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14. ABSTRACT

Although the Field Artillery branch has demonstrated competence and effectiveness in a diverse mission set, the expertise came at a cost. The Field Artillery branch has seen the atrophy of its core competencies due to modularization, in-lieu missions, and counterinsurgency operations. To reverse the negative trends in the fires warfighting function, the US Army returned DIVARTY into the Army's force structure and organization design. The implementation of the DIVARTY allows for the execution of operational and tactical-level fires in support of Unified Land Operations (ULO) and provides mission command for the training and readiness of attached FA units. A key aspect of the implementation order is the ownership of command authority and the funding of 'attached' BCT FA battalions. Currently, the parts of the implementation order have been rescinded, suspending the attachment of FORSCOM BCT FA BNs to several divisions and abolishing the transfer of command authority to the DIVARTY commander. These actions have stalled progress in reversing negative trends seen in the fires warfighting function. As the Army looks to increase its readiness, US Army must standardize the implementation of DIVARTY across the force with full command authority given to DIVARTY commanders over 'attached' BCT FA battalions.

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MASTER OF MILITARY STUDIES

DIVARTY: RESTORING HIGHER-QUALITY FIELD ARTILLERY TO THE U.S. ARMY

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REQUIREMENTS FOR THE DEGREE OF MASTER OF MILITARY STUDIES

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Executive Summary

Title: DIVARTY: Restoring Higher-Quality Field Artillery to the U.S. Army

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Thesis: Without the full implementation of the Division Artillery (DIVARTY) force structure, the DIVARTY is unable to effectively develop artillerymen who can coordinate, integrate, synchronize, and employ operational fires to meet the current demands of multi-domain battle.

Discussion: Although the Field Artillery branch has demonstrated competence and effectiveness in a diverse mission set, the expertise came at a cost. The Field Artillery branch has seen the atrophy of its core competencies due to modularization, in-lieu missions, and counterinsurgency operations. To reverse the negative trends in the fires warfighting function, the US Army returned DIVARTY into the Army's force structure and organization design. The implementation of the DIVARTY allows for the execution of operational and tactical-level fires in support of Unified Land Operations (ULO) and provides mission command for the training and readiness of attached FA units.[1] A key aspect of the implementation order is the ownership of command authority and the funding of 'attached' BCT FA battalions. Currently, the parts of the implementation order have been rescinded, suspending the attachment of FORSCOM BCT FA BNs to several divisions and abolishing the transfer of command authority to the DIVARTY commander. These actions have stalled progress in reversing negative trends seen in the fires warfighting function. As the Army looks to increase its readiness, US Army must standardize the implementation of DIVARTY across the force with full command authority given to DIVARTY commanders over 'attached' BCT FA battalions.

This paper examines the need for a realized, fully vested, fully implemented DIVARTY. It will address the future environment and strategic competition that continues to challenge the U.S. Army in multiple domains; it will outline the DIVARTY's role in cross-domain fires; it will highlight warfighter exercises, and it will articulate training and talent management.

Conclusion: A fully realized, vested, and implemented DIVARTY is one that is not stripped of its authorities, command relationships, and funding while simultaneously being tasked to grow, train, and ready its force. It strength is derived from the core principles of mission command, cemented in trust that the organization will be good stewards of funds for training and certification and the development of talent within its formation. To this end, to achieve its primary role of standardizing artillery training by certifying and teaching sections and enabling higher-level exercises, the DIVARTY must have the tools to excel. Without such tools, DIVARTY will continue to fulfill its current mission requirements in steady-state operations. However, it must be able to prepare and organize for decisive action in a high-lethality conflict scenario in possible future operations.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

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Introduction

"Be the world's premier Field Artillery force; modernized, organized, trained, and ready to integrate and employ Army, Joint, and Multinational fires, across multiple domains, enabling victory through Unified Land Operations."

The Field Artillery Vision, 2018[2]

Although the Field Artillery (FA) branch has demonstrated competence and effectiveness in a diverse mission set, the expertise came at the cost of the atrophy of its core competencies due to modularization, in-lieu missions, and extended counterinsurgency operations. To reverse the negative trends in the *fires* warfighting function, the U.S. Army returned Division Artillery (DIVARTY) into the its force structure and organization design.[I] The DIVARTY is the Force Field Artillery Headquarters that allows for the execution of operational and tactical-level fires in support of Unified Land Operations (ULO) and provides mission command for the training and readiness of attached FA units.[3]

A key aspect of the implementation order is the ownership of command authority and the funding of "attached"[II] Brigade Combat Team (BCT) FA battalions. Currently, parts of the implementation order have been rescinded, suspending the attachment of U.S. Army Forces Command (FORSCOM) BCT FA BNs to several divisions and abolishing the transfer of command authority to the DIVARTY commander. These actions reduce readiness of the U.S. Army force and stall progress towards restoring the fires warfighting function, thereby making it difficult for divisions to possess capable, flexible, and agile fire support. Without the full implementation of the DIVARTY force structure, the DIVARTY is unable to effectively develop

[I] *Fires* warfighting function is the related tasks and systems that provide collective and coordinated use of Army indirect fires, Air Missile Defense, and joint fires through the targeting process (ADP 3-0).
[II] *Attach* is the placement of units or personnel in an organization where such placement is relatively temporary (JP 3-0). A unit that is temporarily placed into an organization is attached.

artillerymen that coordinate, integrate, synchronize, and employ operational fires to meet the current demands of multi-domain battle.

The purpose of this paper is to explore the potential for a realized, fully vested, fully implemented DIVARTY.[III] This examination will capture how the removal of the Force Field Artillery Headquarters impacted the U.S. Army. The examination will study the future environment and how inter-state strategic competitors have shaped U.S. Army force structure and organizational design through the lens of the *fires* warfighting function. It will further stress the urgency to fully implement DIVARTY to compete with the demands of the future fight. Moreover, it will contrast performance measures of "attached" BCT FA Battalions to the DIVARTY to those unattached BCT FA Battalions. Lastly, it will discuss the promotion rates of FA officers during the era of modularity and examine the effect of modularity on the growth of the branch. This examination will provide a better understanding of why the BCTs need an overarching headquarters filled with talented leaders that provides reliable fire support: the DIVARTY.

The Return of the King

Throughout most of U.S. history, FA has enabled maneuver to close with the enemy and gain battlefield dominance. However, the maneuver branches that is infantry and armor witnessed the erosion of that dominance due to the modularization, "in-lieu missions," and counterinsurgency operations. In a 2007 White Paper, "*The King and I: The Impending Crisis in Field Artillery's ability to provide Fire Support to Maneuver Commanders*," then Colonel Sean MacFarland and two other former brigade commanders contended, "No branch of the Army has suffered a greater identity crisis than Field Artillery, as a result of transformation, COIN-centric

[III] Implementation are procedures governing the mobilization of the force and the deployment, employment, and sustainment of military operations in response to execution orders issued by the Secretary of Defense.

operations, and non-standard manpower demands of *Operation Iraqi Freedom/ Operation Enduring Freedom* (OIF/OEF)."[4] The former commanders pointed to the negative fire support trends and poor performance of FA battalions at Combat Training Centers (CTCs) as a cause for concern. The catalyst to these negative trends, they argued, was the removal of DIVARTYs from the force structure due to the 2003 "modularity" initiative.[5] Once removed, "the Army began to see real consequences in its ability to integrate fires with maneuver," according to one of the former commanders.[6]

The trends captured at training centers are some of the best ways for the U.S. Army to assess its force. The information gathered captured negative fire support trends from the CTC and the Mission Command Training Program (MCTP) after the removal of DIVARTY from the force structure. The two sets of data were captured from field tests conducted seven years apart. The first analysis is from CTC and was conducted in 2007. A significant training venue, the CTC provides realistic Joint and combined arms collective training for Soldiers, leaders, staffs, and units according to Army and Joint doctrine. The second analysis is from a MCTP in 2014. Slightly different than CTC, the MCTP is the principal combat training center for *mission command*[IV]training and hosts Warfighter Exercises (WFXs) – distributed, multi-echelon, and multi-component events.[7] Such exercised focus on training principles, practices, and concepts of mission command to brigade, division, and corps-level commanders and staffs in ULO scenarios.[8] The trends captured are observations from observer/controller-trainers, who define trends as practices or actions seen on multiple occasions during multiple training events by a

[IV] Mission command is the exercise of authority and direction by the commander using mission orders to enable disciplined initiative within the commander's intent to empower agile and adaptive leaders in the conduct of unified land operations and is a key fundamental of the Army's approach to how to fight and win.

number of different units.[9] The following negative trends observed at CTC are at the BCT-level and below; the trends observed at the MCTP are at division level. The CTC observations are:

- *Fire mission processing times for the battalion and platoon fire direction centers and howitzers sections are three times longer than the prescribed time standards.*
- *Counterfire is degraded due to radar planning and employment challenges.*
- *Poor fires and air ground integration; BCTs "over-clear" airspace, which leads to unresponsive fires and a piecemeal application of aerial fires platforms.*
- *BCT not leveraging the targeting process and integrating the information collection (IC) plan into the deep fight.* [10]

The MCTP Observations:

- *Division fire support cells are not effectively planning, coordinating, and synchronizing fires within the deep-close-security operational framework. The division and brigade possess a different perspective of the deep fight.*
- *Insufficient fidelity of asset allocation in depth for the duration of the targeting cycle. The divisions do not look at the appropriate target sets to engage beyond the 72 hours.*
- *Difficult with airspace control and fires de-confliction to include the lack of full integration of airspace control into a unit's MDMP and lack of effective positioning of the key personnel required.*[11]

These observations and findings are presented as direct quotes. They are stark in their implications. They represent the most precise sets of data available to the Army. Taken together, they indicate negative fire support trends that must be addressed. The analysis from the group explicitly calls for the return of DIVARTY into the U.S. Army force structure and organizational design. The CTC trends analysis provides an excellent summary of the critical role DIVARTY has in providing FA capabilities, training, and certification of BCT FA Battalions and fire support cells. Below is a select list of observations made by the three former commanders.[12]

- *We have already passed the point at which most artillery units will be able to retrain themselves without external support – with help, it will take the average unit 6-12 months to retrain, assuming the unit is protected exclusively for this purpose, which has not been our experience.*
- *OPTEMPO has prevented EXEVALs of most units since the late 90s.*
- *Modularization places responsibility for fire support training on maneuver commanders who are neither trained nor resourced to perform these tasks.*
- *There is no competent higher FA headquarters to coordinate resources and enforce standards. [There are no more Corps Arty or DIVARTY Force Field Artillery Headquarters (FFA HQ) and the number of FA Brigades has been reduced – we have*

lost a total of 15 O-6 level FA headquarters in recent years.] This leaves battalion commanders to handle ammunition management, doctrinal review, new equipment training, Tactical Air Control Party integration, Joint Air Attack Team training, among other responsibilities.

- *The Army fought hard for the Joint Observer (JFO) capability after lessons learned in Operation Anaconda, but the BCT is not resourced for this training and certification. Division Fire Support Elements are not answer. They do not support separate brigades, are led by non-green tabbers and are staffed by soldiers not qualified to certify subordinate units nor are they empowered to do so.*[13]

These trends and observations did not go unanswered. In April 2014, U.S. Army Forces Command (FORSCOM) issued the *U.S. Army Forces Command (FORSCOM) Division Artillery (DIVARTY) Implementation Order,* activating a new DIVARTY and FA Brigade structure and established command relationships to exemplify mission command that produces trained and ready FA units capable of providing synchronized strategic, operational, and tactical level effects in support of combined arms maneuver and wide area security.[14] In July 2014, 1st Armored Division DIVARTY, stationed at Fort Bliss, Texas, was the first to stand up as the Army returned the capability to its ten divisions. The return was a step in the right direction for the future of the branch. Coincidently, MacFarland, now a major general, was the commanding general and remarked "with its [DIVARTY] return to our formation, we are ensuring the 'King of Battle' reigns supreme in the American Army for years to come."[15]

Almost immediately, another challenge arose. In 2015, FORSCOM published *Fragmentation Order (FRAGO) 1 to the FORSCOM DIVARTY Implementation Order,* suspending the attachment of FORSCOM BCT FA Battalions to the remaining divisions – 1st Infantry Division, 4th Infantry Division, 10th Mountain Division, and 1st Cavalry Division.[16] The new directive stated that the reason for the change as increasing FFA HQ capability; specifically, the counterfire system in a decisive action environment was practically non-existent. In addition, the directive further outlines the development of a common construct to enable

standardized FA training, FA unit certification, and leader development while enabling effective mission command, and supporting fires units with common procedures and shared understanding of this essential warfighting capability. Of note, these goals are designed to undergird unity of command and unity of effort. Finally, FORSCOM specifically sought to not increase administrative nor sustainment burdens on already stressed Combat Service Support (CSS) staffs and units.[17]

The Future Environment

As the organizational struggles discussed thus far continue, the operational environment is rapidly changing. The 2017 *National Security Strategy* (NSS) acknowledges that U.S. competitive advantage is eroding in multiple domains.[18] It further notes that the future operational environment is characterized by increasing complexity, ambiguity, and international economic interdependence.[19] Future fires units will operate in an environment where technologically-advanced competitors have developed conventional and asymmetric capabilities able to contest U.S. superiority in all domains.[20]

The NSS cites that China and Russia, peer and near-peer competitors respectively, will seek to overmatch fires capabilities with advanced technologies such as hypersonic munitions, massed indirect fires, and highly responsive counterfire.[21] Moreover, U.S.' adversaries will create stand-off with enhanced and extended threat capability, attempting to prevent the U.S. Army from providing fires in support of maneuver.

According to *U.S. Army Functional Concept for Fires*, U.S. competitors' most prominent anticipated strategy is anti-access and area denial approach that seeks to deny the U.S. and its multinational partners the use of wide geographic areas and regional force generation assets.[22] This stratagem will use ballistic missiles, cruise missiles, littoral watercraft, and unmanned

aircraft systems (UAS) in complex, structured attacks.[23] Moreover, U.S. competitors will employ counterfire and proactive fires in order to deny and disrupt the U.S. military's freedom of action.

China is shaping the Indo-Pacific region to its advantage by leveraging military modernization, influence operations, and predatory economics to coerce neighboring countries.[24] China continues to exert economic and military power to ascendance as the regional hegemon in the Indo-Pacific region.[25] Their actions demonstrate the long-term strategy to displace the U.S. and to achieve global preeminence in the future. The modernization of their military and demonstrated ability to operate in multiple domains calls for expertise to leverage all fires and effects at division and above echelon.

China seeks to gain the initiative through offensive action. The RAND Corporation describes military trends in operational-level mission areas or type of warfare that is relevant to possible military conflict scenarios between the U.S. and China.[26] They assess that China will act regardless of strategic circumstances. The scorecard concluded that China would rapidly seek to limit U.S. access to domains by attempting to achieve information dominance and challenging the U.S. in both air and sea domains.[27] In response, the U.S. would also seek to destroy Chinese surface assets, including forces dedicated to landing operations and surface action groups operating in an air defense or anti-submarine capacity. The target rich environment requires coordination, integration, and synchronization for joint fires at the operational level.

Russia continues to demonstrate its artillery capability in Crimea and Ukraine, conducting exercises near the North Atlantic Treaty Organization (NATO) border and showing aggression in the Middle East.[28] Additionally, their use of emerging cyber capabilities displayed their willingness to operate in multiple domains. Furthermore, factors such as the expansion and modernization of their nuclear arsenal highlight their willingness for provocation.

Another study, the RAND Corporation examined the shape and probable outcome of a near-term Russian invasion of the Baltic states. [V, 29] The wargame findings show an effective Russian air defense system capable of achieving air domain superiority.[30] The threat would leave U.S. and NATO ground forces without air support in the "first few weeks" of a war in Europe according to John Gordon IV, a senior policy researcher at RAND Corporation.[31] The loss of fixed-wing aircraft to conduct close-air support (CAS); intelligence, surveillance, and reconnaissance (ISR); and other missions vital to U.S. and NATO ground combat forces would in turn require long-range fires to compensate for the degradation of capability.

In many ways, Russia has an overwhelming advantage in tactical and operational fires.[32] This is because modern Russian cannons have a 50 to 100 percent greater range than the current generation of U.S. cannons.[33] Also, the Russian order of battle includes ten artillery battalions (three equipped with tube artillery and seven with multiple-rocket launchers), in addition to the artillery that is organic to the maneuver units themselves.[34]

The U.S. Army's modernization of long-range precision fires is in direct response to the modernization its competitors. General Mark Milley, the Army Chief of Staff, is convinced that U.S. forces have to be prepared to fight against such modern systems, identifying long-range precision fires as its top modernization priority in a reform effort aimed at replacing the service's major weapons platforms.[35] The U.S. Army must therefore continually push to increase capabilities in order to maintain overmatch over potential adversaries like North Korea, China and Russia.[36]

And DIVARTY plays a crucial role. The capabilities listed above are harnessed at the division level where DIVARTYs are the designated FFA HQ and serve as the connector to

[V] "*Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics*"

provide fires resources. They are the primary source of coordinating, integrating, and synchronizing operational fires to achieve the commander's desired effects. However, the DIVARTY must be given a command relationship over FA Battalions in order to deliver fires for the division to be more efficient and effective. This may include a combination of one to five rocket/missile (MLRS or HIMARS) and/or field artillery cannon battalions in addition to other enablers such as weapons locating radars.[37] If appropriately organized, the DIVARTY can provide the long-range precision fires to attack division high-payoff targets.[38]

The DIVARTY's ability to execute fires from the tactical to operational level is critical to the future fight. Once modernization efforts are complete, the U.S. Army will rely on the DIVARTY to be ready to execute operational level fires. Brigadier General Stephen Maranian, U.S. Field Artillery School Commandant and Field Artillery Branch Chief, stresses the importance of winning at the operational level stating: "If we are unable to do that [achieve clear overmatch in the deep fight] we will not be able to do for the joint force what it is that surface-to-surface fires do; which is to open those windows of opportunities to allow our joint and Army aviation forces to exploit deep."[39]

Talent Management – Creating a Future Bench

A BCT commander's power to manage officer talent has increased with the transition to modularity. A BCT commander rates, senior rates, and reviews an organizational structure that includes three infantry battalions, a reconnaissance battalion, a FA battalion, an engineer battalion, and a brigade support battalion. For example, an Infantry BCT commander could senior rate as many as thirty-nine company, troop, and battery commanders and twenty majors.[40] This diverse population includes members from branches such as FA, engineers, armor, infantry,

military intelligence, signal, and logistics. More importantly, the majority of these officers being evaluated are serving in key developmental positions.

The evaluation of officers from different branches against each other offers clear benefits and drawbacks. The greatest benefit is that the best qualified officer would be rated accordingly regardless of branch. The downside is that officers from different branches have unique responsibilities, and BCT commander might have a cognitive bias against the criticality of members from an outside branch. The BCT commander's ability to shape the outcome of a branch has a tremendous impact on the branch's long-term leadership strength.

The FA branch has been impacted by the conditions created by modularity. A key cost is that the removal of DIVARTY caused a lost opportunity for FA officers to command at the O-6 level. Although FA officers have the opportunity to command a BCT, it is exceptionally rare. Annually, at least one FA officer will have the opportunity to command a BCT. However, the most noticeable indicator of the FA officer population decline was the comparison between FA officers and other combat arms officers for selection to lieutenant colonel. As an example, the 2016 lieutenant colonel selection rate evidences only 48.9% of FA officers selected in their primary zone in comparison to infantry (78.8%) and armor (69.4%).[41] Moreover, in a 2011 *Foreign Policy* article, Lieutenant General (Retired) David Barno, former infantry officer, discusses the long-term impacts of evaluations from infantry-centric BCT commanders. Lieutenant General Barno calls the brigadier general list "troubling and unsettling," highlighting that out of 34 names the list includes no FA officers.[42]

DIVARTY commanders must have a critical role in talent management and the growth of FA leaders. Full command authority to include rater responsibilities for the FA battalion commander, senior rater responsibilities for the battery and forward support company

commanders, and reviewer responsibilities for senior NCOs over attached BCT FA battalions allows the DIVARTY commander to better assess the performance and the potential of leaders in the FA branch. The development of FA leaders strengthens the capability to build quality organizations and execute effective operations in the fires warfighting function.

The King Remains in Power

As outlined in previous sections, several internal and external threats influence the U.S. Army's competitive advantage. These threats require urgency for DIVARTY to execute operational fires through multiple domains, and competent FA leadership that can integrate and enhance situational awareness to give commanders at all echelons confidence in fires. Indeed, the appropriate DIVARTY capability can provide operational fires, counterfire and sensor synchronization, and effective training and certification of the BCT FA battalion which, when combined, increase the lethality of the BCT. In this crucial sense, the newly re-emerged DIVARTY will serve to enhance "modularity" as well as improving the fortunes of FA.

The cost of not returning the DIVARTY to its original command authorities and relationships is increased operational risk. The DIVARTY's ability to effectively integrate and execute fires and train and ready its FA units relies on FORSCOM to fully invest in the organization. If not, the FA, and more importantly the U.S. Army, will lose its advantage in multiple domains and its ability to effectively perform combined arms maneuver.

Specifically regarding potential major theater conflicts with near-peer threat nations such as China and Russia, DIVARTY plays a crucial role. The long-range precision fires capabilities from U.S. modernization are harnessed at the division level where DIVARTYs are the designated FFA HQ and serve as the connector to provide fires resources. They are the primary source of coordinating, integrating, and synchronizing operational fires to achieve the

commander's desired effects. However, the DIVARTY must be given a command relationship over FA battalions in order to deliver fires for the division to be more efficient and effective. This may include a combination of one to five rocket/missile (MLRS or HIMARS) and/or field artillery cannon battalions in addition to other enablers such as weapons locating radars.[43] If appropriately organized, the DIVARTY can provide the long-range precision fires to attack division high-payoff targets.[44]

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Command Authority Stays with the DIVARTY Commander

Command authority must stay with the DIVARTY commander to increase the lethality of the BCT FA Battalions. The reason FORSCOM returned full command authority to the BCT commanders is outlined in the coordinating instructions of FRAGO 1. The coordinating instructions state that in order to enable the development of the FFA HQ's capability, divisions must first establish clear lines of authority and accountability inside of its formations to clear up confusion and ambiguity caused by dual reporting chains. However, FORSCOM allowing FA battalions to remain under the full command authority of the BCT commander does not preserve the unity of command and unity of effort of the division. In fact, it counters it.

Unity of command is the operation of all forces under a single responsible commander who has the requisite authority to direct and employ those forces in pursuit of a common purpose. The division commander is the requisite authority to direct and employ BCTs and must specify the command or support relationship of those subordinate units. In a steady-state environment traditionally referred to as "Phase 0," the common purpose is the training and readiness of the force.[VI] Regardless of DIVARTY oversight, FORSCOM returning the responsibilities of training and readiness back to the BCT commanders is counterproductive and historical unsustainable based on the 2007 CTC Trends analysis and the rise of conflicts and near peer competitors in the future operational environment. When BCT FA Battalions are attached, the DIVARTY commanders will have resources and the subject matter expertise to accomplish its mission as outlined in the original implementation order.

Unity of effort entails the coordination and cooperation toward common objectives, even if the participants are not necessarily part of the same command or organization. Under FRAGO 1, DIVARTY commanders have no authority to enforce standardized FA training. BCT commanders who are normally responsible for the training of infantry and armor forces are now responsible for the training of fire support cells in their precision fires programs to include target mensuration, collateral damage, and joint fires observer. In addition, FA tables will be executed at echelon with a focus on enforcing standards of precision and achieving mastery of the gunnery solution without the oversight of DIVARTY.

The Potential of DIVARTY

[VI] *Phase 0 (Zero)* is described in DoD Joint Publication 5.0 as "Joint and multinational operations – inclusive of normal and routine military activities – and various interagency activities performed to dissuade or deter potential adversaries and to assure or solidify relationships with friends or allies."

The DIVARTY has shown its historical significance in major combat operations. In support of Operation Desert Storm, the DIVARTYs coordinated, integrated, and executed operational fires to set conditions for the close fight and initial breach along the Iraq border defensive belt. The division planned to execute artillery raids, which are aggressive, short duration operations against high priority targets.[46] In this case, they were employed to reduce enemy artillery, in order to mitigate the threat of both conventional and chemical munitions. Prior to execution of the raids, the DIVARTY coordinated the integration of airspace with army aviation and other air assets. Additionally, the DIVARTY provided guidance for displaced criteria to maintain the survivability of the artillery weapon systems. These fires contributed to shaping operations and defeating the enemy and its capabilities that threaten U.S. forces.

DIVARTY also had an active role in the counterfire fight against Iraqi artillery. Division artillery radars acquired targets and performed counterfire using dedicated firing units at the moment of engagement. As a result, one report stated that 97 of 100 howitzers within an Iraqi division had been destroyed by massed fires.[47] Future operations witnessed the First Cavalry Division Artillery mass an entire attached multiple launch rocket system battalion, destroying 24 Iraqi targets with more than 300 rockets in less than 5 minutes.[48] The devasting effects show the full potential of DIVARTY. In a matter of moments, the DIVARTY displayed its operational reach in shaping the ground offensive for maneuver, the ability to synchronize and integrate all airspace users, and the importance of effective collective training and standardization prior to deployment of forces.

Cross Domain Fires – DIVARTYs Role in Future Operations

DIVARTY supports joint combined arms operations by delivering fires through multiple domains in time and space. Such cross-domain fires include the employment of lethal and

nonlethal fires to support multi-domain battle operations;[49] joint, inter-organizational, and multinational capabilities integration; and cross-domain fire and maneuver synchronization.[50] In the future, the U.S. Army can expect all domains to be contested. As General David Perkins, Commanding General of U.S. Army Training and Doctrine Command, indicates, "Future adversaries will possess significant integrated defense capabilities, integrated air defenses, and long-range fires, as well as sophisticated ISR; offensive and defensive information; electronic warfare; and cyber capabilities. It will no longer be possible to maintain total domain dominance in all domains all the time."[51] To support multi-domain battle, DIVARTYs must be able to get past U.S. adversary's integrated defensive capabilities, avoid domain isolation and fracturing, and preserve our freedom of action. DIVARTY must be able to penetrate their defenses at a time and place of U.S. choosing – in more than one domain – by opening windows of domain superiority to allow maneuver inside adversaries' integrated defense. The integration and delivery of fires through all five domains and across the electromagnetic spectrum creates windows of temporary domain superiority and preserving freedom of maneuver for the joint force.[52] The enhanced integration and improved targeting at all echelons requires DIVARTYs to converge and integrate joint solutions and approaches before the battle starts.

When allocated rocket/missile battalions, DIVARTY supports fires in the land domain with extended ranges, increased precision, and greater responsiveness. The extended range allows DIVARTY to support operations across wider areas with fewer systems. Long range fires support strategic assurance and deterrence missions by providing a capability to strike ground targets at extended distances.[53] Strike fires contribute to shaping operations and defeating or denying enemy capabilities that threaten deploying forces, including joint and multinational forces. Counterfire at all echelons and through all domains undermines or defeats enemy fires

capabilities, enabling freedom of maneuver and increased force protection to friendly forces and critical assets. Network-enabled fires enable passing target location digitally from sensor to shooter, reducing response times and errors, and improving area, near precision, and precision effects.

Cross domain fires executed by 25th DIVARTY provides an excellent example of the power of a fully invested DIVARTY. During the *Landpower in the Pacific Symposium* in May 2016, the commander of U.S. Pacific Command, Admiral Harry Harris, challenged the Army to use Paladin and HIMARS systems to keep at risk the enemy's Navy and to deny the enemy access to the sea from land.[54]The 25th DIVARTY capitalized on the training opportunity during Operation Lighting Forge 17.01 (OLF17), and successfully simulated a shore strike on a sea-based target to aid in the anti-access/area-denial (A2/AD) conflict. The exercise provided DIVARTY and the rest of the force with three main take-aways. First, it provided validation of existing systems required for accurate land-to-sea cross domain fires.[55] Second, it verified DIVARTY's ability to competently control land-to-sea fires as an operational headquarters element using the joint dynamic targeting steps.[56] Third, it showed that employment of these fires requires a clearly delineated approving process and authority.[57] These outputs showed the capability of a fully vested DIVARTY and the importance of how cross domain fires can exploit small windows of opportunity in increasingly contested domains.

The expansion of cross domain fires also requires cross domain solution to defeat threats. As the FFA HQ with the responsibility to coordinate, integrate, and synchronize, and employ all Army, joint, and multinational fires for the division, leaders from Fires Center of Excellence (FCoE) are looking toward expanding the organic capacity of DIVARTY to counter threats and streamline coordination. Some of the emerging growth initiatives include the expansion for

DIVARTY in the Total Army Analysis (TAA) 20-24 for Long Range Shooter and Sensor capabilities;[58] the addition of an organic UAS platoon to the DIVARTY in order to provide an organic deep sensor, allowing the division to shape the fight for BCT success; providing a defense in depth; conducting post-strike battle damage assessment (BDA);[59] and building on the success of the joint air ground integration cells (JAGICs) controlling airspace at the division level.

Competency in Counterfire - Warfighter Exercises

WFXs have indicated that DIVARTYs are capable of performing its counterfire system capability amongst other responsibilities despite FORSCOM addressing it as "non-existent" and an area of focus. At the MCTP, which is the capstone training event for DIVARTYs in a Decisive Action Training Environment (DATE), the 101st DIVARTY (BCT FA battalions "attached") completed a WFX that provided both the operational reality and challenge of the future environment. Much like a CTC rotation for BCTs, these exercises are designed to train and assess capabilities and to place adequate stress and rigor to evaluate key fires tasks such as integration of joint fires, counterfire, and reinforcing fires in support of the division and BCTs. In these exercises, WFX adversaries possess artillery systems that outrange and achieve greater volume of fire over U.S. systems.

The DIVARTY is the counterfire headquarters for division and responsible for the synchronizes radar employment in the division area of operations. The 101st DIVARTY displayed the ability to generate responsive counterfire by dividing the task into two separate fire support tasks. First, the 101st DIVARTY positioned its Q-37 Firefinder radar systems in an area that could detect surface fires between the Forward Line of Troops (FLOT) and the Fire Support Coordination Line (FSCL). Then the DIVARTY split responsibility for fire mission processing

due to the large volume of counterfire. The split of duties allowed for the target processing section (TPS) to process acquisitions, while the fire control element remained focused on processing planned targets and targets of opportunity. The dividing of responsibility was critical to significantly improving the fire mission processing times and responsiveness.

Areas for Improvement

Historically, divisions struggle to integrate and synchronize at the operational level. More specifically, division staffs continue to wrestle with a clearly understood Operational Framework, a cognitive tool used to assist commanders and staffs in clearly visualizing and describing the application of combat power in time, space, and purpose (see Figure 1).[60] Such a framework provides an organizing construct for the commander to apply resources and capabilities. The framework also guides the Army in developing capabilities and echelons of command to apply combat power and achieve a given objective.[61] When misunderstood, division staffs are unable to effectively delineate fights within the operational, deep, close, and support areas; synchronize combined arms maneuver; and effectively target. The Army's operational and battlefield framework allows DIVARTYs to define problems as multi-domain from the beginning of planning, which in turn develops converging and integrating solutions to exploit windows of opportunity in any domain.

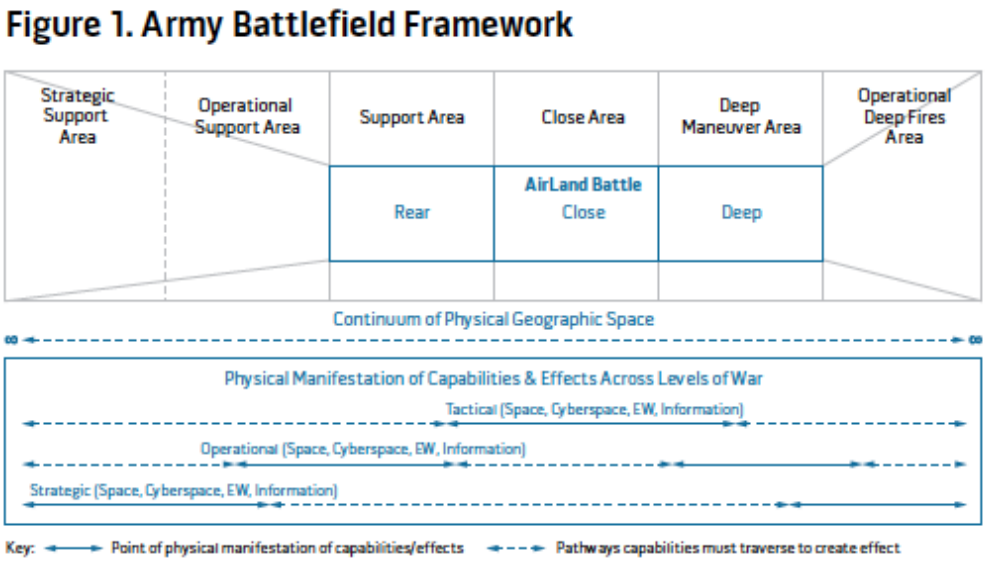

Figure 1: Army Battlefield Framework[62]

MCTP observers provide trends that demonstrate DIVARTYs inability to weigh the main effort with artillery assets, conduct effective planning, and produce quality assessments from targeting efforts. However, the 101st DIVARTY, established under the original order, did not experience these pitfalls during its two WFXs. The DIVARTY which participated in WFXs 15-05 and 16-02, with the first rotation occurring less than eight months after the DIVARTY's activation, showed that the full-implementation of DIVARTY fostered a quicker cohesive team. This allowed the organization to focus instead on improving its collective fires skills and developing techniques needed to support the division.[63] The rotation served as a validation exercise and an opportunity to test the DIVARTY's modularity by acting as the FFA HQ for 36th Infantry Division (Texas National Guard). The second rotation was in support of the 101st Airborne Division (Air Assault). The DIVARTY conducted both training opportunities in a Decisive Action (DA) environment with the primary adversary having near-peer capabilities and using a mixture of conventional and irregular forces. The 101st DIVARTY's lessons learned regarding battlefield geometry, the division counterfire fight, UAS integration, and fires planning were critical to preparing the organization for success in future decisive action conflicts.[64]

The DIVARTY commander must work closely with the BCT commander in order to effectively manage the training and certifications of the BCT FA battalion. As the senior FA officer in the division, the DIVARTY commander has a responsibility to provide the subject matter expertise on FA training and certification of all FA units assigned to the division, including those BCT or separate FA battalions which may be assigned or attached to the division. In order to accomplish this responsibility, the DIVARTY commander standardizes the certification of all FA units in the division.

Senior FA leaders are ready for the responsibility of training the fires warfighting function. BCT commanders already have an incredible responsibility to train and ready seven battalions. FORSCOM has an opportunity to advance the common interests of both FA and maneuver branch, so by allowing the most the senior Field Artilleryman in the division, those best postured to provide training for the field artillery force, BCT commanders are granted an opportunity to refocus on other areas. This is effective mission command and generates the proper level of trust that DIVARTY leadership will have certified, qualified, and trained fires forces ready to employ on the battlefield. FORSCOM must revisit the issue and give DIVARTY commanders the proper authorities and relationships to effectively train BCT FA battalions.

Leadership and Education – The Value in Mentorship

The DIVARTY commander contributes to the mentorship of FA battalion commanders in the execution of their duties and provide technical oversight in support of the BCT commander. DIVARTY commanders provide guidance and mentorship for FA training across the division, working closely with the BCT commanders. DIVARTY must continue to focus leader energy on aiding our maneuver commanders to optimize planning and synchronize of warfighting functions to make fires more permissive. According to Brigadier General Stephen Maranian, U.S. Army

Field Artillery Commandant, "it is evident that we must get better at the early and iterative process of fire support coordinators and fire support officers dialoguing with their maneuver commanders and their staffs about battlefield design. This is an absolute must to effectively integrate and synchronize Fires and maneuver."

Operational unit leader development plans are important tools to enhance the knowledge, skills, and abilities in the evolving operational environment. DIVARTY leadership needs to develop and mentor its community with a more sophisticated fire support approach. That approach must help design a battlefield architecture that enables maneuver commanders to bring all elements of combat power to bear simultaneously, at the time and place of their choosing, on the battlefield.[65] Previous trends at CTCs show a fire support community willing to use expedient methods to clear fires. Techniques such as establishing blanket low-level coordinating altitudes or placing an undedicated firing battery in a "do not load" status may have been effective in counter-insurgency operations but they translate poorly when applied in a decisive action training environment (DATE). These actions result in unnecessary clearance of fires drills and ineffective indirect fires. The responsibility for DIVARTY leadership to maximize training opportunities by applying effective techniques and lessons learned will optimize our value at the CTCs.

The DIVARTY must gain the trust of the supported community. It is imperative upon DIVARTY leadership to enable all users of airspace to synchronize, plan, and execute cohesive air de-confliction. Over time, the complementary relationship between all airspace users will create trust and shared understanding. *Design* is the first step towards building that relationship. Fire supporters must design battlefield geometries that minimize conflict between land-based

fires and air operations. Furthermore, fire supporters achieve synergy through the use of FSCMs and ACMs that are integrated in a cohesive plan. and with the ground scheme of maneuver.

Leader development focuses on building the "knows" aspect of leaders. That education starts with mentoring. Senior leaders in DIVARTY must continue to develop the next generation of leaders. The active role senior leaders play in the development of the art and science of integration and synchronization of fires and maneuver depends on the active role between the relationship of the mentor and mentee.

Conclusion

The implementation of DIVARTY is one of the clearest efforts to reverse some of the negative trends of the FA branch. The initial order provides the appropriate command authority, relationships, responsibilities, and functions for the branch to effectively perform its mission in supporting the maneuver force. Long-range fires' role in multi-domain battle is only growing, and the U.S. Army needs fires forces operating at the highest level possible. With DIVARTY serving at the tether between strategic and tactical level fires, it is paramount that DIVARTY is fully supported to restore its fires core competencies. In future operations, DIVARTY has an opportunity to showcase its value similar to Operation Desert Storm, yet the maturation of DIVARTY is based on the command authorities and relationships FORSCOM is willing to discharge to the organization.

A fully realized, vested, and implemented DIVARTY is one that is not stripped of its authorities, command relationships, and funding while simultaneously being tasked to grow, train, and ready its force. It strength is derived from the core principles of mission command, cemented in trust that the organization will be good stewards of funds for training and certification and the development of talent within its formation. To this end, to achieve its

primary role of standardizing artillery training by certifying and teaching sections and enabling higher-level exercises, the DIVARTY must have the tools to excel. Without such tools, DIVARTY will continue to fulfill its current mission requirements in steady-state operations. However, it must be able to prepare and organize for decisive action in a high-lethality conflict scenario in possible future operations.

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