FIRES READINESS: THE STATE OF US ARMY FIRES IN SUPPORT OF COMBINED ARMS MANEUVER AT THE DIVISION LEVEL

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RYAN JOHNSON, MAJOR, UNITED STATES ARMY
B.S., United States Military Academy, West Point, New York, 2005

Fort Leavenworth, Kansas
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Is the United States Army Field Artillery capable of supporting combined arms maneuver operations in high intensity conflict? The Army Operating Concept recognizes that the skills required to do this represent the peak of military proficiency. However, after 15 years of supporting counterinsurgency operations and conducting non-standard missions the Field Artillery community appears to have lost this proficiency by letting some of their core competencies atrophy. This thesis seeks to describe the current state of fires at the US Army division level by conducting a capabilities based analysis. Examining TRADOC design documents and U.S. Army Field Artillery Doctrine will determine the capability requirements a DIVARTY or Field Artillery Brigade will need to support Division level operations. Analysis of Combat Training Center reports will enable an assessment of current proficiency. Evaluating current and projected initiatives from the fires proponent in the DOTMLPF domains of Doctrine, Organization, Training, and Leadership Development will enable an assessment of what residual capability gaps exist. This thesis will explore solutions to these capability gaps and make recommendations on how the fires proponent can reverse 15 years of atrophy regain proficiency in their core competencies.

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Name of Candidate: Major Ryan Johnson

Thesis Title: Fires Readiness: The State of US Army Fires in Support of Combined Arms Maneuver at the Division Level

Approved by:

_____, Thesis Committee Chair
Kenneth E. Long, D.M.

_____, Member
Stephen E. Brown, M.S.

_____, Member
Andrew L. Dietz, M.S.

Accepted this 10th day of June 2016 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

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

ABSTRACT

FIRES READINESS: THE STATE OF US ARMY FIRES IN SUPPORT OF COMBINED ARMS MANEUVER AT THE DIVISION LEVEL, by Major Ryan Johnson, 99 pages.

Is the United States Army Field Artillery capable of supporting combined arms maneuver operations in high intensity conflict? The Army Operating Concept recognizes that the skills required to do this represent the peak of military proficiency. However, after 15 years of supporting counterinsurgency operations and conducting non-standard missions the Field Artillery community appears to have lost this proficiency by letting some of their core competencies atrophy. This thesis seeks to describe the current state of fires at the US Army division level by conducting a capabilities based analysis. Examining TRADOC design documents and U.S. Army Field Artillery Doctrine will determine the capability requirements a DIVARTY or Field Artillery Brigade will need to support Division level operations. Analysis of Combat Training Center reports will enable an assessment of current proficiency. Evaluating current and projected initiatives from the fires proponent in the DOTMLPF domains of Doctrine, Organization, Training, and Leadership Development will enable an assessment of what residual capability gaps exist. This thesis will explore solutions to these capability gaps and make recommendations on how the fires proponent can reverse 15 years of atrophy regain proficiency in their core competencies.

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TABLE OF CONTENTS

Page

ACRONYMS

ACC	Army Capstone Concept
ACM	Airspace Coordination Measure
ADP	Army Doctrine Publication
AOC	Army Operating Concept
ATP	Army Training Publication
BCT	Brigade Combat Team
CAM	Combined Arms Maneuver
CBA	Capabilities Based Assessment
CDE	Collateral Damage Estimation
CTC	Combat Training Center
DATE	Decisive Action Training Environment
DIVARTY	Division Artillery
DOTMLPF	Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities
FA	Field Artillery
FAA	Functional Area Analysis
FAB	Field Artillery Brigade
FER	Final Exercise Report
FFA HQ	Force Field Artillery Headquarters
FM	Field Manual
FNA	Functional Needs Analysis
FSA	Functional Solutions Analysis
FSCM	Fire Support Coordination Measure

JAGIC	Joint Air Ground Integration Center
JFC	Joint Force Commander
JFO	Joint Fires Observer
JIM	Joint, Interagency, Multinational
JP	Joint Publication
MCTP	Mission Command Training Program
MMAS	Masters of Military Arts and Sciences
MOS	Military Occupational Specialty
OC/T	Observer Coach Trainer
SAMS	School for Advanced Military Studies
TMO	Target Mensuration Only
TNG	Training
TRADOC	Training and Doctrine Command
WAS	Wide Area Security
WFX	Warfighter Exercise

FIGURES

Page

CHAPTER 1

INTRODUCTION

Introduction/Background

The purpose of this study is to conduct a holistic review providing a rich description of the state of United States Army fires at the divisional level. Through direct observation while serving as an observer coach trainer (OC/T) with the Mission Command Training Program (MCTP) from 2013 to 2015 I have noticed that units struggle with providing shaping fires at the divisional level in the context of the decisive action training environment (DATE). My initial thought was that this atrophy in divisional fires proficiency might be attributed to lack of use over the past ten years.

While the fires community, and United States military as a whole, have adapted well to a counterinsurgency fight and are currently proficient in the skills necessary to conduct wide area security; it appears that this has come at the cost of maintaining our ability to conduct combined arms maneuver as well. The skills required to plan, coordinate, and synchronize effective shaping fires in support of maneuver forces are perishable just like all others. This study conducts a broad survey to assess the validity of my initial impressions by describing the state of fires at the division level.

An enduring challenge of the Army, and specifically the fires community, is maintaining the ability to perform a wide variety of missions while the threat environment ebbs and flows. The skills and training required to succeed in a counterinsurgency are different to those necessary in high intensity conflict. Reversing the atrophy of skills is critical to maintaining balanced readiness in the fires warfighting function. The Chief of Staff of the Army, General Milley, says that in light of our recent

experience in Iraq and Afghanistan the Army as a whole is experiencing this challenge of maintaining readiness. In an attributional address to the Command and General Staff College class of 2016 on 22 March 2016 in Eisenhower Auditorium he expressed his opinion that the Army is currently proficient and ready to conduct wide area security but he strongly believes that we are not currently prepared to execute combined arms maneuver against a near peer competitor.[1] The Field Artillery Commandant, Brigadier General Turner expressed a similar assessment to that of General Milley's in the December 2014 issue of the "Redleg Update" where he wrote that "Repetitive deployments, conducting nonstandard missions have left many Field Artillery formations out of practice in their core tasks and drills—at both the individual and collective levels."[2] This message was reinforced seven other times in various editions of the "Redleg update" dating from November 2013 all the way to January 2016. Senior leadership in the Field Artillery community have clearly recognized this atrophy of fires specific core competencies. After stating his belief in our imbalance in readiness, the Chief of Staff of the Army then went on to state that we do not, and cannot know when the next major conflict or war will start and we must be ready at a moment's notice.[3] The Chief of Staff of the Army is questioning our ability to perform our core mission.

[1] Mark Milley, "Address to Command and General Staff College Class of 2016" (Ft. Leavenworth, KS, March 22, 2016).

[2] William Turner, "2014 State of the Field Artillery," *REDLEG Update* (December 14, 2014): 2.

[3] Milley, "Address to Command and General Staff College Class of 2016."

"The mission of the United States Army," as stated in Army Doctrine Publication (ADP) 1 which is derived from Congressional law and Department of Defense Directive 5100.01, "is to fight and win the Nation's wars through prompt and sustained land combat as part of the joint force."[4] ADP 1 states that the Army does this by "Organizing, equipping, and training Army forces for prompt and sustained combat incident to operations on land; integrating our capabilities with those of the other Armed Services; accomplishing all missions assigned by the President, Secretary of Defense, and combatant commanders; and remaining ready while preparing for the future."[5] General Milley is looking at the Army as a whole and assessing our ability to accomplish "all missions" and "remain ready." We must do the same from the fires proponent perspective and ask: Are we ready to accomplish our core competencies in support of the missions that the President could give us?

The Army's most recent combat experiences in Iraq and Afghanistan have been largely in a counterinsurgency environment focused primarily on executing a wide area security mission. As such the Army has become very comfortable with this mission and has sharpened the skills necessary to perform it. The Army however, does not have significant recent experience executing combined arms maneuver in combat. Some would argue the most recent example was during the battle for Baghdad during the initial invasion of Iraq in 2003 in support of Operation Iraqi Freedom and others would go so far back as Operation Desert Storm in 1991. Regardless which example you believe is

[4] Headquarters, Department of the Army, Army Doctrine Publication (ADP) 1, *The Army* (Washington, DC: Department of the Army, 2012), 1-8.

[5] Ibid., 1-7.

truly the last time the Army conducted combined arms maneuver in combat, the fact remains that this entire generation of officers, non-commissioned officers, and Soldiers has been primarily executing security operations and have no personal combat experience against near peer competitor. But the Army, according to its mission statement in ADP 1 as well as guidance from the Chief of Staff of the Army, must maintain both core competencies at all times so we are ready to respond to any threat to our nation at a moment's notice. By not having recent combat experience executing combined arms maneuver the Army must rely on training exercises at the Combat Training Centers to ensure units maintain this capability.

It is during these warfighter exercises where I saw first-hand the imbalance in our ability to execute the skills necessary for both combined arms maneuver and wide area security. While serving as an OC/T with the MCTP from 2013 to 2015 I had the opportunity to observe many warfighter exercises. With my background as a Field Artillery officer I was specifically focused on the fires war fighting function. This provided me the opportunity to work with several Division Artillerys (DIVARTYs) and Field Artillery Brigades (FABs). During this time I noticed a troubling trend, divisional shaping fires were largely ineffective in setting the conditions for maneuver units to be successful. Upon initial research at the time I found that numerous Final Exercise Reports (FERs) from MTCP as well as reports from the other Combat Training Centers (CTCs) validated this trend. This initial impresses ion led me to the hypothesis stated above: atrophy in divisional fires proficiency might be attributed to lack of use over the past ten years.

Problem Statement

Executing combined arms maneuver against a near peer competitor is a complex and challenging task. To be successful, doctrine encourages units to integrate all war fighting functions in both planning and execution as well as integrating across all services. Leveraging all available assets and capabilities to effectively shape the battlefield enables maneuver and increases the chances for success. This axiom is captured perfectly in the mission of the field artillery as stated in Army Doctrine Reference Publication 3-09: "The mission of the Field Artillery is to destroy, defeat, or disrupt the enemy with integrated fires to enable maneuver commanders to dominate in unified land operations."[6] This mission statement is clear; integrate fires to enable maneuver commanders to dominate. Joint doctrine also recognizes the value in integrating fires to enable maneuver. The second sentence in the definition of joint fire support out of JP 3-09 states "Effective integration, synchronization, and employment of joint fire support and joint targeting is essential to creating conditions that provide the supported commander freedom of action."[7]

The concept of fire support is the link between maneuver and the delivery of fires. Fire Support Officers at all echelons are responsible for providing fires subject matter expertise to their supported maneuver commander and developing fire support plans that enable maneuver. Effective fire support leverages fires from all sources; joint, coalition,

[6] Headquarters, Department of the Army, Army Doctrine Reference Publication (ADRP) 3-09, *Fires* (Washington, DC: Department of the Army, 2012), 1-4.

[7] Joint Chiefs of Staff, Joint Publication 3-09, *Joint Fire Support* (Washington, DC: Joint Chiefs of Staff, 2014), vii-viii.

and multinational fires; and from all platforms, surface to surface indirect fires and air to surface fires from either fixed wing or rotary wing air craft. These fires are coordinated and synchronized through the targeting process.

This is how the fire support system is designed to work. As stated above I routinely observed that during WFXs divisional shaping fires were largely ineffective. Ineffective fires were a problem for several reasons; they waste costly and perhaps constrained ammunition, they expose our personnel and equipment to increased risk in the form of counterfire or enemy air defense, and they fail to set the conditions for our maneuver units to experience an 'unfair' fight against the enemy's ground forces. Compounding the problem is the fact that the operating environment continues to become more and more complex. Delivering effective shaping fires has become even more difficult in an environment with coalition partners, civilians on the battlefield, and an ever increasing amount of air assets competing for air space. The problem statement I am focusing my research around is: How does the fires community sharpen the skills necessary to provide effective divisional shaping fires in support of combined arms maneuver in the decisive action environment?

Research Question

The primary research question I am seeking to answer is: What is the current state of divisional fires? The follow on questions that are required to answer the primary question are: What are the capability requirements for fires at the division level? What is our current proficiency at those tasks/functions? What initiatives already exist to address identified shortfalls? And finally, what capability gaps remain without any planned initiatives?

I will research using the case study methodology. I will first justify the existence and the scope of this problem through the FERs from the past two years of WFXs, trends reports from the CTCs, professional fires publications, and previous scholarly work conducted on the topic. I will then conduct a capabilities based assessment utilizing the DOTMLPF analytical lens to identify and categorize the data into an itemized list of fire support capability requirements, current and projected initiatives/solutions, and gaps. I will evaluate these identified gaps against a set of standardized evaluation criteria in order to prioritize the list of identified capability gaps.

Assumptions

This study is focused at assessing the current state of fires at the division level and analyzing the effectiveness of planned and ongoing initiatives at closing the capability gaps in fires core competencies that exist after ten years of atrophy. The primary assumptions needed to support this study are largely associated with identifying the capability requirements of the current and future force. First, I must assume the mission of the Army will not change in the foreseeable future and it will need to maintain balanced readiness. Second, I assume the Army will operate according to the TRADOC design documents (Army Capstone Concept, Army Operating Concept, and the Functional Concept for Fires) that provide insight into the future force and the capabilities it will require. And the final assumption is that the Army will not drastically reorganize in the near future (next 5 years); specifically that divisions will remain an operational maneuver headquarters with the responsibility to coordinate and synchronize assets to shape the battlefield for its maneuver brigades.

Definition of Terms

Understanding the following terms and concepts is critical to the understanding of this study. I will define the terms and concepts and put them into the appropriate context given the content of this report.

Army core competencies: "The Army's two core competencies—combined arms maneuver and wide area security—provide the means for balancing the application of Army warfighting functions within the tactical actions and tasks inherent in offensive, defensive, and stability operations. It is the integrated application of these two core competencies that enables Army forces to defeat or destroy an enemy, seize or occupy key terrain, protect or secure critical assets and populations, and prevent the enemy from gaining a position of advantage."[8]

Combined Arms Maneuver (CAM): "Combined arms maneuver is the application of the elements of combat power in unified action to defeat enemy ground forces; to seize, occupy, and defend land areas; and to achieve physical, temporal, and psychological advantages over the enemy to seize and exploit the initiative. It exposes enemies to friendly combat power from unexpected directions and prevents an effective enemy response."[9] CAM is the mission set utilized in high intensity conflict against a robust near peer competitor. Within the context of standard joint phasing CAM is primarily utilized in phase III dominate.

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[8] Headquarters, Department of the Army, Army Doctrine Publication (ADP) 3-0, *Unified Land Operations* (Washington, DC: Department of the Army, 2011), 5.

[9] Ibid., 6.

Decisive action environment - decisive action training environment (DATE): "The DATE is a tool for the training community to use across training events ranging from rotations at the CTCs to individual home station training (HST) events."[10] The DATE provides the Army and other services a venue of different operational environments in which to train on a wide range of missions. The DATE is where simulated operations are conducted during warfighter exercises. For the purposes of this study, the DATE is linked to high intensity force on force combat; the combined arms maneuver mission.

Fires: "The use of weapon systems or other actions to create specific lethal or nonlethal effects on a target."[11]

Fire Support: "Fires that directly support land, maritime, amphibious, and special operations forces to engage enemy forces, combat formations, and facilities in pursuit of tactical and operational objectives."[12]

Fire Support Coordination Measures (FSCMs): "A measure employed by commanders to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces."[13]

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[10] U.S. Army, *Decisive Action Training Environment*, Version 2.1 (Ft. Leavenworth, KS: Government Printing Office, 2014), 1–I–1.

[11] Joint Chiefs of Staff, Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms* (Washington, DC: Joint Chiefs of Staff, 2010), 86.

[12] Ibid.

[13] Ibid., 87.

Fire Support Officer: “The field artillery officer from the operational to tactical level responsible for advising the supported commander or assisting the senior fires officer of the organization on fires functions and fire support.”[14]

Joint fires: “Joint fires are fires delivered during the employment of forces from two or more components in coordinated action to produce desired effects in support of a common objective. Developing policy, guidance, and plans to employ operational and strategic fires are primarily joint activities.”[15]

Joint Fire Support: “Joint fire support is joint fires that assist air, land, maritime, and special operations forces to move, maneuver, and control territory, populations, airspace, and key waters. Effective integration, synchronization, and employment of joint fire support and joint targeting is essential to creating conditions that provide the supported commander freedom of action.”[16]

Joint Targeting: “Joint targeting is a fundamental task of the fires function that encompasses many disciplines and requires participation from all joint force staff elements and components. The purpose of joint targeting is to integrate and synchronize joint fires into joint operations by utilizing available capabilities to create a specific lethal or nonlethal effect on a target.”[17]

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[14] Ibid.

[15] Joint Chiefs of Staff, Joint Publication 3-09, *Joint Fire Support*, vii.

[16] Ibid., vii-viii.

[17] Ibid., viii.

Near peer competitor: The term near peer competitor is referenced frequently when discussing operations in the decisive action environment and when conducting combined arms maneuver. A near peer competitor is an enemy that has comparable capability and size to that of the United States Military complex. It is a large enemy with modernized equipment and technology. In the current operating environment countries such as Russia, China, Iran, and North Korea are examples of near peer competitors.

Unified Land Operations: "Unified land operations is the Army's warfighting doctrine. It is based on the central idea that Army units seize, retain, and exploit the initiative to gain a position of relative advantage over the enemy. This is accomplished through simultaneous combination of offensive, defensive, and stability operations that set conditions for favorable conflict resolution."[18]

Wide Area Security (WAS): "Wide area security is the application of the elements of combat power in unified action to protect populations, forces, infrastructure, and activities; to deny the enemy positions of advantage; and to consolidate gains in order to retain the initiative."[19] WAS is the mission set commonly used in counterinsurgency, security, and stability operations. In the context of joint phasing WAS would be the primary mission during phase IV stabilize.

Limitations

The research is bound by several limitations. First, with no units currently executing CAM in combat I will rely on FERs from WFXs and the CTCs to validate my

[18] Headquarters, Department of the Army, ADP 3-0, *Unified Land Operations*, 5.

[19] Ibid., 6.

observations and define the problem. This information is largely qualitative with little quantitative data available to support my research. Furthermore, there is not a large amount of data to draw conclusions from.

The nature of this subject and source of my data combine to limit my options in research methodology. I will rely on FERs, CTCs trends reports, and other professional journals to execute a case study methodology through comparative document analysis and to analyze the current state of fires with regard to divisional shaping fires proficiency drawing conclusions from the preponderance of evidence and thematic analysis.

Scope and Delimitations

I will restrict my research to focus on Division level fires in the decisive action environment; I will exclude the execution of fires in support of a wide area security mission and echelons other than Division, except as those echelons are needed to complete the analysis.

I will focus on the Doctrine, Organization, Training, and Leader Development and Education (DOTL) domains of the Doctrine, Organization, Training, Materiel, Leader Development and Education, Personnel, Facilities (DOTMLPF) analytical lens because these are central to making capability assessments and recommendations for change in the near term (less than 5 years), and because those domains are typically less resource intensive to implement change.

Additionally, the primary audience I am seeking to influence with this report is the Army fires community. As such, my primary focus for doctrine review is Army doctrine, except in so far as joint fires doctrine influences the integration of joint fires at the Divisional level.

Significance of the Study

This study will seek to assess our status of performing effective shaping fires at the division level as well as identifying existing initiatives designed to build critical capabilities. Comparing this data will bring to light any capability gaps that remain. It will also provide a tool to assess the effectiveness of planned initiatives and to prioritize the list of capability gaps that remain. The results of this report will help to assess the current state of divisional fires with regard to conducting combined arms maneuver in the decisive action environment. The ultimate goal of this research is to arm the fires proponent leadership with information and recommendations that will enable the fires community to improve our ability to conduct fire support in both wide area security and combined arms maneuver missions. This will potentially increase the readiness posture of the Army as a whole.

Conclusion

Although the United States Army does not have any recent combat experience conducting combined arms maneuver it is a skill set that we cannot afford to let perish. In the event of a war or conflict with a near peer competitor, or the need to win decisively, we must be able to integrate our fires to effectively shape the battlefield for our maneuver units. We are currently struggling to deliver effective shaping fires at the division level because we have let those specific skills atrophy. In order to improve our readiness and posture ourselves to accomplish any mission the President assigns us; we must address this problem and determine potential solutions.

CHAPTER 2

LITERATURE REVIEW

The purpose of this study is to conduct a holistic review providing a rich description of the state of fires at the divisional level. In this chapter I will review documents in three general areas: doctrinal, procedural, and concept documents that define the critical capabilities required of FABs or DIVARTYS; final exercise reports and trends reports that provide insight into defining and validating the problem; and previous scholarly work addressing this topic. I am using a capabilities based assessment analytical model and analyzing these documents specifically focused on the doctrine, organization, training, and leadership domains of the DOTMLPF construct. The documents will primarily identify key capability requirements or identify existing solutions to the capability gaps. Understanding the structure and components of a Capabilities Based Assessment (CBA) is important to understanding documents I have selected to review.

The CBA process consists of three main components; a Functional Area Analysis (FAA), a Functional Needs Analysis (FNA), and a Functional Solutions Analysis (FSA). The FAA identifies the "mission area or military problem to assess, the concepts to examine, the timeframe in which the problem is assessed, and the scope of the assessment"[20] From this concept TRADOC will identify the tasks, conditions, and

[20] Headquarters, Department of the Army, Army Regulation 71-9, *Warfighting Capabilities Determination* (Washington, DC: Department of the Army, 2009), 23.

standards for each required capability.[21] In the context of this study the FAA is the list of tasks that a FAB or DIVARTY must be able to perform in order to support a division with fires. Reviewing TRADOC design documents and current Army doctrine will provide the information needed to complete the FAA.

The FNA assesses current and future force capabilities to meet the military objectives of the scenarios chosen in the FAA."[22] The FNA in this scenario will assess whether or not there is an inability for FABs or DIVARTYs to achieve a desired effect as defined in the list of tasks described in the FAA. The FNA identifies and describes any capability gaps that may exist. Final Exercise Reports from warfighter exercises, CTC trends reports, articles from the Field Artillery professional journals, previous scholarly work, and comments from senior Army leaders provide the data to complete the FNA.

Finally, the FSA is the operationally based assessment of potential DOTMLPF approaches to solving (or mitigating) one of more of the capability gaps identified in the FNA.[23] This study is focusing only on the DOTL domains of DOTMLPF. The documents that will contribute to the FSA fall into two categories; first are those that identify existing solutions and initiatives, and second are ones that recommend and describe potential solutions. The former are professional articles from the Field Artillery community and other recently published doctrine, and the latter take the form of

[21] Ibid.

[22] Ibid.

[23] Ibid.

recommendations found in Final Exercise Reports, lessons learned, articles, and other CTC documents.

TRADOC design documents

The three TRADOC design documents that influence this study are the Army Capstone Concept (ACC), the Army Operating Concept (AOC), and the Functional Concept for Fires. These documents define the vision for the future operational environment and describe the capabilities the Army must possess to be successful in that future environment. These documents support each other and are the foundation upon which doctrine is built. By analyzing these documents we will gain insight into the capabilities the Army, and specifically the Fires warfighting function, require.

The purpose of the ACC is to "describe the anticipated future operational environment, what the future Army must do based on that environment, and the broad capabilities the Army will require to accomplish its enduring missions successfully in the near to mid-term future."[24] The ACC envisions an operating environment that is increasingly complex, uncertain, and informationally interconnected; with a mix of state and non-state actors who are competing for diminishing resources and the advancement of their interests and are able to influence the global equilibrium.[25] Of particular significance to this study are the requirements described in chapter 3 "Meeting the Challenges" that describe what the Army must do to be successful in this environment.

[24] Headquarters, Department of the Army, TRADOC Pamphlet 525-3-0, *The Army Capstone Concept* (Washington, DC: Department of the Army, 2009), 4.

[25] Ibid., 15.

Chapter 3 explains the three principal and interconnected roles of the Army: "prevent conflict, shape the operational environment, and win the Nation's wars."[26] The requirements defined here that influence the development of specific Fires requirements are: 1) the need to be able to conduct unified land operations, the need to be able to execute combined arms maneuver, the need for lethality to win, and the need for Army forces to "be enabled at echelon to extend their reach throughout the depth of an enemy's formations or territory."[27] These broad requirements are reinforced and expanded upon in TRADOC PAM 525-3-1 "The Army Operating Concept."

The Army Operating Concept further describes the tenets and core competencies that guide the development and application of combat power. These tenets of course are derived from the concepts put forth in the ACC. The tenets that apply most directly to the fires warfighting function are depth and lethality.[28] Both are tenets that the AOC identify as critical for the Army to employ to be successful in resolving conflicts, and winning our Nation's wars.

Of no surprise, one of the core competencies identified in the AOC is the conduct of combined arms maneuver. The AOC goes on to describe the need for Army leaders to "integrate and synchronize warfighting functions and joint, interorganizational, and multinational capabilities such that they achieve complementary effects."[29] This

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[26] Ibid., 11.

[27] Ibid., 14.

[28] Headquarters, Department of the Army, TRADOC Pamphlet 525-3-,1 *The U.S. Army Operating Concept* (Washington, DC: Department of the Army, 2014), 21-22.

[29] Ibid., 23.

requirement to integrate capabilities originates in the AOC and is echoed throughout subsequent Fires doctrine. Furthermore, the AOC states that "the skills needed to conduct combined arms maneuver across all domains represent the peak of military proficiency."[30] This is a profound statement that applies to this study in two specific ways; first, that the Army recognizes that conducting combined arms maneuver is a complex and difficult task, and second, that there is a specific skill set required to perform combined arms maneuver. It is the atrophy of this specific skill set within the fires community that this research is seeking to analyze.

The United States Army Functional Concept for Fires, TRADOC Pamphlet 525-3-4, is the final "design" document that describes the top level concepts that impact the requirements needed for the Army and specifically for the Fires warfighting function. The concept for fires builds upon the ideas presented in the ACC and AOC. The Functional Concept for Fires is organized into four chapters, sequentially they are: Introduction, Fires Military Problem and Fires Components of the Solution, Core Operational Actions, and Conclusion. Although the discussions in the body of the document are valuable, Appendix B is the most valuable section to this study. Appendix B explicitly outlines the required capabilities future Army forces will require from the fire warfighting function perspective. This appendix provides a consolidated list of capability requirements that all other doctrine and initiatives should be derived from and support.

[30] Ibid.

Army Doctrine

Prior to reviewing Army and Joint doctrine it is important to understand the intent behind doctrine and the purpose it serves. Doctrine is a standard point of departure for all Soldiers and organizations. The Department of the Army and Joint doctrine writers understand that no conflict or situation will ever be the same as another. This is why they have defined doctrine in JP 1-02 as "fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives."[31] They also explicitly state that doctrine is "authoritative but requires judgement in application." The key words being *guide* and *judgement*. They recognize the need to provide guidance to the force in a way that standardizes concepts and principles but is not so prescriptive that it hinders creative and critical application of those concepts. To that end doctrine commonly provides guidance in the form of describing the roles and responsibilities of personnel, organizations, and headquarters; and listing considerations that organizations should take into account when planning, preparing, and executing operations. My review of army and joint doctrine will seek to identify from this guidance the specified and implied capabilities requirements with regard to divisional fires.

Headquarters Department of the Army published ATP 3-91 "Division Operations" in October 2014. The purpose of the ATP is to provide guidance and standardize the way in which Army Divisions operate as they perform their four potential roles. Those roles being: (1) A tactical headquarters, (2) a platform around which a joint and or multinational land component headquarters can be formed, (3) a platform around

[31] Joint Chiefs of Staff, Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 101.

which a joint task force headquarters in a limited contingency operation can be formed, and 4) an Army force headquarters for a small contingency. The first two roles mentioned above are the most applicable to high intensity conflict in the DATE; and delivering fires in support of these roles is the primary focus of this study.

ATP 3-91 is organized to discuss the functions of a division in a logical manner; covering the key concepts and subjects of roles, organization, and capabilities in chapter 1; the division mission command system and headquarters employment in chapter 2; the division in the defense in chapter 5, the division in the offense in chapter 6, the division conducting stability tasks in chapter 7; and an array of special topics that do not fit logically within the confines of the other chapters in chapter 8. Within the context and purpose of this study, the critical information to come out of this document are the definition of the roles of the Division, discussion regarding a Field Artillery Brigade's/DIVARTY's role in support of a Division, definition of the Division fires cell's responsibilities, and a brief description of Division controlled airspace.

Analyzing the four roles of a Division is pertinent to this study because it helps frame the environment in which a Division would likely be responsible for coordinating and synchronizing shaping fires. Based on the definitions of the roles provided in chapter 1 of ATP 3-91 the Divisions role as a tactical headquarters is the role that corresponds most closely with conducting combined arms in the decisive action environment. This is also the role that Divisions are typically exercising when participating in warfighter exercises. Outside of framing the environment the other pertinent information is the explicit guidance that states "the division commander shapes the operation for

subordinate brigades."[32] This is just one of many instances throughout several documents that define the requirements for division's to shape the battlefield for their subordinate maneuver units.

Sections 1-42 and 1-43 describe the roles of a Field Artillery Brigade and DIVARTY in support of division operations respectively. These sections expand upon the previously identified mandate for the division commander to "shape" operations by discussing how a FAB or DIVARTY assists the commander in shaping the battlefield from the fires perspective. Given our current force structure, depending on the specific situation, either a FAB or a DIVARTY could find themselves supporting a division with shaping fires. For now I will focus on the basic responsibilities prescribed to both a FAB and a DIVARTY in this document. I will address the specific nuanced differences between a DIVARTY and a FAB's role later in the literature review of the FAB/DIVARTY white paper dated 27 January 2014.

A FAB provides the following:

- Force Field Artillery Headquarters (FFA HQ) for the division if so designated by the commander
- Fires and counterfires for the division
- Close reinforcing fires to support Brigade Combat Teams (BCTs)
- Fires, counterfire, Unmanned Aerial System, and radar coverage for the combat aviation, battlefield surveillance, maneuver enhancement, and sustainment brigades
- A headquarters to control the full complement of Army and Joint fires capabilities[33]

Specific division artillery responsibilities include:

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[32] Headquarters, Department of the Army, ATP 3-91, *Division Operations*, 1–1.

[33] Ibid., 1–12.

- Integration and delivery of fires to support the division commander's concept of operations
- Serve as the division FFA HQ
- Synchronization of counterfire and radar employment operations in the division area of operations
- Detailed targeting, training, and professional development of Field Artillery (FA) personnel across the division
- Oversight of the training and certification of BCT FA battalions in close coordination and cooperation with the BCT commanders[34]

Although there are slight differences between what a FAB and DIVARTY provides a division, in the tactical setting the bottom line is that each organization provides the division commander a headquarters in which to plan, coordinate, integrate, and synchronize fires, counterfire, and sensors in support of the division commander's requirement to shape operations for his subordinate BCTs.

Section 8-191 describes the specific responsibilities of the division fires cell. "The division fires cell is responsible for fire support and planning coordination, integration, and synchronization of lethal fire support and joint fires delivered on surface targets by all fire-support assets under their control, or to support the unit."[35] This bridges the gap between the separate unit responsibilities described above and succinctly states the tasks the division fires cell will accomplish in support of division operations regardless if they are supported by a FAB or a DIVARTY pure. Section 8-191 goes on to explain that part of fulfilling this responsibility is also the requirement to coordinate airspace usage with the division's airspace control and air and missile defense elements.[36]

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[34] Ibid., 1-13.

[35] Ibid., 8-35.

[36] Ibid.

The final piece of pertinent information to come from ATP 3-91 is the definition of "division airspace" in section 8-193. It states that "The division assigned airspace is that airspace assigned by the airspace control authority (ACA) within the boundaries of the division's area of operations up to the coordinating altitude."[37] This is important to this study because we will need to define "division airspace" during the discussion on the requirement to manage airspace and the challenges associated clearing airspace in order to provide timely shaping fires.

The just discussed ATP 3-91 provided an overview of division operations; FM 3-94 expands on those concepts and discusses them in greater detail and covers corps and theater Army operations as well. It is organized into three major sections, Theater Army, Corps, and Division operations. Given the scope of this study I will focus my review of FM 3-94 to the section dedicated to describing division operations. The purpose of FM 3-94 is similar to that of ATP 3-91 in that it provides guidance for division level operations as well as defining a division's roles and responsibilities. It also describes the requirements of brigades that support the divisions operations.

Similar to the guidance found within ATP 3-91, FM 3-94 describes the same four roles that a division may perform and it lists the same capabilities that a FAB provides to a division.[38] It also reinforces the same message regarding the airspace typically assigned to a division; that being the airspace over a division's area of operations up to the

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[37] Ibid.

[38] Headquarters, Department of the Army, Field Manual (FM) 3-94, *Theater Army, Corps, and Division Operations* (Washington, DC: Department of the Army, 2014), 6-6.

coordinating altitude.[39] Furthermore, at several locations it references the divisions "preferred" method of operating, that being "to find and disrupt the enemy at a distance from friendly troop positions to set the conditions necessary for the division's decisive maneuver."[40] This continues to reinforce the requirement for division commanders to shape the battlefield for their subordinate BCTs.

FM 3-94 does differ from ATP 3-91 in that it goes into further detail regarding the organizations and cells within a division; most important to this study is section 6-52 regarding the Joint Air Ground Integration Center (JAGIC). The JAGIC is a center that resides within the current operations section of the division headquarters and is responsible for integrating and coordinating fires and air operations throughout the division area of operations. This center is critical to the discussion regarding fire support planning, clearance of fires, and execution of shaping fires. I will fully analyze the roles and responsibilities of the JAGIC later in the literature review when I explore ATP 3-91.1 which is dedicated completely to the JAGIC. For now, the value to this study is in identifying that there is consistency across doctrine in referencing this critical center.

The pertinent information to pull out of FM 3-94 with regard to this study are the roles a division can perform, the requirement for a division to shape for their maneuver BCTs, the capabilities a FAB provides a division, the definition of airspace typically assigned to a division, and the responsibilities of the JAGIC.

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[39] Ibid., 6-13.

[40] Ibid., 7-11.

The United States Army Field Artillery School at Ft. Sill, Oklahoma published a white paper in January 2014 that described the differences between FABs and DIVARTYs. The purpose of this white paper is to "act as an interim reference until the doctrinal manuals can be updated" to include the necessary changes in force structure, operational support, and terminology that resulted from reforming DIVARTYs in the operational force.[41] This document, in a meager 27 pages contains a very clear and concise discussion on the differences and similarities between FABs and DIVARTYs, and a clear description of the roles and responsibilities each organization has when supporting division operations.

A FAB and a DIVARTY perform similar functions in support of maneuver commanders at different echelons. FABs are designed and are aligned to support Corps level operations where DIVARTYs are linked to their respective Divisions. Both organization's primary tasks are to "coordinate, integrate, synchronize and employ fires" to achieve their respective commander's objectives.[42] The primary difference between a FAB and a DIVARTY is that a FAB has organic firing units assigned underneath it and a DIVARTY has no organic firing units, they are provided cannon or rocket units as their mission requires. Given the scope of this study I will focus my review on the capabilities requirements of the DIVARTY.

Outside of the generic "coordinate, integrate, synchronize, and employ fires" statement, section 1-9 lays out what a DIVARTY can expect to provide to a Division.

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[41] United States Army Field Artillery School, *White Paper Field Artillery Brigade Division Artillery (DIVARTY)* (Fort Sill, OK: United States Army, 2014), 4.

[42] Ibid., 5.

A DIVARTY can provide:

- The Force Field Artillery Headquarters for the Division.
- Operational fires in support of the Division.
- Indirect fires in support of the Division.
- Counterfire to include sensor synchronization.
- Sensor fusion.
- Suppression of Enemy Air Defenses.[43]

This white paper also offers a definition of the term "operational fires" which will help provide context into the specified and implied requirements that either a FAB or DIVARTY would have to fill when serving as a FFA HQ in support of a Division. "Operational fires are fires coordinated, integrated, synchronized and employed through the field artillery brigade or the division artillery to provide additional fires resources to achieve the commander's desired effect. Operational fires are primarily provided by joint and multinational forces. A field Artillery Brigade or DIVARTY asset may also deliver long range precision fires in support of operational fires."[44] Similar verbiage is used throughout doctrine; the difference here however is the explanation that "operational fires" are provided by joint or multinational assets. The key take away for the purposes of this study is that the FAB or the DIVARTY is the headquarters that is responsible for integrating these assets despite not necessarily owning them.

Chapter 4 goes on to describe additional requirements for the DIVARTY in their role as the FFA HQ for the Division.

As the FFA HQ, the DIVARTY functions include:

[43] Ibid., 6.

[44] Ibid., 15.

- Planning, coordinating, integrating, and synchronizing strike, counterfire, and shaping operations.
- Recommending field artillery organization for combat to the Division Commander.
- Providing mission command for field artillery units organic, assigned, attached, or placed under the OPCON or tactical control of the command.
- Assisting the Division fire support cell in producing Annex D (FIRES) for the operations order.
- Training of the field artillery units that are assigned, attached, or placed under the OPCON of the command and mentoring to the Commanders and leaders of these field artillery units. This includes field artillery technical oversight of the training and assessment of the BCTs field artillery battalions. The extent of oversight duties and responsibilities must be specified by the Division Commander.
- Providing centralized mission command for the full component of Army, joint and multinational fires provided in support of the Division.
- Synchronizing all sensors that have a command or support relationship to the DIVARTY in order to provide responsive sensor-to-shooter links.
- Facilitating and participating in Division targeting to coordinate, integrate, synchronize and employ operational fires.
- Ensuring continuous availability of fire support and sensor synchronization during passage of lines.
- Providing a single point of contact for outside agency coordination for force protection and additional fires.
- Providing operational fires for the Division Commander
  - Long range rocket and missile fires.
  - Coordinate Air Interdiction targets.
  - Coordinate immediate close air support.
- Planning the fires and positions of all field artillery units with a general support or general support-reinforcing support relationship to the force.
- Coordinating the counterfire battle for the Division Commander.
- Advising the Division Commander of field artillery related new equipment fielding and software updates with field artillery units.[45]

This provides a robust list of capabilities requirements a FAB or DIVARTY, depending on the specific force structure situation, will have to possess in support of providing divisional fires. The above list encompasses guidance previously covered in ATP 3-91 and FM 3-94.

[45] Ibid., 19-20.

At the top of the above referenced list of functions is mention of "strike" and "counterfire" as specific shaping operations. This white paper offers a discussion of the definition of strike fires which will benefit this study, as well a list of additional tasks specific to a divisions counterfire responsibilities. This paper describes strike fires as those fires focused on specific enemy formations and executed as a deliberate operation. Strike fires are not targets of opportunity. Furthermore, the DIVARTY is the headquarters that utilizes assigned, attached, or assets under operational control as well as allocated joint and multinational fires assets to conduct strike fires.[46] This is important to this study because it adds clarity to one of the many tasks a DIVARTY, or FAB, must be capable of performing when serving as a FFA HQ.

The DIVARTY as the FFA HQ also has the responsibility for executing the division counterfire fight. In this effort the DIVARTY has additional responsibilities specific to the counterfire effort.

"DIVARTY counterfire tasks include—

- Coordinating, integrating and synchronizing for unmanned aircraft system and other sensors to locate enemy indirect fire assets.
- Requesting joint assets to rapidly engage identified enemy indirect fire assets.
- Executing counterfire to neutralize enemy fires systems to allow friendly freedom of maneuver.
- Integrating close air support into counterfire operations.
- Collecting information from all available sensor feeds and turning that information into targeting data.
- Establishing sensor to shooter links.
- Exercising TACON over all weapons locating radars in the Division to support the consolidated counterfire fight. This includes positioning authority and reporting of acquisitions to the DIVARTY target processing section."[47]

[46] Ibid., 20.

[47] Ibid.

The most valuable information to extract from the FAB/DIVARTY White Paper is the definitions of operational fires and strike fires, the list of functions a FFA HQ, whether FAB or DIVARTY, perform for a division, and the list of tasks specific to the counterfire effort. These task/function lists provide valuable insight into the capability requirements a FAB or DIVARTY need to possess in order to effectively support Division operations. However, since this is merely a white paper, it is important to ensure that this list of functions is consistent with what gets published in the updated manuals.

ATP 3-09.24 describes techniques specific to the Field Artillery Brigade. This document in its current form is pending revision to update some of the force structure, operational, and terminology changes as reflected in the FAB/DIVARTY white paper previously discussed. The need for change is most evident in the title of the document; the term “Fires Brigade” has been replaced by “Field Artillery Brigade.” The purpose of this document is to provide more detailed guidance to Field Artillery Brigades on their roles, responsibilities, and requirements to support Division, Corps, and possibly Theater Army level echelons. Given the scope of this study to focus on divisional level fires it is pertinent to review this document as there are situations where a FAB could be supporting a Division as a FFA HQ. That said, my review of this document is primarily focused on ensuring consistency of guidance published across this and the other doctrine I have already reviewed.

Upon review, ATP 3-09.24 in its current form is already nested with the guidance provided in the FAB/DIVARTY white paper with regard to the critical capability requirements they need to possess in order to support maneuver headquarters. Although, there are some slight nuanced differences in the verbiage used, the content is the same.

Sections 1-6, 1-7, and particularly 1-9 outline the same functions at described in the white paper.[48]

The important information for this research is validating that this document is nested with other doctrine and does not prescribe any additional capability requirements that are not already identified in the FAB/DIVARTY white paper.

ATP 3-09.90 "Division Artillery (DIVARTY) Operations and Fire Support for the Division" is still in draft form pending approval and dissemination to the field. The initial draft was finished on 20 February 2015. This document, when approved and implemented across the force will be the primary source for the most relevant information, guidance, and considerations for the focus of this study, providing effective shaping fires in support of division maneuver. For that reason it is important to review this document as it is a doctrinal initiative that will potentially impact some of the perceived or actual capability gaps regarding divisional fires.

ATP 3-09.90 is organized into four chapters; Fire support organization and capabilities, The operations process, Division targeting, and Sensor integration. It also contains appendices that specifically address the Field Artillery Support Plan, Counterfire, and Dynamic targeting. I will identify by chapter the key information, concepts, and guidance that are pertinent to this research.

Chapter 1 provides clear and concise guidance on the role of the DIVARTY, the tasks of the fires warfighting function, and the functions a DIVARTY must perform. "The role of the DIVARTY is to conduct the three tasks of the fires warfighting function

[48] Headquarters, Department of the Army, ATP 3-09.24, *Techniques for the Fires Brigade* (Washington, DC: Department of the Army, 2012), 1-2 – 1-3.

for the division. These tasks are deliver fires, integrate all forms of Army, joint, and Multinational fires, and conduct targeting."[49] Although not verbatim, the role and overarching tasks are similar in this document as found in the FAB/DIVARTY white paper and mirror closely to the tasks assigned to a FFA HQ in support of a Division.

The document then addresses the functions of the DIVARTY in detail. With regard to "deliver fires," it discusses several types of fires or different tasks a DIVARTY could expect to perform; strike, suppression of enemy air defenses, close support fires, and electronic attack being specifically mentioned. The subsequent discussion on each of these tasks covers more detailed descriptions of the specific tasks as well as key considerations in planning or executing the tasks.[50]

The next function addressed is "integrate all forms of Army, Joint and Multinational Fires." This section emphasizes the need for Divisions to leverage all available fires assets to support Division maneuver; which is a message that is consistent across the FAB/DIVARTY white paper, ATP 3-09, and ATP 3-09.24 as well. It then discusses in general Joint and Multinational asset capabilities and considerations for integrating them into fires planning and execution.[51]

"Conduct Targeting" is the final function covered in chapter 1. The key concepts covered in this section that are relevant to this study are as follows: the purpose of

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[49] Headquarters, Department of the Army, ATP 3-09.90, *Division Artillery DIVARTY Operations and Fire Support For The Division* (Draft - Not for Implementation) (Washington, DC: Department of the Army, 2015), 1–1.

[50] Ibid., 1-2.

[51] Ibid., 1-3 – 1-4.

targeting is to integrate and synchronize all available capabilities with maneuver operations, targeting is an important part of the operations process, the link between Division targeting to that of Joint and higher headquarters targeting, the preferred methodology is Decide, Detect, Deliver, and Assess (D3A), and the division fires cell facilitates the division targeting working group which is both a planner and executor of targeting.[52]

Chapter 2 describes fire support at the division level and how it links to the operations process. This chapter of the document is valuable to this research because the information contained within provides specific guidance for fire support planning at the division level. It stresses the importance of collaborative planning and developing a fire support plan that is effective, integrated, and executable. For a plan to meet these criteria it must clearly define fire support requirements that accomplish the division commander's fire support tasks, employ all available assets to achieve the desired effects, and it must link detection and delivery assets to high payoff targets with subsequent assessment.[53]

The remainder of the chapter addresses each of the seven steps of the Military Decision Making Process specifically defining the outputs required of the division fires cell. Within this discussion on the division fires cell's responsibilities with regard to planning and there are also examples or descriptions of typical fire support products such as the target list worksheet, scheduling worksheet, fire support execution matrix, and

[52] Ibid., 1-4.

[53] Ibid., 2-1 – 2-2.

target synchronization matrix. Additionally, appendix A is dedicated to planning specific to the Field Artillery Support Plan which is derived from the fire support plan. All of this information is relevant to the discussion surrounding initial impressions that divisional fire support planning is potentially inadequate in depth and linked to the ineffectiveness of shaping fires.

Chapter 3 focuses on Division Targeting. This chapter covers the roles and responsibilities of the participants of the division targeting effort, descriptions of key meetings, and discussion on relevant targeting products. Much like chapter 2 supports the discussion regarding potential fire support planning inadequacies, chapter 3 does the same for the discussion about initial impressions concerning division targeting deficiencies.[54]

Chapter 4 discusses the requirement for DIVARTYs to integrate sensors. Sensor integration is crucial to operations because it is often the link between delivering timely fires against enemy targets. Sensors are able to detect, identify, and locate targets and develop targetable intelligence.[55] The information regarding sensor integration is relevant to this study because it is connected to the discussions concerning targeting, counterfire, and fire support planning.

In addition to the base chapters Appendices A, B, and C all provide pertinent information for analysis in this study. Each discusses and provides guidance on a relevant topic that impacts the effectiveness of divisional fires. Appendix A covers the Field

[54] Ibid., 3-1 – 3-8.

[55] Ibid., 4-1.

Artillery Support Plan, B addresses counterfire operations, and C provides information about dynamic targeting battle drills. All of which are identified in CTC trends reports as areas that contribute to the ineffectiveness of division level shaping fires.

ATP 3-09.90, although still just a draft, is a critical document to this study since it pertains to the specific scope of this research, fires at the division level. The information contained within provides insight into the critical capability requirements of fires at the division level, as well as guidance specific to fire support planning, targeting, sensor integration, and counterfire. All of which are subjects identified by initial impressions as areas that could be potentially contributing to ineffective fires at the division level.

The purpose of FM 3-09 is clearly stated in the introduction of the document. It is "intended to provide guidance for brigade, division, and corps for the employment of field artillery, and for the planning, preparation, execution, and assessment of fire support."[56] It is organized into four chapters focusing on the topics of field artillery operations, fire support, fire support and the operations process, and fire support coordination and other control measures respectively. In support of this research FM 3-09 provides the following. It shows consistency in required capabilities to support maneuver, it provides guidance on fire support planning, and it discusses clearance of fires tools and techniques. Based on initial impressions from warfighter exercises these areas appear to be challenging to units and therefore require analysis to support this study.

With regard to describing capabilities requirements FM 3-09 reinforces the same overarching requirements as previously listed in the FAB/DIVARTY white paper. FM 3-

[56] Headquarters, Department of the Army, Field Manual 3-09, *Field Artillery Operations and Fire Support* (Washington, DC: Department of the Army, 2014), vii.

09 does go into greater detail describing additional supporting tasks that help enable completion of the major requirements. Examples of this are "Weighting the decisive operation with a preponderance of fires," "Interdicting and disrupting enemy sustainment efforts and troop movements," and "Positioning prepackaged ammunition stocks capable of rapid delivery."[57] These tasks and considerations support the larger requirements of providing strike fires, counterfire, and serving as the FFA HQ.

In addition to reinforcing the major capability requirements listed in other sources, FM 3-09 identifies additionally capabilities requirements from the fire support perspective. Most of these functions are related to targeting and planning with regard to airspace coordination. Again, this information is valuable to this study because initial impressions indicate that these areas might be a problem across the force. The full list of functions is captured in section 2-23 which describes the functions of a division fires cell:

> Fires cell general functions at this level include—
>
> - Planning, integrating, coordinating, and synchronizing Army indirect fires, air and missile defense, and joint fires.
> - Providing access to joint fires for interagency and multinational forces.
> - Interfacing with the battlefield coordination detachment, joint air operations centers, and lower and adjacent fires cells.
> - Providing input to the air tasking order, airspace control plan, and airspace control order which includes fire support coordination measures and airspace coordinating measures.
> - Reviewing target nominations for inclusion into the joint integrated prioritized target list.
> - Providing input to the joint force air component commander's apportionment recommendation.
> - Conducting target management including recommendations, receipt, and distribution to subordinate fires units for rules of engagement, high-priority target list/time sensitive targets, and restricted target/no-strike lists.
> - Leading the targeting working group and participating in the targeting board.

[57] Ibid., 1-6.

- Conducting airspace coordination.
- Providing input to the information collection plan to synchronize surveillance and reconnaissance assets with named areas of interest and designated targets in coordination with the analysis and control element.
- Requesting and coordinating close air support and air interdiction.
- Coordinating position areas for fires units under corps control with maneuver and airspace control agencies.[58]

Chapter 3 expands upon these functions and discusses fire support planning in greater detail. It does not, however, contain any additional specified or implied tasks/capabilities that have not been covered already.

The final section of information that is pertinent to this study is the discussion of fire support coordination and other control measures in chapter 4. This chapter provides definitions, descriptions, and examples of how to use all of the permissive and restrictive fire support measures. It also covers target acquisition control and airspace coordinating measures. This chapter provides important information to the clearance of fires discussion.

The pertinent information to come from FM 3-09 with regard to this study is an expanded list of required capabilities from the fire support perspective, fire support planning guidance, and guidance regarding the tools and procedures for the clearance of fires.

ATP 3-91, ATP 3-94, ATP 3-09.24, ATP 3-09.90 (draft), and FM 3-09 all combine to provide the capability requirements that a FAB or DIVARTY must possess in order to support a Division. The remaining relevant Army doctrines to review are all manuals specific to supporting discussions during chapter 4 of this study. These

[58] Ibid., 2–5.

discussions will be to validate or refute the initial impressions gleaned from warfighter final exercise reports and CTC trends that identify possible reasons divisional fires are not as effective as they could be.

FM 3-52 “Airspace Control” provides the technical data and detailed descriptions of all of the airspace control measures and techniques available to fire support planners. The information in this manual is useful to the discussions regarding fire support planning and clearance of fires. ATP 3-91.1, which outlines the purpose, organization, and responsibilities of the Joint Air Ground Integration Center is also useful to the discussion on clearance of fires. ATP 3-91.1 and the JAGIC itself are also Doctrinal and Organizational initiatives meant to improve the capability of Divisions to clear airspace and ground forces for the integration of fires.

ATP 3-60 “Targeting” describes the Army’s targeting process, specifically in the terms of Decide, Detect, Deliver, and Assess; otherwise known as D3A. This document and the guidance within will support the later discussion regarding the challenges associated with targeting at the Division level.

Finally, ATP 3-60.1 “Dynamic Targeting,” offers multi-service tactics, techniques, and procedures for dynamic targeting. This manual contains information that will help to support the conversation around linking sensors to shooters.

Joint Doctrine

Joint doctrine, primarily JP 3-09 Joint Fire Support, is relevant to this study because fires at the divisional level are inherently Joint. As articulated in ATP 3-09.90 one the three primary functions of the DIVARTY is to fully integrate all JIM fires assets

to support maneuver operations.[59] [ATP 3-09.90] ATP 3-09.24 also provides this same guidance to FABs serving as FFA HQs. Doctrine stresses the integration of JIM fires assets because in order for a Division to shape the deep fight, they need to be able to range the deep fight. With the exception of long range rocket and missile fires (which are organic to FABs but must be attached to DIVARTYs) the Army does not have organic fires assets to shape the battlefield. They rely on Air Interdiction and Close Air Support sorties from fixed wing aviation assets from the air force, navy, and coalition partners; Interdiction Attack from rotary wing aviation units, and operational fires from Army and sister service platforms. DIVARTY and FAB headquarters are responsible for coordinating, synchronizing, and integrating all of these assets. As such it is important to understand the associated Joint doctrine that guides all forces.

JP 3-09 Joint Fire Support provides an overview of Joint Fire Support, discussion on the principles associated with Joint Fire Support, and considerations for planning and execution. JP 3-09 and Army doctrine are well nested in the principles associated with fire support. In chapter 1 JP 3-09 expresses the importance of supporting maneuver with fires when it states "Integration and synchronization of joint fire support with the movement and maneuver of the supported force is essential."[60] This is a principle of operations at all levels and as such the Joint Force Commander (JFC) and their staff have a large impact on how units support their maneuver with fires. The JFC influences the targeting process by determining the enemies overall center of gravity, critical factors,

[59] Headquarters, Department of the Army, ATP 3-09.90, *Division Artillery (DIVARTY Operations and Fire Support For The Division*, 1-1.

[60] Joint Chiefs of Staff, Joint Publication 3-09, *Joint Fire Support*, I-2.

and decisive points and how the application of fires can assist in creating the desired effects.[61] The JFC also provides guidance to all forces regarding restricted targets, developing a no strike list, and allocating fires assets to subordinate commanders to help support their maneuver.[62]

It is important for Army headquarters that are subordinate to a JFC to understand the JFC's vision for attacking the enemy's center of gravity, the way the JFC is shaping the deep fight through targeting, and what assets are available to request from the JFC to support the local fight. It is also important for Army headquarters to understand the Joint fire support structure and how they integrate into it.

JP 3-09 describes the Joint fire support organization and processes that are relevant for an Army Division level FFA HQ to fully understand. The primary components of which are the Joint Fires Element, the Air Support Operations Center, the Battlefield Coordination Detachment, and the targeting process via the Joint Targeting Coordination Board (JTCB). The Joint Fires Element is the standing organization within the Joint headquarters that is responsible for synchronizing and coordinating fires planning, developing targeting guidance, coordinates component input into the Joint Integrated Prioritized Target Lists, recommends collection requirements, and assesses joint fires effectiveness.[63] The Joint Fires Element contains representatives from the joint staff as well as liaisons from the different service components.

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[61] Ibid.

[62] Ibid.

[63] Ibid., II-3 – II-4.

The Air Support Operations Center is the "principal Air Force C2 [command and control] node for integrating air power into Army land operations."[64] The Air Support Operations Center is directly subordinate to the Joint Air Operations Center and is responsible for the direction and control of air operations that directly support Army land operations. The Air Support Operations Center is typically collocated with the senior Army tactical echelon and performs five functions: manage Close Air Support assets, process Close Air Support requests, deconflicts Airspace Coordination Measures (ACMs) and Fire Support Coordination Measures (FSCMs), assigns and directs attack aircraft to Joint Terminal Attack Controllers, and manages the Air Force air request net.[65]

The Battlefield Coordination Detachment is the interface between Army forces and the air component. The Battlefield Coordination Detachment is collocated with the Joint Air Operations Center and is responsible for "exchanging current intelligence and operational data, support requirement, coordinating the integration of ARFOR [Army forces] requirement for ACMs, FSCMs, and theater airlift."[66] As the senior liaison element the Battlefield Coordination Detachment can influence air support to Army land operations.

Joint doctrine utilizes the targeting process as the central feature to coordinate and synchronize joint fire support planning. The primary venue within the targeting process to facilitate this is the JTCB. As the central coordinating event the JTCB should contain

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[64] Ibid., II-12.

[65] Ibid.

[66] Ibid., II-7.

representation from the Joint staff, all components, and if required their subordinate units.[67] The primary focus of the JTCB is to "ensure target priorities, guidance, and the associated effects are linked to the JFC's objectives."[68] This is where target nominations from the DIVARTYs or FABs are vetted to ensure they are consistent with the JFC's targeting objectives.

The important information from JP 3-09 that is relevant to this study is the validation that Army doctrine is nested within the Joint Fire Support principles; and an understanding of the relevant Joint Fire Support organizations, processes, and structure.

Final Exercise Reports

Final Exercise Reports (FERs) are one of the tools used by MCTP to provide feedback to units on the lessons learned during warfighter exercises. In order to appreciate the information contained in the final exercise reports it is important to understand the environment they are created in and the purpose they serve.

As stated in the introduction, the Army is responsible for maintaining proficiency in both of its core competencies, combined arms maneuver and wide area security. Our Army is quite experienced at wide area security given the nature of the fighting in both Iraq and Afghanistan over the past decade. Ensuring the Army is prepared to conduct combined arms maneuver is a different story entirely. In the absence of high intensity conflict the Army relies on our "dirt" CTCs (National Training Center, Joint Readiness Training Center, and Joint Multinational Readiness Center) to provide the venue for

[67] Ibid., II-6.

[68] Ibid.

Brigades and lower echelons to train on both combined arms maneuver and wide area security. In order to test Divisions the Army utilizes simulations based warfighter exercises in the Decisive Action Training Environment. The OC/Ts from the MCTP are responsible for partnering with units and developing them over the course of an exercise. Although MCTP does not "grade" units as they conduct a warfighter exercise they do produce final exercise reports. These documents provide a record of the challenges each unit encountered, the successful practices they utilized, as well as recommendations to improve future performance.

FERs are intended to be enduring documents that remain valuable to a unit long after the exercise is over and the personnel involved have moved on. The reports are written in a way that allows them to be useful to the unit, and consequently independent researchers, long after the specific details of the exercise are forgotten. They are purposefully written to enable the unit to extract the lessons learned from the exercise, well after the exercise is over. Removing the specific context of the exercises is beneficial to my research because it allows me to focus on the identified problems and not the personalities or unique circumstances surrounding that particular exercise. These reports are the foundation of my research as they illuminate the magnitude of the problem regarding proficiency with providing divisional shaping fires in the decisive action training environment.

I must, however, make one disclaimer regarding final exercise reports; they are completely non-attributional. Under no circumstances will I refer to a unit or a warfighter rotation number in this report. This is to ensure that the content of the reports are not taken out of context and negatively attributed to any unit or person. The power of the

MCTP is that they can effectively provide feedback to the units they are training because they develop tremendous trust with their assigned training audience and integrate into their formations. Releasing any information that could attribute any data contained within this report to a unit or a person would violate that trust.

The FERs from 2014 to 2016 provide insight into the initial impressions I formed from my own observations while serving as an OC/T. The FERs indicate that there is a consistent challenge for divisional fires units, both FAB and DIVARTY to effectively shape the battlefield in support of Division maneuver. The FERs also provide insight into the reasons why shaping fires were not as effective as they could have been. And finally, the FERs capture techniques the units developed and employed to improve effectiveness as well as recommending additional measures that the units could research to incorporate in future operations and exercises.

All of the information contained within the FERs is valuable to this study. The information from the FERs will support a full thematic analysis in chapter 4 which will identify the most common challenges units encountered with regard to providing divisional shaping fires. This thematic analysis will also provide insight into the solutions and initiatives units utilized to improve effectiveness over the course of an exercise; this information will influence my analysis of potential functional solutions.

CTC Trends Reports

CTC trends reports provide an aggregated "roll-up" of the trends identified at the various CTCs (to include MCTP). This aggregation of information from the individual FERs provides a good source to quickly identify challenges experienced by many units. Much like the final exercise reports these documents are non-attributional and

intentionally written to be devoid of specific unit information and focus solely on observations, analysis, and recommendations. These documents are intended to provide insight to United States Army Forces Command (FORSCOM) and the individual warfighting proponents on the current challenges operational units are experiencing. These reports can have a wide range of impacts; from simply informing the proponents to triggering policy changes across the Army as a whole.

The MCTP FY 14 "Trends in a Decisive Action WFX" report, MCTP FY15 "Key Observations," the 1st and 2nd QTR 2015 CTC Trends report, and a Joint Readiness Training Center Trends Brief dated 29 October 2015 provided additional insight into what the most common challenges unit are experiencing with regard to providing divisional fires. These documents identified the major trends of units being challenged with clearance of fires, targeting, mission command as a FFA HQ, and varying aspects of fire support planning, synchronization, and coordination. This information is valuable to this study because, like the FERs, it will help to validate or refute my initial impressions, provide insight into the Functional Needs Assessment, and also provide a source to identify and assess potential Functional Solutions.

It is also apparent that the challenge of delivering effective shaping fires is not a new problem. Center for Army Lessons Learned (CALL) newsletter 95-6 dated May 1995 highlighted several challenges National Training Center observers witnessed units struggle with when trying to provide effective fires. Most notable were fire support planning, and clearance of fires.[69]

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[69] Center for Army Lessons Learned (CALL), CALL Newsletter 95-6, *National Training Center's "Fighting with Fires"* (Ft. Leavenworth, KS: CALL, 1995), 21.

Articles and Professional Journals

The "Redleg Update" is distributed by the Commandant of the U.S. Field Artillery to key members of the Field Artillery chain of command across the U.S. Army. Initiated in 2011, the purpose of this document is to "provide past and present Field Artillery leaders with a monthly update of informational highlights to assist in their individual, collective and professional training efforts, as well as report on activities occurring throughout the Field Artillery Community."[70] It is typically organized to include a section for either the Commandant or Command Sergeant Major to communicate their message, one or two professional articles, and occasionally a section for administrative announcements.

After reviewing every edition of the Redleg Update back to its inception 2011, it is most commonly used as a venue for the FA Commandant and Command Sergeant Major to communicate current issues and challenges as well as the status of ongoing initiatives. The most comprehensive example of this appeared in the December 2014 edition in the Commandant's article titled "2014 State of the Field Artillery." Brigadier General Turner described some of the ongoing initiatives across the Field Artillery community: "training and educating adaptive and innovative professionals," "integrate our redesigned Division Artillery (DIVARTY) formations into the Operational Force," "modernizing the FA," and "our efforts to recruit, assess and retain a quality force."[71]

[70] Turner, "2014 State of the Field Artillery," 1.

[71] Ibid.

Through comparative document and thematic analysis of Redleg Updates I will identify and define the current initiatives being implemented by the Field Artillery proponent. This analysis and discussion is contained in chapter 4. This information is useful to this study because it enables the Functional Needs Analysis (FNA), it serves as a source for validating initial impressions, and because it shows the progression over time of existing initiatives to close capability gaps.

MMAS and SAMS theses

The Combined Army Research Library database contains archives of all previous MMAS theses and SAMS monographs. Searching the archives using the keyword "fires" uncovered 165 SAMS monographs and 128 MMAS theses from 2011 to the present. After reviewing all of these documents there are four monographs and four theses that are relevant to this study. The information contained in these documents influence this research in three areas; problem validation, insight into future capability requirements, and specific discussion and recommendations regarding specific tasks/functions division level fires units are responsible for. Below is a synopsis of the relevant research and findings as they impact these three areas.

A 2014 MMAS thesis titled "United States Army Field Artillery and the Hybrid Threat" analyzes whether or not doctrinally employed field artillery is capable of handling the hybrid threat, specifically the conventional force aspect. The author, MAJ Jeffrey Fuller assessed capabilities across the domains of Doctrine, Organization, and Materiel and concluded that capability gaps do in fact exist. He goes on to specifically argue that precision guided munitions are one possible solution to closing the gap and

ensuring the Field Artillery is better prepared for future adversaries.[72] His research lends another perspective into the problem area defined in this study as well as some insight into Field Artillery capability requirements.

In 2012 LTC Gordon Richardson authored a SAMS monograph that assessed the United States Army's ability to conduct combined arms maneuver. His assessment offers further insight into the problem defined in the study; atrophy of essential core competencies. He concludes that the Army is not capable of conducting CAM under the current modular force structure and that a decade of conducting WAS has exhausted the Army.[73] His recommendations include re-structuring to reinstate the Division as the premier operational force instead of the BCT, and focusing training on CAM Mission Essential Task List (METL) tasks. LTC Richardson's and MAJ Fuller's research both help to validate and add additional perspective to the problem area addressed in this study.

Two SAMS monographs in particular offer deeper insight into the future capability requirements the Field Artillery must possess to remain relevant on the battlefield. The two authors have somewhat conflicting views of what future conflicts will look like and therefore what the Field Artillery will need to focus on to prepare for them. In 2013 MAJ Sherman Watson offered an alternative option to the Field Artillery organizational structure that would lead to expanded scalable fires capability,

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[72] Jeffrey Fuller, "United States Army Field Artillery and the Hybrid Threat: Is It Time to Get Smart?" (Master's Thesis, Command and General Staff College, 2014).

[73] Gordon Richardson, "The United States Army's Current Capability to Conduct Combined Arms Maneuver" (Monograph, School of Advanced Military Studies, 2012), 48.

decentralized rocket systems in direct support of BCTs, and smaller general support artillery units.[74] His recommendations are in line with the modular concept which was developed to maximize effectiveness in stability operations with the BCT as the primary tactical maneuver headquarters. MAJ Jeffrey Wright offers a different opinion. His monograph, written in 2015, advocates for focusing on strengthening the core field artillery proficiencies associated with combined arms maneuver. He asserts that "the US military must not leave the artillery at home-station, or it will risk losing the ability to mass fires effectively, understand the operational environment, continually seek positions of advantage, and strive for simultaneous and complimentary effects."[75] These two monographs, although they express different points of view, offer tremendous insight into describing what capabilities the future Field Artillery force must possess.

The final area where previous theses and monographs benefit this study is in detailed discussion of specific tasks/functions that impact fires units in support of division operations. The topics covered are reintegration of the DIVARTY force structure, airspace clearance procedures, a recommendation for a composite FA Battalions, and discussion on improving the efficiency of the targeting process. These four documents are valuable to this research because they offer detailed analysis of what are either current initiatives/solutions or what could be applied as solutions for any residual capability gaps that remain after the FNA.

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[74] Sherman Watson, "Artillery Is Here to Stay - For Now" (Monograph, School of Advanced Military Studies, 2013).

[75] Jeffrey Wright, "Field Artillery and the Combined Arms Team: A Case for the Continued Relevance of American Fire Support" (Monograph, School of Advanced Military Studies, 2015).

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this study is to conduct an independent holistic review providing a rich description of the state of fires at the divisional level. I use a case study methodology for conducting this qualitative research. Over the course of this chapter I will justify my chosen methodology, describe the logical sequence of my research, and discuss the evaluation criteria necessary to analyze the data.

The case study methodology is appropriate for this topic due to the nature of the problem area. Case studies are an ideal choice for problems that are human centric, dynamic, and have a variety of stakeholders with different interests involved.[76] Decision makers need to make good policy choices that are informed by a deep contextual understanding of the problem.

This study will enable the key decision makers at the fires proponent to have a deeper understanding of our current capabilities and current deficiencies with regard to divisional shaping fires. By informing the decision makers through this independent study and recommending possible solutions; they can make prudent decisions. The key outputs from this study will be the "capabilities scorecard," figure 8, and a prioritized list of capability gaps that need to be addressed in order for the fires community to be ready to support maneuver units across all possible mission sets. The capabilities scorecard will objectively grade the fires community's ability to perform recognized capability

[76] Kenneth Long, "Research Methods Seminar: Case Studies in the MMAS Program" (Instructor Lecture, Ft. Leavenworth, KS, 2015).

requirements both before and after current initiatives/solutions are applied. Any remaining gaps, or functional needs, that remain will be prioritized on a list with recommended solutions for the decision maker's consideration.

The intended audience for this study is the key decision makers of the US Army fires proponent, the commandant of the Fires Center of Excellence at Ft. Sill Oklahoma. Beyond the decision makers this study will help to inform professional officers in the field artillery branch of the current state of fires with regard to divisional fires. Outside audiences that can benefit from reading and understanding this study are maneuver commanders at all echelons. This study will provide them deeper insight, context, and understanding of current fires capabilities.

As stated the potential decision makers regarding this research are the Army fires proponent key leadership. Identifying their concerns is important to framing conclusions and recommendations appropriately. Their concerns, as extrapolated from several editions of the "Redleg Update," are primarily "modernizing and strengthening our core competencies as a branch."[77] They have several initiatives all designed to achieve this goal of improved fires proficiency. These initiatives take the form of doctrine updates; organizational changes such as DIVARTY integration, the Army Targeting Center, and restructuring MOS's; training initiatives to include Joint Fires Observer (JFO), Target Mensuration Only (TMO), Collateral Damage Estimation (CDE), and fire support training; materiel modernization, and leader development and education programs. The

[77] William Turner, "Update on the Fires Targeting Center and DIVARTYs," *REDLEG Update*, no. 51 (December 2015): 3.

success of these initiatives will lead to improved competency in core skills across the fires community; which is a paramount concern for the fires leadership.

This objective study will arm the key decision makers with information that will potentially help them make policy decisions. These decisions can range from an informed decision to make no change from the current glide path of the FA branch, to potentially weighting certain programs more heavily, or even creating new initiatives altogether to address previously unidentified capability gaps.

This analysis is focused specifically on assessing the state of fires at the division level with regard to providing fires in the DATE. The scope of the analysis is limited to this specific area because initial impressions are that the core fires competencies linked to combined arms maneuver in the decisive action environment have atrophied over the past ten years due to focus on fires in support of stability operations and wide area security. Understanding that broader context allows us to set the boundaries for the analysis appropriately; specifically, proficiency in fires tasks/functions at the division level in support of combined arms maneuver in the DATE. It also follows that this analysis will only focus on assessing current initiatives/solutions that are designed to address the capability gaps that link to division fires in support of combined arms maneuver. Furthermore, this analysis is focused on the DOTL domains of the DOTMLPF framework as they are the domains that are typically easier to change. Easier in this case being less resource intensive, shorter timelines, and mostly internal to the branch requiring less external approval.

The analytical model most appropriate for this analysis is a CBA. It is an appropriate choice due to the nature of the problem area. CBAs are particularly useful

when analyzing problems that are complex, dynamic, human centric, and have multiple stakeholders and interests.[78] A CBA is typically comprised of three distinct components; a Functional Area Analysis, a Functional Needs Analysis, and a Functional Solutions Analysis.[79] To aid the following description of the research methodology, specifically the components of the CBA, refer to figure 1.

A FAA is the first component of a CBA. The FAA, as defined in AR 71-9 Warfighting Capabilities Determination "identifies the mission area or military problem to assess, the concepts to examine, the timeframe in which the problem is assessed, and the scope of the assessment."[80] Specific to this study the FAA is twofold. First, it is the framing and defining the scope of the problem area; proficiency at performing fires tasks/functions at the division level in support of combined arms maneuver in the DATE. And second, it is the list of capability requirements needed to support division level maneuver. These requirements are derived from TRADOC design documents and Army doctrine.

The second component to the CBA is the FNA. The FNA "assesses the capabilities of current and future forces to meet relevant military objectives of scenarios chosen in FAA using doctrinal approaches."[81] Additionally, the FNA assesses whether or

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[78] Long, "Research Methods Seminar: Case Studies in the MMAS Program."

[79] Headquarters, Department of the Army, Army Regulation 71-9, *Warfighting Capabilities Determination*, 3.

[80] Ibid., 23.

[81] Ibid.

not a capability gap exists.[82] Within the framework of this study the FNA is the assessment of proficiency at identified capability requirements, an assessment of the effectiveness of current initiatives, and an evaluation of any residual capability gaps that remain. All of this will be expressed in the "Capabilities Scorecard" tool, figure 3 on page 61.

The final component of the CBA is the FSA. A FSA assesses "potential DOTMLPF and policy approaches to solving or mitigating" capability gaps identified during the FNA.[83] As previously stated this analysis is limited to assessing initiatives in the DOTL domains only of the DOTMLPF framework. The FSA will follow suit and only consider solutions across the DOTL domains as well.

The source data that is relevant to this conducting this study can be broken down into three categories; definition and validation of the problem, identifying capability requirements, and identifying and assessing existing solutions. The data for defining the problem set comes from several sources, Final Exercise Reports and trends reports from the CTCs, assessments from senior Army and Field Artillery specific leaders, professional articles, and previous scholarly work. With regard to identifying capability requirements the sources are TRADOC design documents and Army doctrine. Finally, the source data for identifying and assessing existing solutions are professional articles, emerging doctrine, lessons learned, and previous scholarly work.

[82] Ibid.

[83] Ibid.

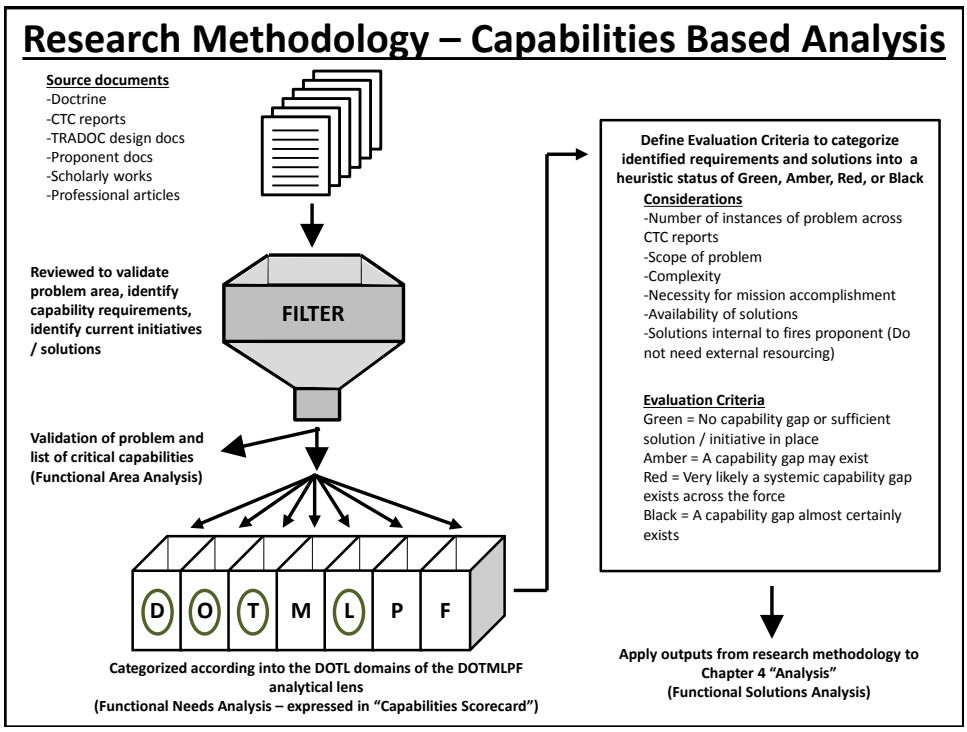

Figure 1. Research Methodology Map

Source: Created by author.

A critical element of this analysis is identifying and defining evaluation criteria for assessing our current proficiency at performing fires core competencies within the scope of this study as well as identifying evaluation criteria for prioritizing potential solutions for any residual capability gaps. These sets of evaluation criteria are unique and are applied to the model at different times; the former during the FNA and the latter during the FSA.

Developing evaluation criteria that accurately assesses a FAB's or DIVARTY's ability to conduct core fires competencies in support of a division conducting combined arms maneuver in the DATE is challenging because all of the source data is subjective. Given the scope of the study the source data has to come from Final Exercise Reports

from Warfighter Exercises and trends reports from MCTP. This is because the other CTCs focus on Brigade and lower level echelons, MCTP is the only organization that exercises division level operations.

With a pool of nine FERs and two MCTP trends reports covering a variety of topics related to core fires competencies at the division level the most logical way to organize the data is through a thematic analysis. The results of this thematic analysis are shown in figure 4 on page 62 in chapter 4. It is prudent to mention it here because it is this thematic analysis that serves as the basis for developing the evaluation criteria for assessing our current level of proficiency across several core competencies at the division level.

The evaluation criteria used to assess current proficiency will follow a green, amber, red, black heuristic and are defined as follows:

Green: three or less reports describe units experiencing challenges with this particular task/function. No capability gap currently exists.

Amber: four to six out of twelve reports describe units experiencing challenges with this particular task/function. A capability gap may exist.

Red: seven to nine out of twelve reports describe units experiencing challenges with a particular task/function. It is very likely a systemic capability gap exists across the force.

Black: ten to twelve reports describe units experiencing challenges with a particular task/function. A capability gap almost certainly exists across the force.

The above defined evaluation criteria will assist in assessing current proficiency of capability requirements at the division level. This information will enable the

Functional Needs Analysis. By assessing current proficiency and linking existing initiatives to the capability requirements they seek to improve we will develop perspective on residual capability gaps that exist. These capability gaps are the Functional Needs Analysis. The list of residual capability gaps that exist after identifying current and planned initiatives across the DOTL domains is the output that will feed the Functional Solutions Analysis, which is described in chapter 4.

CHAPTER 4

ANALYSIS

Introduction

In this chapter I will analyze the data collected from the literature review according to the methodology outlined in chapter 3. The purpose of this research is to develop a deeper understanding of and assess the current state of fires at the US Army divisional level. The methodology is a capabilities based analysis and this chapter will present analysis following that logical framework.

This chapter is organized to address the Functional Area Analysis (FAA) first; consisting of identifying required capabilities, assessing proficiency at those capabilities, and then identifying existing initiatives/solutions that seek to address any perceived capability gap. Following the FAA is the Functional Needs Analysis (FNA) which will identify any residual capability gaps that exist.

Findings

The primary research question this study seeks to answer is: What is the current state of US Army divisional fires? US Army fires at the divisional level are currently marginally effective at shaping the battlefield for maneuver commanders. Units are largely proficient at the simple functions of delivering fires, establishing liaisons, and providing mission command for organic and attached assets. This is a result of a decade of stability operations where units can focus on specific task execution in a mature theater at a relatively slow operational tempo. During high intensity conflict in the DATE however, units struggle with the major integrating processes of fire support and field

artillery planning, and conducting targeting. Units struggle in the DATE because they have let atrophy the skills necessary to perform these functions under the stress of high intensity conflict with a rapid operational tempo.

I arrived at the above description of the current state of divisional fires by first answering the subordinate research questions of: What are the fires capability requirements at the division level? And what is our current proficiency at those tasks/functions? The list of fires capability requirements at the divisional level is shown in figure 3"Capabilities Scorecard." This list was developed by comparing the requirements described in TRADOC conceptual documents (ACC, AOC, Functional Concept for Fires) to existing and emerging doctrine (ATP 3-09.90 and ATP 3-09.24) and listing the capabilities in the language used throughout doctrine. The purpose of this step is to validate doctrine and use terminology that is relevant to assessing the current force, not future requirements.

Appendix B of TRADOC Pamphlet 525-3-4 Functional Concept for Fires is the primary source for describing the required fires capabilities from all TRADOC design documents. Appendix B succinctly lists the "refined" capability requirements from the ACC and from the AOC. At the top of the conceptual pyramid the ACC lists three capabilities that the future Army force will require that are specific to fires. The AOC expands upon those basic requirements and describes nine required capabilities. The Functional Concept for Fires then derived 13 "common and integrating capabilities," and

14 specific to "indirect fires and fire support."[84] The requirements derived from the ACC, AOC, and Functional Concept for Fires are paraphrased and shown in figure 2.

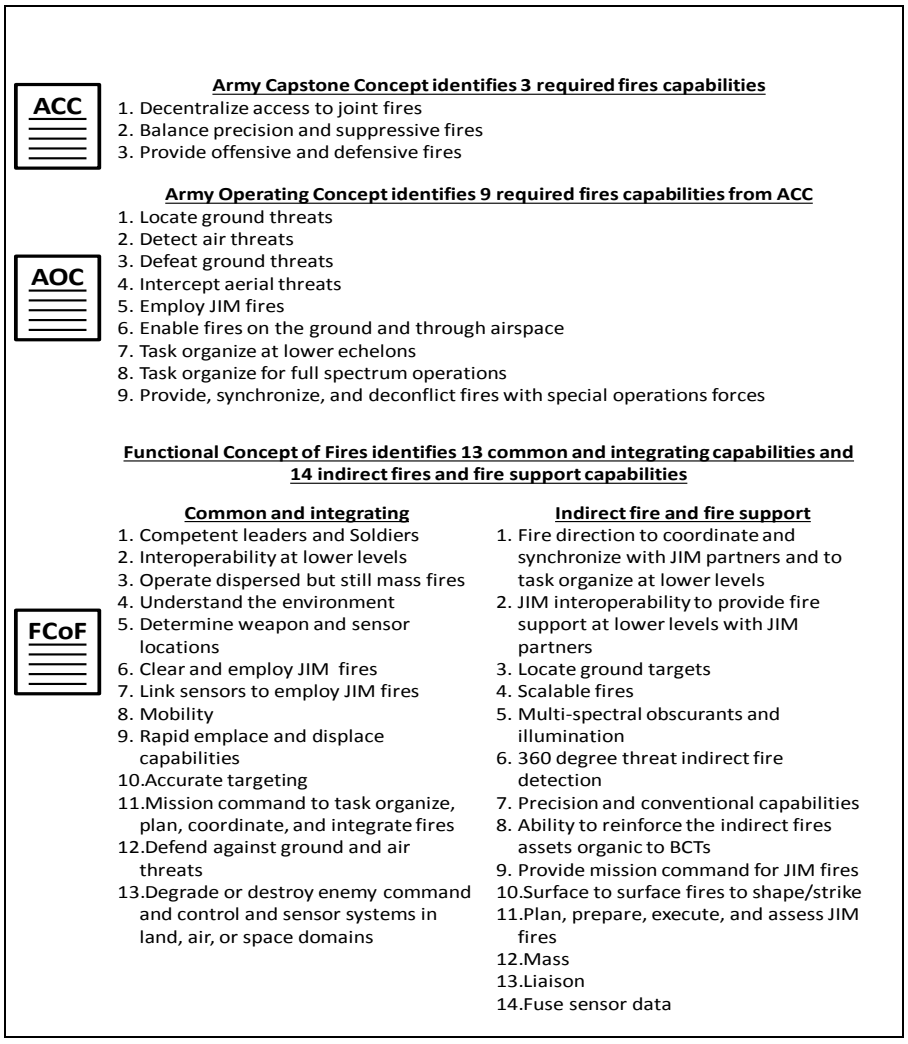

Figure 2. TRADOC Design Documents Fires Capability Requirements

Source: Headquarters, Department of the Army, TRADOC Pamphlet 525-3-4, *The United States Army Functional Concept for Fires* (Washington, DC: Department of the Army, 2010), Appendix B.

[84] Headquarters, Department of the Army, TRADOC Pamphlet 525-3-4, *The United States Army Functional Concept for Fires* (Washington, DC: Department of the Army, 2010), 32-33.

Upon comparing this list of required fires capabilities from TRADOC's conceptual documents to the guidance described in ATPs 3-09.90 and 3-09.24 it is clear that the ATPs address, although not in the exact terms, all of the requirements along the domains of Doctrine, Organization, Training, and Leader Development and Education. The only aspects that are not addressed in doctrine from the TRADOC design documents are the future requirements that fall into the domain of Materiel development requirements. These requirements are: the need for fires platforms/equipment/vehicles to have mobility comparable to maneuver units, the ability to rapidly emplace and displace, requirements specific to munitions (precision, conventional, multi-spectral obscurants, and illumination), and fire direction equipment that is interoperable at lower levels. The list of fires capability requirements that serve as the foundation for the FAA are shown below in figure 3.

Fires Required Capabilies Scorecard							
		Capability Requirement	Source	Current Status	Solution / Initiative	Projected Status after Solution Applied	Gap
		Functional Area Analysis (FAA)			Functional Area Analysis (FAA)		Functional Needs Analysis (FNA)
Deliver Fires	1	Strike Fires	3-09.90				
	2	SEAD	3-09.90				
	3	Counterfire	3-09.90				
	4	Close Supporting Fires	3-09.90				
	5	Operational Fires	3-09.24				
	6	Electronic Attack	3-09.90				
Integrate JIM Fires	7	Mission Command JIM Fires	3-09.24				
	8	Conduct Liasion	3-09.90				
	9	Clear Fires	3-09.90				
	10	Mass Fires and Effects	3-09.24				
Conduct Targeting	11	Develop Targets	3-09.90				
	12	Detect Targets (Collection Plan)	3-09.90				
	13	Link Sensors to Shooters	3-09.90				
	14	Synchronize JIM Assets	3-09.90				
	15	Target Mensuration	3-09.90				
	16	Collateral Damage Estimation	3-09.90				
	17	Assess (Munitions Effects Analysis / BDA)	3-09.90				
Develop Fire Support Plans	18	Recommand FA Organization for Combat	3-09.24				
	19	Plan Fires	3-09.90				
	20	Plan Positions (Sensors + Shooters)	3-09.24				
	21	Plan Sustainment	3-09.90				
	22	Plan FSCMs / ACMs	3-09.90				
	23	Airspace Control Plan	3-09.90				
	24	Protection Plan	3-09.90				
TNG	25	FA Training and Oversight	3-09.24				

Figure 3. Capabilities Scorecard with Requirements Identified

Source: Created by Author

With these capability requirements identified the next step is to assess our current level of proficiency at performing these tasks/functions. Analyzing Final Exercise Reports (FERS) from recent Warfighter Exercises (WFXs) and CTC trends reports will provide this information. We must rely on FERs from WFXs and CTC trends reports because they are the only source of data regarding high intensity conflict at the division level since our recent and ongoing operational experience is stability focused.

The most logical way to organize and synthesize the information contained with the FERs is to conduct a thematic analysis. This analysis will provide valuable insight

into what areas units experienced challenges. Figure 4 shows the results of the thematic analysis.

Final Exercise Report Thematic Analysis																	
Capability Requirements			Source Reports														Total by Individual Requirement
			WFX A	WFX B	WFX C	WFX D	WFX E	WFX F	WFX G	WFX H	WFX I	CTC Trends OCT 2015	MCTP TRENDS FY14	MCTP TRENDS FY15	
Deliver Fires	1	Strike Fires						X					X		2
	2	SEAD		X		X				X					3
	3	Counterfire	X	X		X	X	X			X	X		X	8
	4	Close Supporting Fires				X			X						2
	5	Operational Fires			X								X		2
	6	Electronic Attack													0
Integrate JIM Fires	7	Mission Command JIM Fires		X									X		2
	8	Conduct Liasion			X										1
	9	Clear Fires	X	X	X	X	X			X	X	X	X	X	10
	10	Mass Fires and Effects												X	1
Conduct Targeting	11	Develop Targets	X			X			X				X		4
	12	Detect Targets (Collection Plan)	X		X	X	X	X		X			X	X	8
	13	Link Sensors to Shooters	X	X	X	X	X			X	X				7
	14	Synchronize JIM Assets	X	X	X								X	X	5
	15	Target Mensuration													0
	16	Collateral Damage Estimation													0
	17	Assess (Munitions Effects Analysis / BDA)		X		X		X					X		4
Develop Fire Support Plans	18	Recommand FA Organization for Combat								X	X			X	3
	19	Plan Fires	X	X	X		X			X	X		X		7
	20	Plan Positions (Sensors + Shooters)		X	X						X				3
	21	Plan Sustainment		X	X	X	X	X	X		X			X	8
	22	Plan FSCMs / ACMs	X		X					X	X	X	X		6
	23	Airspace Control Plan		X		X				X		X	X		5
	24	Protection Plan	X	X	X	X	X	X		X	X				8
TNG	25	FA Training and Oversight	X	X	X	X	X	X	X	X	X				9

Figure 4. Final Exercise Report Thematic Analysis

Source: Created by Author

This analysis illuminates the capability requirements that units experienced challenges with while conducting operations in a high intensity fight in the DATE. The

above chart only depicts areas in which units struggled; the blank spaces represent either areas that units excelled or areas that were not referenced in that particular report. The one exception to this is the categories of electronic attack, target mensuration, and collateral damage estimation as these capabilities were not referenced at all in any report; they are therefore not evaluated.

By applying the green, amber, red, black assessment heuristic as defined in chapter 3 to the thematic analysis data we can objectively grade our current proficiency of each capability requirement. The definition of green, amber, red, and black is as follows: green is three or less instances of challenges in a particular capability requirement, amber is four to six, red is seven to nine, and black is ten to twelve. The results are shown below in the updated Capabilities Scorecard, figure 5.

Fires Required Capabilies Scorecard							
		Capability Requirement	Source	Current Status	Solution / Initiative	Projected Status after Solution Applied	Gap
		Functional Area Analysis (FAA)			Functional Area Analysis (FAA)		Functional Needs Analysis (FNA)
Deliver Fires	1	Strike Fires	3-09.90	Green			
	2	SEAD	3-09.90	Green			
	3	Counterfire	3-09.90	Red			
	4	Close Supporting Fires	3-09.90	Green			
	5	Operational Fires	3-09.24	Green			
	6	Electronic Attack	3-09.90	Not evaluated			
Integrate JIM Fires	7	Mission Command JIM Fires	3-09.24	Green			
	8	Conduct Liasion	3-09.90	Green			
	9	Clear Fires	3-09.90	Black			
	10	Mass Fires and Effects	3-09.24	Green			
Conduct Targeting	11	Develop Targets	3-09.90	Amber			
	12	Detect Targets (Collection Plan)	3-09.90	Red			
	13	Link Sensors to Shooters	3-09.90	Red			
	14	Synchronize JIM Assets	3-09.90	Amber			
	15	Target Mensuration	3-09.90	Not evaluated			
	16	Collateral Damage Estimation	3-09.90	Not evaluated			
	17	Assess (Munitions Effects Analysis / BDA)	3-09.90	Amber			
Develop Fire Support Plans	18	Recommand FA Organization for Combat	3-09.24	Green			
	19	Plan Fires	3-09.90	Red			
	20	Plan Positions (Sensors + Shooters)	3-09.24	Green			
	21	Plan Sustainment	3-09.90	Red			
	22	Plan FSCMs / ACMs	3-09.90	Amber			
	23	Airspace Control Plan	3-09.90	Amber			
	24	Protection Plan	3-09.90	Red			
TNG	25	FA Training and Oversight	3-09.24	Red			

Figure 5. Fires Capability Scorecard with Current Status Assessment

Source: Created by Author.

From this analysis we can see where our biggest challenges lie. The capability requirements of clearing fires; executing counterfire; linking sensors to shooters; detecting targets; planning fires, sustainment, and protection; and training top the list as capabilities that meet the “black” and “red” evaluation criteria. These are areas in which seven or more reports identified challenges and they are almost certainly areas in which the entire Artillery force is experiencing challenges. This is not surprising as these capabilities, although still conducted during stability operations, require specific skill sets or core competencies that are unique to the complexity and tempo associated with high intensity conflict.

After ten years of operating in a stability environment the fires community, and Army as a whole, has become accustomed to a slower tempo of operations, typically from fixed sites in a mature theater, and with an abundance of resources to apply against a relatively small enemy force. Fighting a near peer competitor in the DATE stresses units in ways they are not accustomed to. Having to plan rapidly and coordinate and synchronize limited resources against a robust and mobile enemy in a highly complex and rapidly changing environment is challenging for even the most well trained units. It is not surprising that the functions units struggled with the most are the ones that require expertise in fundamental core competencies and significant coordination and synchronization across both the staff internal and external organizations.

The next tier of functions are those that fit into the amber evaluation criteria. These are capabilities that were identified as issues in four to six reports and are possibly systemic issues across the Artillery force. The capability requirements that fell into this category are: develop targets, synchronize JIM fires assets, the ability to assess (munitions effects and Battle Damage Assessments), planning FSCMs and ACMs, and developing an airspace control plan. It is likely that fewer units experienced challenges in these specific areas because these capabilities are ones that have been exercised, at least to some degree, during our recent combat experience. Developing targets, requesting and synchronizing JIM fires assets (primarily Close Air Support), and assessing munitions effects and battle damage are all skills that units have utilized in the past ten years and therefore have relevant experience and are likely more comfortable with performing these functions.

That said, the remaining capabilities in the amber category, planning FSCMs and ACMs and developing airspace control plans, are skills that are quite unique in the DATE and stability environments. So why did only half of the reports identify these planning tasks as challenges? I believe these tasks were not referenced as challenges more frequently in the trends because of their connection to the overall requirement to clear fires, which was the most referenced issue across all reports. Properly planning for airspace and utilizing permissive FSCMs and ACMs are critical to efficiently clearing fires in the DATE. It is logical to believe that some reports focused on the parent issue of "clearance of fires" and did not specifically discuss planning FSCMs, ACMs, or airspace control as the subordinate components, or techniques, associated with that function. Regardless of whether this belief is correct or not, the key take away is that a vast majority of reports identified clearance of fires as an issue and half of the reports specifically discussed the planning of coordination measures as well. The challenges are certainly connected according to the thematic analysis, affect a majority of units.

The final category of proficiency is "green," and is defined as capabilities in which three or less reports identify as an issue and is likely not a capability gap across the entire force. The specific capabilities that fall into this category are delivering strike fires, Suppression of Enemy Air Defense fires, close supporting fires, operational fires, providing mission command of JIM fires, conducting liaison, recommending FA organization for combat, and planning positions for sensors and shooters. Although we can gain some insight into what capabilities units are performing well, it is dangerous to draw significant conclusions from this category. This is due to the very nature of the FERs and trends reports. From personal experience while serving as an OC/T and

authoring sections of FERs I know there is not infinite space in these reports and the authors must prioritize and discuss only the most pressing issues identified in that particular exercise. Given the structure of the thematic analysis, counting occurrences of tasks units struggled with, there are two possible conclusions associated with tasks that are rarely mentioned. First, it could mean that the vast majority of units excelled at these tasks so they were not mentioned in the report; or it could mean that that particular capability was not evaluated. Understanding this allows us to avoid drawing faulty conclusions from the "green" category of capabilities and focus the FNA and FSA on the capabilities that fall into the categories of amber, red, and black.

Before we can determine what residual capability gaps exist we must first identify what current solutions and initiatives are already in place to address potential deficiencies in these core competencies. The fires proponent is the agency responsible for implementing any solutions so the primary source for identifying current initiatives is the Redleg Update. The Redleg Update is a monthly publication from the Fires Center of Excellence at Ft. Sill Oklahoma which contains articles specific to the Fires community. It is also a venue for the Commandant and Command Sergeant Major of the Field Artillery to address the force and provide guidance and updates on the future direction of the Field Artillery. In many cases the senior fires leaders have used this venue to provide updates on the progress of the initiatives they have enacted. Reviewing every edition of the Redleg Update back to its inception in 2011 illuminates all recent and upcoming initiatives designed to address capability gaps. The thematic analysis of Redleg Updates is shown in figure 6.

Thematic Analysis of "Redleg Updates"												
DOTL Domain	Problem State-ment	Doctrine	Organization			Training						Leader DEV and EDU
Specific Topic	"Atrophied skills"	Revisions to 3-09 series	DIVARTY integration	Army TGTing Center	MOS restructure	JFO	TMO	CDE	FS TNG	TGTing	TNG design and execution	Recruit, Retain, Assess Quality Leaders
Dec-12											X	
Feb-13		X									X	
Mar-13											X	
May-13										X	X	X
Jul-13						X						
Nov-13	X	X				X						
Dec-13		X	X			X	X	X		X		X
Apr-14	X		X			X				X		
Jun-14			X									X
Aug-14	X		X									
Sep-14					X							
Oct-14		X	X			X	X	X	X		X	X
Nov-14	X	X	X									
Dec-14	X	X	X		X	X	X	X			X	X
Mar-15			X						X			
Apr-15			X	X					X			X
Jun-15						X			X			X
Aug-15		X	X		X						X	
Sep-15	X									X		
Oct-15					X							
Nov-15	X		X	X								
Jan-16	X					X						
TOTAL	8	7	11	2	4	8	3	3	4	4	7	7
Total by DOTL Domain		7	17			29						7

Figure 6. Redleg Update Thematic Analysis

Source: Created by author

This thematic analysis determines an objective level of importance of each initiative by capturing how often the fires senior leadership reinforces it in open forum to the Artillery community. It is based on the premise that Commanders discuss and reinforce the efforts that they are most concerned with. The analysis identifies the specific initiatives that are ongoing or planned and categorizes them according the two DOTL domains that are most appropriate. Some initiatives are unique and designed to satisfy a specific requirement, such as JFO training for all Fire Support Officers and all

13F Forward Observers which seeks to improve integration and utilization of joint fires at lower echelons. Whereas others affect all initiatives across several domains. Revisions to the fires series of doctrine is an example of this as revising doctrine is required to codify any organizational, training, or leadership development and education changes that take place. It is important to the remainder of the research to describe the initiatives that the Redleg Update thematic analysis uncovered.

The initiative to revise fires doctrine falls into the "Doctrine" DOTL domain. This initiative seeks to modernize fires doctrine to capture recent organizational changes; and updates to tactics, techniques, and procedures.[85] The major effort within this initiative is focused around the reintegration of the DIVARTY force structure. ATP 3-09.90 is dedicated to DIVARTY operations but it remains in draft form pending final approval. This document will formally define the roles and responsibilities of a DIVARTY as the FFA HQ for a division and provide specific guidance on the functions a DIVARTY musts perform. In addition to capturing the reintegration of DIVARTYs, doctrine revisions are also addressing MOS restructuring, the establishment of the JAGIC, the possible creation of the Army Targeting Center, and updates to training requirements and training design. Modernizing doctrine was referenced seven times in Redleg Updates since 2013, placing it in a three way tie for the third most discussed initiative. This initiative is important in that it codifies guidance to the entire fires force, however, updating doctrine alone will not correct the atrophy of core competencies that has occurred over the past decade.

[85] Turner, "2014 State of the Field Artillery," 3.

Under the Organization domain there are three initiatives the fires community is currently pursuing. The largest by far is the reintegration of DIVARTYs, followed by restructuring artillery MOSs, and the possibility of establishing an Army Targeting Center.

The reintegration of DIVARTYs is far and away the most important initiative to the fires senior leaders based on the logic of the thematic analysis. It is referenced in 11 out of 22 (50 percent) of Redleg Updates since December 2012. This initiative is the primary focus of the fires senior leaders because it will address many of the capability gaps that currently exist or are perceived to exist. They believe that atrophy of fires core competencies is the root cause for the current struggles the fires community is facing. This atrophy was enabled by the nature of the recent counterinsurgency fight as well as the modular concept. Under modularity, artillery units are organized under maneuver BCTs and there is no higher artillery headquarters with artillery expertise to provide standardized training, oversight, and development of artillery units and artillerymen. This responsibility rests with the direct support artillery battalion commander who often does not have consistent oversight of his fire supporters. This lack of training has led to degradation in core Field Artillery and Fire Support competencies.[86] The senior fires leaders believe that reviving DIVARTYs will create a better product that can better support maneuver commanders. Based on this research I agree with their reasoning and feel that this initiative, if implemented fully, is the most impactful to correcting the atrophy of core fires competencies.

[86] Ibid., 2.

The initiative to restructure artillery MOSs is focused specifically at the fire direction specialties. The goal is to combine two Fire Direction Center specialties into one, 13J. Although it was discussed in 18 percent of the Redleg Updates since December 2012 it has little to no impact on Division level fires capabilities since there is no net loss or gain in capability as a result of this merger.

The final Organizational initiative is the creation of the Army Targeting Center. Consistent with the findings from the FER and trends reports thematic analysis, the fires proponent also recognizes that most units struggle with targeting. This is largely due to a lack of standardized targeting training from a sole proponent across the Army. Although doctrine addresses targeting in FM 3-60, many units execute the guidance within that document in many different ways. This inconsistency degrades our credibility at higher echelons in the joint environment when nominating targets. Developing a brick and mortar Army Targeting Center as the single proponent for Army targeting will standardize targeting products and build confidence in Army targeting capabilities at higher echelons. The Fires Center of Excellence has created an interim targeting center called the Fires Targeting Center. The Fires Targeting Center stood up on 2 March 2015 and is operating until final approval can be gained for an Army wide center.[87] Although this initiative will improve targeting capabilities with regard to striking fixed sites, developing well defined targets, and mensurating target locations; it remains to be seen if it will improve the actual process of targeting at the Division level. The ability to visualize the battlefield, interpret Commanders guidance into targeting guidance, and run

[87] Marie Berberea, "Sill Takes on Fires Targeting Mission," *REDLEG Update* (April 2015): 6.

an effective targeting working group with appropriate collaboration and product development is just as important as the targeting specific skills.

The Redleg Updates made reference to several different initiatives that fall into the Training domain. All of them are designed to increase proficiency in core fires competencies by sharpening specific skill sets that have atrophied over the past 15 years. The specific training initiatives are JFO, TMO, CDE, Fire Support training, Targeting training, and training design and execution. All of the training initiatives are strongly connected to the DIVARTY reintegration since the establishment of a DIVARTY headquarters would provide the fires subject matter expertise to provide training oversight.

The JFO initiative is designed to create qualified JFO trained Fire Support Officers and forward observers. It consists of mandatory JFO training at Basic Officer Leadership Course and 13F Advance Individual Training. The goal is to increase joint fires capability at lower echelons by having more JFO qualified observers. It is the most referenced training initiative being mentioned in 36 percent of Redleg Updates since December 2012. It will improve the capability to integrate Joint fires at lower echelons but it will do little to impact the overall effectiveness of Division level fires.

The TMO initiative seeks to improve targeting accuracy. This is linked to the development of the Army Targeting Center and the need to develop actionable targets to engage with strike or operational fires. Increasing subject matter expertise in target mensuration across the Army will improve the legitimacy of targets nominated to the Joint targeting cycle but by itself, this initiative will not correct the challenges with targeting that were identified in CTC trends reports and WFX FERs.

The CDE training initiative is linked to the targeting process and is intended to improve the fires communities' ability to estimate collateral damage. The fires proponent intends for this training to improve both hasty CDE as well as improving input into formal CDE in the joint targeting process. This is inherently tied to the use of precision munitions in the stability environment. Similar to the TMO initiative, this is an important skill set to develop but it will not correct the challenges units are experiencing with the overall targeting process

Fire Support Training speaks to the specific tasks that fire supporters need to be able to complete. It includes all technical aspects of fire support as well as planning and product development. It encompasses updates to institutional training, (Basic Officer Leadership Course, FA Officer Basic Course, and FA Captains Career Course) as well as training guidance for fire supporters in the operational force.[88] This initiative is tied to the doctrine initiative, several other training initiatives, and the initiative to recruit, retain, and assess quality leaders. In combination with the reintegration of DIVARTYs as the training oversight headquarters, this initiative could have tremendous impact on the correction of atrophy of core competencies. This will only happen if the training is well structured and designed to around a high intensity conflict scenario.

The targeting training initiative is focused on growing the numbers and proficiency of Army MOS 131A Targeting Warrant Officers. This career field is critical to the targeting process as 131As are targeting experts specifically trained to perform target mensuration, collateral damage estimation, and are thoroughly versed in the Army

[88] Turner, "Building the Fire Support Team," 3.

and Joint targeting processes.[89] Expanding this MOS will create more targeting subject matter experts in Army formations and add legitimacy to Army target nominations that get submitted into the Joint targeting process.

The training design and execution initiative provides guidance to and motivates the fires community to design and engage in tough realistic training. The intent is to reorient the force to training to execute a high intensity DATE centered fight. An August 2015 article in the Redleg Update describes the lessons learned from OC/Ts at the Joint Readiness Training Center. They highlight the atrophy of field artillery skills due to the stability focused fight and allude to the importance of training for high intensity conflict as the method to correct the atrophy.[90] The fires proponent acknowledges this lesson learned and also recognizes that the Army Operating Concept correctly defines conducting combined arms maneuver as "the pinnacle of military proficiency."[91] This initiative is designed to refocus the preponderance of training against this task in the Decisive Action Environment. It is linked to the other training initiatives and supported by the doctrine revision and DIVARTY reintegration initiatives as well. If implemented aggressively and in conjunction with the reintegration of DIVARTYs and the fire support training initiative it can have a substantial impact on reversing the atrophy of core fires competencies.

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[89] Chris Bentley, "2013 Year in Review," *REDLEG Update* (December 2013): 3-4.

[90] Juan Declet and Nicholas Lien, "From FOB Artillery to Field Artillery," *REDLEG Update*, no. 47 (August 2015): 11.

[91] Headquarters, Department of the Army, TRADOC Pamphlet 525-3-1, *The U.S. Army Operating Concept*, 23.

The final domain is Leader Development and Education. In this domain the only initiative that is referenced is “recruit, retain, and assess quality leaders.” At the heart of this initiative is the need to fill the Artillery force with a high quality pool of officers and non-commissioned officers to perform the complex functions the Field Artillery is required to perform. This specific initiative can be summarized as talent management. This is accomplished through mentorship and developing the skill sets that fires leaders at all levels to possess to be successful. Although listed under the Training domain, every training initiative is linked to the education and development of fires leaders.

With a basic definition/description of the initiatives referenced in the Redleg Updates we can apply them to the Capabilities Scorecard to see which required capabilities they best support, figure 7.

Fires Required Capabilies Scorecard							
		Capability Requirement	Source	Current Status	Solution / Initiative	Projected Status after Solution Applied	Gap
		Functional Area Analysis (FAA)			Functional Area Analysis (FAA)		Functional Needs Analysis (FNA)
Deliver Fires	1	Strike Fires	3-09.90	Green	FS TNG / TGTing / TMO	Green	
	2	SEAD	3-09.90	Green	FS TNG	Green	
	3	Counterfire	3-09.90	Red	FS TNG / TGTing	Red	
	4	Close Supporting Fires	3-09.90	Green	FS TNG	Green	
	5	Operational Fires	3-09.24	Green	FS TNG / TGTing / TMO	Green	
	6	Electronic Attack	3-09.90	Not evaluated			
Integrate JIM Fires	7	Mission Command JIM Fires	3-09.24	Green	JFO	Green	
	8	Conduct Liasion	3-09.90	Green		Green	
	9	Clear Fires	3-09.90	Black	FS TNG / TNG design	Red	
	10	Mass Fires and Effects	3-09.24	Green	TNG design	Green	
Conduct Targeting	11	Develop Targets	3-09.90	Amber	ATC / TGTing / TMO	Green	
	12	Detect Targets (Collection Plan)	3-09.90	Red	ATC / TGTing	Red	
	13	Link Sensors to Shooters	3-09.90	Red	ATC / TGTing	Red	
	14	Synchronize JIM Assets	3-09.90	Amber	ATC / TGTing / JFO	Amber	
	15	Target Mensuration	3-09.90	Not evaluated	ATC / TGTing / TMO		
	16	Collateral Damage Estimation	3-09.90	Not evaluated	ATC / TGTing / CDE		
	17	Assess (Munitions Effects Analysis / BDA)	3-09.90	Amber	ATC / TGTing	Green	
Develop Fire Support Plans	18	Recommand FA Organization for Combat	3-09.24	Green	FS TNG	Green	
	19	Plan Fires	3-09.90	Red	FS TNG	Amber	
	20	Plan Positions (Sensors + Shooters)	3-09.24	Green	FS TNG	Green	
	21	Plan Sustainment	3-09.90	Red	FS TNG	Amber	
	22	Plan FSCMs / ACMs	3-09.90	Amber	FS TNG	Green	
	23	Airspace Control Plan	3-09.90	Amber	FS TNG	Green	
	24	Protection Plan	3-09.90	Red	FS TNG	Amber	
TNG	25	FA Training and Oversight	3-09.24	Red	DIVARTY	Green	

Figure 7. Capabilities Scorecard with Solutions/ Initiatives Identified and Projected Statuses

Source: Created by Author

The chart above shows which current initiatives address each of the capability requirements. In many cases there is overlap and several initiatives can have a potential impact on a single capability. In fact, the doctrine initiative and the Leader Development and Education initiatives can potentially apply to every single capability requirement shown. Given this I chose not to list them on the chart in order save valuable space.

After linking initiatives to capability requirements it is possible to subjectively assess how that solution will impact our future proficiency at that particular capability. All capabilities listed as Green initially remained Green after the identified initiatives.

Under the broad capability requirement of “Deliver Fires” the specific capability of counterfire remained Red. This is because as a function it is very complex requiring significant planning, coordination, and integration of sensors and shooters. The initiatives of Fire Support TNG, Targeting TNG, Doctrine, and Leader Development and Education will have an impact in our proficiency at conducting counterfire but not to the extent that we will move out of the “Red” category.

With regard to the capability requirement of clearing fires there are several initiatives that could potentially affect our proficiency. Outside of doctrine revisions and leader development; Fire Support TNG and designing TNG specifically associated with the DATE will certainly help. However, these initiatives are largely focused on improving individual knowledge and ability. Substantial improvement in this area will require collective training focused on collaborative fire support planning, targeting, and execution. That said, based on how many units struggled with this task and the individualistic nature of the current initiatives I assess that clearance of fires will still remain a significant challenge in the near future.

Within the area of targeting the initiatives of developing the Army Targeting Center, conducting targeting training, and the TMO and CDE courses will certainly have a positive impact on our overall proficiency. It is likely our ability to develop targets and assess effects will improve substantially. It is not likely, however, that our ability to detect targets and link sensors to shooters will improve enough to move out of the red category. Given the substantial challenges we currently are experiencing with these capabilities the identified solutions will impact our proficiency slightly but not enough to move them to the amber category.

The overall requirement to develop fire support plans consists of many associated subordinate capabilities. All of which stand to improve substantially with focused training facilitated by a DIVARTY headquarters that has the expertise and ability to oversee standardized training across several artillery formations. For this reason it is likely all capabilities in this category will improve to at least an amber status.

Finally, the capability to provide Field Artillery Training and Oversight will improve significantly once the DIVARTY integration initiative is in full effect. Establishing this headquarters will provide a single organization with the responsibility for developing all Field Artillerymen under their command. This will lead to a more competent force and a better product to support maneuver commanders.

By analyzing and categorizing the data in this way we can see which capability requirements stand to improve based on the identified solutions/initiatives. It also shows which requirements remain as a residual capability gap. My analysis indicates that the capability requirements of: Execute Counterfire, Clear Fires, Detect Targets (Collection Plan), and Linking Sensors to Shooters are likely to remain as capability gaps even after solutions are applied. These tasks support the larger integrating processes of fire support and field artillery planning, integrating all fires assets, and conducting targeting. And these tasks are the functional needs that the Field Artillery community needs to address; figure 8.

Fires Required Capabilies Scorecard							
		Capability Requirement	Source	Current Status	Solution / Initiative	Projected Status after Solution Applied	Gap
		Functional Area Analysis (FAA)			Functional Area Analysis (FAA)		Functional Needs Analysis (FNA)
Deliver Fires	1	Strike Fires	3-09.90	Green	FS TNG / TGTing / TMO	Green	
	2	SEAD	3-09.90	Green	FS TNG	Green	
	3	Counterfire	3-09.90	Red	FS TNG / TGTing	Red	Counterfire
	4	Close Supporting Fires	3-09.90	Green	FS TNG	Green	
	5	Operational Fires	3-09.24	Green	FS TNG / TGTing / TMO	Green	
	6	Electronic Attack	3-09.90	Not evaluated			
Integrate JIM Fires	7	Mission Command JIM Fires	3-09.24	Green	JFO	Green	
	8	Conduct Liasion	3-09.90	Green		Green	
	9	Clear Fires	3-09.90	Black	FS TNG / TNG design	Red	Clear Fires
	10	Mass Fires and Effects	3-09.24	Green	TNG design	Green	
Conduct Targeting	11	Develop Targets	3-09.90	Amber	ATC / TGTing / TMO	Green	
	12	Detect Targets (Collection Plan)	3-09.90	Red	ATC / TGTing	Red	Detect Targets
	13	Link Sensors to Shooters	3-09.90	Red	ATC / TGTing	Red	Sensor to Shooter
	14	Synchronize JIM Assets	3-09.90	Amber	ATC / TGTing / JFO	Amber	
	15	Target Mensuration	3-09.90	Not evaluated	ATC / TGTing / TMO		
	16	Collateral Damage Estimation	3-09.90	Not evaluated	ATC / TGTing / CDE		
	17	Assess (Munitions Effects Analysis / BDA)	3-09.90	Amber	ATC / TGTing	Green	
Develop Fire Support Plans	18	Recommand FA Organization for Combat	3-09.24	Green	FS TNG	Green	
	19	Plan Fires	3-09.90	Red	FS TNG	Amber	
	20	Plan Positions (Sensors + Shooters)	3-09.24	Green	FS TNG	Green	
	21	Plan Sustainment	3-09.90	Red	FS TNG	Amber	
	22	Plan FSCMs / ACMs	3-09.90	Amber	FS TNG	Green	
	23	Airspace Control Plan	3-09.90	Amber	FS TNG	Green	
	24	Protection Plan	3-09.90	Red	FS TNG	Amber	
TNG	25	FA Training and Oversight	3-09.24	Red	DIVARTY	Green	

Figure 8. Complete Required Capabilities Scorecard

Source: Created by Author.

Summary/Conclusion

Analyzing the relevant data using the framework of a Capabilities Based Assessment produced many valuable insights. First, it enabled us to synthesize many conceptual and doctrinal documents to determine the list of capabilities divisional fires units must possess (figure 3). Next we assessed our current level of proficiency at executing those capabilities by conducting a thematic analysis of FERs and CTC trends reports (figures 4); and applying them against the green, red, amber, black evaluation criteria (figure 5). Identifying and assessing existing solutions/initiatives was the next

step. These initiatives were extracted from conducting a thematic analysis of Redleg Updates (figure 6). Finally, we subjectively assessed the projected status of each capability requirement after the solution was applied (figure 7) and this enabled us to identify which residual capability gaps remain (figure 8).

Prioritizing these remaining capability gaps completes the FNA. The priorities for addressing these gaps are: (1) the ability to clear fires, (2) linking sensors to shooters, (3) executing counterfire, and (4) detecting targets. Chapter 5 will address developing functional solutions for closing these capability gaps.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

The intent of this research is to describe the current state of fires at the divisional level, identify any capability gaps that exist, and explore potential solutions to close those gaps. The driving hypothesis is that 15 years of supporting stability operations has caused the atrophy of fires core competencies across the field artillery community. After completing the FAA and FNA in chapter 4 I found that the fires community has lost proficiency at certain core competencies and is only marginally effective at providing fires in support of combined arms maneuver in high intensity conflict. The specific skills that have atrophied and remain as capability gaps as identified in the FNA are the ability to clear fires, linking sensors to shooters, conducting counterfire operations, and the ability to detect targets.

Interpretation of Findings

The questions remains, why are units currently struggling with these specific tasks when conducting operations in the DATE? The answer to that lies in understanding the ways in which these tasks are similar. The connection between all of these specific tasks is that they are all part of larger integrating processes; those being fire support planning, and targeting. These processes all involve integration, coordination, and synchronization within the staff (DIVARTY or FAB) and with external organizations. Furthermore, these processes are complex in nature and require a tremendous understanding of the situation and visualization of the battlefield. Staffs are challenged with developing effective integrating processes which manifests itself in cumbersome and belabored clearance of

fires procedures, reactive and largely ineffective counterfire, and an inability to detect targets and link sensors to shooters. The DATE is an unforgiving and challenging environment and the stress of high tempo operations compounds the situation for units.

The impact of poor fires planning, lack of integration, and an inefficient targeting process is an inability to fully support maneuver operations and shape the battlefield. By letting these skills atrophy over the past 15 years the fires community has become only marginally capable to support combined arms maneuver operations in high intensity conflict. With time and training FABs and DIVARTYs can regain these skills, however, as General Milley alluded to in his presentation to the Command and General Staff College class of 2016, we must be ready at all times because we never know if we are mere moments away from the start of the next great war or conflict.[92]

The fires proponent leadership acknowledge these capability gaps and the urgency in which we need to address them. They have developed appropriate solutions/initiatives that will, in time and if executed aggressively, close the capability gaps identified above. The most impactful initiatives are the reintegration of the DIVARTY force structure, emphasizing training for operations in the decisive action environment, and the establishment of the Fires Targeting Center. Reorganizing into DIVARTYs will enable an artillery headquarters to train and oversee the development of artillery units and leaders. This structure can have a powerful impact on reversing the atrophy of fires core competencies if combined with a focus on training the skills necessary to conduct the major integrating processes and specific tasks mentioned above.

[92] Milley, "Address to Command and General Staff College Class of 2016."

Recommendations

As a result of my research I am making two recommendations for action and one recommendation for further study. For immediate action I recommend that the Army fully integrates the DIVARTY force structure. I also recommend that the fires proponent begins research and starts developing a collaborative training package that units can use at home station to practice the major integrating processes of fires planning and targeting in a high intensity and high operational tempo environment.

The reintegration of the DIVARTY force structure is a positive step to correcting the atrophy of fire core competencies. However, the Army has not implemented it fully. Full implementation being defined as establishing the DIVARTY headquarters and attaching the field artillery battalions that used to be direct support to maneuver BCTs. Only six out of ten DIVARTYs have field artillery battalions attached to them currently. I recommend that the Army completes this organizational restructuring by attaching the remaining field artillery battalions to their respective DIVARTYs. Doing this will maximize the effectiveness of all training initiatives by providing an artillery headquarters to train and oversee the development of artillery units and leaders.

The other initiatives identified in this research (JFO, TMO, CDE, Fire Support TNG, Targeting Warrant Officer TNG, TNG Design and Execution, and Fires Targeting Center) are all important and will help with specific skill development of individuals, but none of them are focused on addressing the major integrating processes of fires planning and targeting. As identified in this research, executing these processes is our current capability gap across the fires force and it manifests itself as an inability to efficiently clear fires, ineffective counterfire operations, and challenges with detecting targets and

linking sensors to shooters. To address these issues I recommend the development of a training package that will allow DIVARTYs and FABs to provide their staff's realistic home station training on the complex major integrating processes.

Currently, WFXs are the best venue for facilitating collective training at the division level on these processes. The challenge is that WFXs are relatively infrequent from the unit's perspective and incredibly resource intensive. DIVARTYs and FABs need a low cost way to provide frequent, realistic, tough, and collaborative training to their staffs at home station centered on high intensity conflict in the DATE. I recommend the fires proponent develop a set of scenario based training packages that will enable DIVARTYs and FABs to exercise planning, integration, and targeting in support of high intensity conflict in the DATE. These training packages must leverage current Army Battle Command Systems and provide adequate input (simulated higher commander's guidance and intent, friendly situation reports, intelligence reports and estimates, battle damage assessments, etc.) to stimulate staffs and force them to visualize the battlefield, conduct collaborative planning in a high operational tempo, and exercise the targeting process. They must also force staffs to visualize the battlefield, anticipate enemy actions and friendly operational tempo, and synchronize fires planning with the targeting process. With the intent to encourage staffs to create an environment where fires are responsive and effective by maximizing the use of permissive FSCMs and ACMs and proactive counterfire. I envision units utilizing these packages during collaborative command post exercises at home station. I believe there is also value in establishing a Mobile Training Team from either the Fires Center of Excellence or from the Fires Targeting Center to travel to units to help facilitate and evaluate this home station training.

The recommendation to develop training packages to facilitate collaborative training for DIVARTY and FAB staffs is both a recommendation for action and a recommendation for further study. It emerged from this research merely as a concept. It is a possible solution to addressing the root cause of the capability gaps I identified. I recommend that a full study be conducted by the Fires Center of Excellence, Fires Targeting Center, or future MMAS or SAMS students on what this program might actually look like and the implications/challenges of developing such a training package. This study can also fully investigate the United States Marine Corps' 'Regimental Artillery Training School' concept as a possible model/framework to develop a training program to maintain currency and proficiency of all fires core competencies.

Summary and Conclusions

Fifteen years of conducting nonstandard missions in support of stability operations and the transition to modularity has caused the United States Army Field Artillery community to lose proficiency in some of their core competencies. Field Artillery staffs at the division level struggle to execute the major integrating processes during high intensity conflict in support of Division maneuver. The tempo and complexity of operations in the DATE challenge staffs ability to conduct fires planning, integrate all fires assets into the fight, and conduct targeting. Challenges in executing these processes ultimately manifest themselves as an inability to clear fires, in effective counterfire, and inefficiency in detecting targets and linking sensors to shooters.

With enough time and the correct focus, training can correct this atrophy and close these capability gaps. The Army has already initiated a solution that will enable this focused training, the reintegration of the DIVARTY force structure. The reestablishment

of this headquarters will provide an artillery expertise and an organization that is responsible for training oversight and the development of field artillery units and personnel. The DIVARTY structure is critical to affecting major change in fires core competencies through focused training. To maximize the effectiveness of this initiative the Army should attach all of the Field Artillery battalions from the BCTs to their respective DIVARTYs.

In addition to this solution the Fires Center of Excellence should investigate the possibility of creating training packages specifically designed to exercise units in their ability to conduct the major integrating processes; fires planning and targeting. These training packages should be low cost, capable for units to integrate into routine command post exercises, focused on high intensity conflict in the DATE, have realistic input to stimulate critical and creative thinking, and be integrated with Army Battle Command Systems.

Although the King of Battle is not at the peak of military proficiency with regard to supporting combined arms maneuver against a near peer competitor right now, the future is still bright. With the full integration of the DIVARTY force structure and the development of focused training packages the Field Artillery community can regain their expertise in all core competencies.

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