combined Arms Doctrine Directorate, the Directorate of Training and Doctrine, and the Director of Simulations at the Army Aviation center of excellence, may be wise to avoid investing a large amount of time and resources into developing a concept of employing the current MCISs. Some adversaries have the ability to use the emissions from these systems to target command posts. The information systems in their current configuration prevent rapid dispersion in the event of location compromise to enemy fires. The information systems require facilities that are large, cumbersome, and are devoid of immediate mobility. For these reasons, the current concept of employing information systems within an MCS in a contested operational environment, will likely face devastating consequences.

Third, the Directorate of Simulations at the Aviation Center of Excellence has limited collaboration with MTCs. Each MTC is responsible for their own creation and conduct of training exercises. A common training scenario, created and tested at the Aviation Center of Excellence, is not available for rapid sharing to the force. There are technical and resource constraints that are obstacles to achieving this objective. The case is made that each unit has its own training plan that needs attention. However, this is a missed opportunity to leverage the resident expertise at the Aviation Center of Excellence and achieve unity of effort and action across the aviation enterprise for common training deficiencies.

Fourth, at the outset of the research for this paper, the military problem that I wanted to solve was that the US Army had attack helicopters on a separate digital information system than US Army ground forces that failed to coordinate forces. Additionally, the information systems were the conduit of added chaos from an overbearing staff that eagerly injected itself into gunfights in the pursuit of understanding the tactical situation. As my research progressed, I discovered that interoperability amongst Army information systems is an uber-complex problem with no end in sight. Realizing that further understanding the technical and force management challenges that exist to overcoming interoperability between information systems would likely fall short of a solution for exercising the MCWFF for an aviation battalion, the focus of my research changed. But the surprising fact that the proprietary nature of information systems creates an obstacle for integrating the systems with one another remains a huge problem. The procurement process moving forward should give the Army full ownership of information systems that it is purchasing to allow engineers to achieve integration and interoperability without incurring financial obligations to multiple companies in the process.

<u>Recommendations</u>

For the Directorate of Training and Doctrine at the Aviation Center of Excellence: MCS is used in ATP 3-04.1 when the meaning of MCS is MCIS. Align the MCS and MCIS terms in ATP 3-04.1 with ADP 6-0 Mission Command.

For the Directorate of Training and Doctrine at the Aviation Center of Excellence: Add a duty description for the communications officer in the next release of ATP 3-04.1.

Describe how the communications officer should be used in a decisive action environment.

For the Mission Command Center of Excellence: Recognizing that the MCISs in their current form are in the twilight of their lifecycle, work with Combined Arms Doctrine Directorate to publish an ATP for the next generation of MCISs, the Command Post Computing Environment, describing a concept of employment across branches of the Army.

For the Army Aviation Center of Excellence: Change the table of organization for liaison officers to O-3 to provide aviation battalions with the type of officer that is described in ATP 3-04.1.

For the Army Aviation Directorate of Simulations: Add the ability for aviation battalion staffs to use their MCISs with the AVCATT.

For the Mission Command Center of Excellence: Future MCISs should be Army property. Proprietary systems present fiscal roadblocks to integration in future environments.

For Further Study

First, is the Army Aviation MCWFF feasible in future battle? The current paradigm is composed of a battalion headquarters with a robust amount of personnel; networks dependent on abundant satellite bandwidth; information systems that are challenging in terms of interoperability, usability, and transportability; slow planning processes and procedures; and facilities that require hours to set up, collapse, move, and by their opaque construction limit the situational awareness of the personnel inside. How can Army Aviation expand its strength as a highly maneuverable asset, and create agility

in its command posts? Are helicopter command posts a feasible solution? How can vehicles be configured to conduct the MCWFF, be mobile, and share information across the warfighting functions? What is the minimum number of personnel that aviation units need to sustain MCWFF operations? How can we use unmanned vehicles to decrease our reliance on satellite communications and build an affordable, reliable network? How can we integrate the functions of multiple information systems into a common system throughout the Army and Joint force?

<div align="center">Unanswered questions</div>

The primary research question asked how does an aviation battalion execute the MCWFF? Two secondary questions followed. First, how does an aviation battalion's MCS facilitate the MCWFF? Secondly, what ways are available to aviation units for home station training on MCSs? This paper answered each of these questions to the extent allowable by the classification of the study. Within the question of "how does an aviation battalion's MCS facilitate the MCWFF?" there is necessary analysis needed for deeper understanding in personnel, information systems, and facilities and equipment. A clearer analysis of what tasks are required to be performed within doctrine versus the allocation of personnel has impacts on how a battalion staff is organized and employed. A more comprehensive technical analysis of MCISs interoperability capabilities, limitations, and reach would benefit aviation leaders. Lastly, an examination of facilities and equipment could reveal how current material doesn't support the future operating environment as described by the Chief of Staff of the Army, General Mark Milley, in his 2016 AUSA speech.

GLOSSARY

Airspace Control. Capabilities and procedures used to increase operational effectiveness by promoting the safe, efficient, and flexible use of airspace.[80]

Airspace Control System. An arrangement of those organizations, personnel, policies, procedures, and facilities required to perform airspace control functions.[81]

Airspace Coordinating Measures. Measures employed to facilitate the efficient use of airspace to accomplish missions and simultaneously provide safeguards for friendly forces.[82]

Airspace Management. The coordination, integration, and regulation of the use of airspace of defined dimensions.[83]

Aviation Combined Arms Tactical Trainer. The simulator that enables unit collective and combined arm air-to-ground training for AH-64, UH-60, CH-47, UH-72 and OH-58 aircrews within the Live, Virtual and Constructive Integrated Training Environment.[84]

Joint Conflict and Tactical Simulation. A simulation system used for training and experimentation by the Department of Defense to simulate terrain effects and large numbers of entities participating in interactive scenarios.[85]

Information System. Equipment that collects, processes, stores, displays, and disseminates information. This includes computers-hardware and software-and communications, as well as policies and procedures for their use.[86]

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[80] Joint Chiefs of Staff, JP 3-52, GL-3.

[81] Ibid.

[82] Ibid., GL-4.

[83] Ibid.

[84] US Army, United States Army Acquisition Support Center, "Aviation Combined Arms Tactical Trainer," accessed April 14, 2017, http://asc.army.mil/web/portfolio-item/peo-stri-aviation-combined-arms-tactical-trainer-avcatt/.

[85] Randy Jones, *Thinking Opposing Force for Joint Conflict and Tactical Simulation* (Wright-Patterson AFB: Air Force Research Laboratory, 2003), 1.

[86] Headquarters, Department of the Army, ADP 6-0, 12.

Mission Command. The exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations.[87]

Mission Command System. The arrangement of personnel, networks, information systems, processes and procedures, and facilities and equipment that enable commanders to conduct operations.[88]

Mission Command Warfighting Function. The related tasks and systems that develop and integrate those activities enabling a command to balance the art of command and the science of control in order to integrate the other warfighting functions.[89]

Mission Orders. Directives that emphasize to subordinates the results to be attained, not how they are to achieve them.[90]

Warfighting Function. A group of tasks and systems (people, organizations, information, and processes) united by a common purpose that commanders use to accomplish missions and training objectives.[91]

Virtual Battlespace 3. A desktop tactical trainer and mission rehearsal software system.[92]

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[87] Headquarters, Department of the Army, ADP 6-0, 1.

[88] Ibid., 11.

[89] Headquarters, Department of the Army, Army Doctrine Reference Publication (ADRP) 3-0, *Operations* (Washington, DC: Government Printing Office, 2016), 5-3.

[90] Headquarters, Department of the Army, ADP 6-0, 5.

[91] Headquarters, Department of the Army, ADRP 3-0, Glossary-9.

[92] Bohemia Interactive, "Virtual Battlespace 3," accessed April 21, 2017, https://bisimulations.com/virtual-battlespace-3.

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