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*The Need for the Reemergence of the King of Battle and Why the Army Needs a
Standardized DIVARTY*

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Executive Summary

Title: Jack of All Trades, Expert of None: The Need for the Reemergence of the King of Battle and Why the Army Needs a Standardized DIVARTY

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Thesis: Trends from the CTCs show that the field artillery is failing at basic tasks which lead to bigger problems as these issues start to compile on each other. The field artillery needs to refocus its training priorities and the best way to accomplish this is under a standardized DIVARTY structure.

Discussion: The field artillery has to be ready to fight in an unknown future operational environment and transitioning to a standardized DIVARTY structure is the best way to build readiness in the branch. There are pros and cons in transitioning all field artillery units to the recommended DIVARTY structure and this paper will discuss why returning to a pre-Global War on Terrorism DIVARTY is key to the development of the field artillery branch as a whole. After more than seventeen years of participating in the Global War on Terrorism, the field artillery branch, as a whole, is becoming less proficient in its core competencies due to the focus in counterinsurgency operations. The Army's Combat Training Centers started noticing a series of negative trends displayed by the field artillery units during their training rotations. These negative trends can be traced back to the white paper, *The King and I: The Impending Crisis in Field Artillery's ability to provide Fire Support to Maneuver Commanders (2007)*. In this white paper, three BCT commanders stated, "No branch of the Army suffered a greater identity crisis than the field artillery as a result of the counterinsurgency (COIN)-centric operations and the non-standard manning demands of *Operation Iraqi Freedom (OIF)* and *Operation Enduring Freedom (OEF)*." In order to prepare for an unknown future conflict, it is critical that a major transformation takes place to ensure the field artillery is postured to provide timely fire support to maneuver units in any given situation. The Army can assist the field artillery branch by breaking the Brigade Combat Team model and establishing a standardized DIVARTY concept throughout the Army where all field artillery battalions are assigned to the DIVARTY, creating an organic command relationship. After a level of training is achieved within a DIVARTY, then an artillery battalion can be attached to a Brigade Combat Team for a given amount of time in order to accomplish an assigned mission. By assigning field artillery battalions to a DIVARTY, the DIVARTY commander has the ability to establish a training outline for all field artillery units in the division and training those units to the same standard. The outcome would be that field artillery units across the Army will be able to provide timely and accurate first round fire for effect.

Conclusion: It is critical for the United States Army to transition to a standardized and full DIVARTY structure to ensure that the artillery branch stands ready to support the maneuver forces in future conflict through combined arms warfare. The one thing the Army can be sure of is the next conflict will be in an unknown operational environment, each with its independent challenge, and it is critical for the field artillery to step back in its role as the King of Battle.

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Preface

The Army stood division artillery (DIVARTY) units back up in the summer of 2014 to fill identified capability and training gaps developed during the last seventeen years of conflict. Today the Army faces the problem of how to fix a branch that has lost its ability to conduct its core mission essential tasks in support of a maneuver plan. Currently, six of the ten Army divisions that fall under United States Forces Command (FORSCOM) have transitioned to a full DIVARTY structure (see Appendix A). A full DIVARTY structure means all field artillery BNs are assigned to the DIVARTY, creating an organic command relationship, and then a field artillery BNs can be attached to the BCTs for specific missions. These can range from combined arms exercises to deployments and possibly actual combat. Furthermore, throughout the Global War on Terrorism (GWOT), the field artillery has become overly accustomed to patrol base operations, such as firing from a static position on a forward operating base in Afghanistan. In the future, the next conflict may be in an unknown operational environment and, if so, it is critical for the field artillery to step back in its role as the King of Battle.

The nature of war is something that does not change but the character of war continues to evolve over time and with each conflict. Major fundamental changes in the character of war is something that occurs seldomly throughout history, such as the invention of gun powder or the use of combined arms warfare. It can be postulated that in the 21st century a major fundamental change in the character of war is occurring. Because of the expanding population in the world, future wars are more likely to occur in urbanized areas and not in open deserts or the wilderness. The field artillery has to be ready to fight in this possible future operational environment and transitioning to the DIVARTY structure is the best way to build readiness in the branch. There are pros and cons in transitioning all field artillery units to the recommended DIVARTY structure

and this paper will discuss why returning to a pre-Global War on Terrorism DIVARTY is key to the development of the field artillery branch as a whole so that it can meet the demands placed on it in a future conflict.

It is appropriate for me to thank all the individuals who have made me the Army officer I am today and who continue to support me on this incredible journey. My mentors are too numerous to list, but include my previous artillery battalion commanders, the numerous field grade officers, the lieutenants, and non-commissioned officers who made my journey through the Army the best experience I could ask for. Most recently, Dr. Don Bittner for helping guide me through the process of critically thinking how to make my branch run more efficiently. I will never be able to thank you enough for your mentorship and guidance throughout this process.

Last, but certainly not least, to my family. Kimberly, has provided continuous support for my career of service to the country and the United States Army. Without her support and love, I would not be half the man and officer I am today. To my daughters McKenzie and Brooklyn, thank you for being the balance in my life and helping me realize that no matter how serious things would get at work, all I needed to be was a father at home.

Introduction – The Road to Where Field Artillery Is Today

The United States Army has sought the best way to employ artillery in combined arms warfare since 1929. The field artillery is known as ‘the King of Battle’ and the side which has the advantage in artillery will normally hold the advantage in the overall conflict. What makes the field artillery so lethal is its ability to provide accurate and lethal fires over the battlefield. Precision tracing all the way back to the interwar period where instructors from the Field Artillery School at Fort Sill, Oklahoma, developed a way of massing artillery fires on targets of opportunity. The concept of engaging targets of opportunity led to the creation of the fire direction center (FDC) and the requirements for accurate predicted fire.¹ During World War II, the United States Army field artillery provided unprecedented accurate and timely fires and gave the United States a great advantage against its adversaries.

The force structure for the branch went through constant alterations while it continued to adapt to the changes in the operational environment. However, one constant for the branch was the ability to provide accurate and timely fires in support of maneuver. The field artillery branch continued to live up to its title of the King of Battle through multiple conflicts until the United States entered the GWOT in 2001. The GWOT forced the Army to adopt new techniques to win the hearts and minds of the citizens of Iraq and Afghanistan. This led to less indirect fires and more patrolling in the urban areas. The major change to the overall Army force structure was the transformation to modular Brigade Combat Team (BCT) in 2004.² The Army transformed its brigades into BCTs and by doing so created a ‘fight tonight organization’ with assigned field artillery, cavalry, and sustainment battalions. BCTs spelled the end for DIVARTYs as all field artillery battalions were assigned to either the Field Artillery Brigades, a Corps asset, or the BCTs, a division asset.

The field artillery as a branch had trouble finding its place in the GWOT and many soldiers in the branch referred to it as the “dead branch walking.”³ Yes, there was a need for artillerymen to occupy artillery positions and provide accurate and timely fires but there was also an increased need for battlespace owners which field artillery BNs were assigned as well. This meant that some artillerymen themselves were forced to focus on infantry tactics and prepare for infantry-centric operations instead of staying proficient in artillery core competencies. During this time, artillerymen truly became the jack of all trade but an expert in none. As stated in the white paper, *The King and I: The Impending Crisis in Field Artillery’s ability to provide Fire Support to Maneuver Commanders (2007)*, “No branch of the Army suffered a greater identity crisis than the field artillery as a result of the counterinsurgency (COIN)-centric operations and the non-standard manning demands of *Operation Iraqi Freedom (OIF)* and *Operation Enduring Freedom (OEF)*.”⁴ The statement was made by three former maneuver BCT commanders and finally brought the field artillery into the focus of the Army’s leadership.

In 2014, the Army decided a change had to happen to reverse the continuing atrophy of field artillery skills, halt the erosion of leader development in the warfighting function, and restore the art and science of synchronizing effects for precise fires.⁵ The Army decided to reestablish DIVARTYs into the force structure and realign the field artillery BNs back under the newly established DIVARTYs. The force structure change was set to allow the DIVARTYs the ability to provide modernized relevance through the focused implementation of emerging Fires technologies and expert integration of joint and combined fires. As a result, BCTs will have fires capabilities delivered by precision fire supporters with world-class training and certification, precision equipment and leaders adept in the art of fires and mission command.⁶

The initial transformation plan called for a DIVARTY to be assigned to each of the ten active component divisions and then three Field Artillery Brigades being assigned to each Corps and one to 8th Army in South Korea (see Appendix A).⁷ The DIVARTYs would not have any organic firing units but instead would be a headquarters element with the primary role to coordinate, integrate, synchronize, and employ fires, including operational fires, for the division commander.⁸ The DIVARTY would also provide training management and certifications to all the field artillery BNs and fire cells within the division. The field artillery BNs would remain organic to the BCTs while the DIVARTY would only provide training oversight. For the concept to work the DIVARTY commanders and the BCT commanders have to have the ability to work together and agree upon a training philosophy for the field artillery units. Still, the newly developed DIVARTYs did not know how to fit in the new modular Army.

In 2015, the United States Forces Command Commanding General, General Robert Abrams, placed a hold on the DIVARTY conversions until a final decision would be made on the future of the field artillery force structure change. This decision left the Army's field artillery force structure with two different organic relationships with the field artillery BNs either assigned to the DIVARTYs or to the BCTs. Currently, of the ten active duty Army divisions, only six divisions have all FA soldiers assigned to the DIVARTYs while the other four divisions still have the field artillery soldiers assigned to the BCTs (see Appendix A). For the latter four divisions, this situation produced nothing more than a hollow DIVARTY headquarters with little ability to effect change in artillerymen. It is critical for the United States Army to transition to a standardized, full DIVARTY structure to ensure that the artillery branch stands ready to support the maneuver forces in future conflict through combined arms warfare.

Why Is It Important to Fix the Field Artillery Now?

Since 2001, the United States has faced an enemy which at no point would anyone consider a traditional conventional peer adversary. Even though the Army was not ready for the COIN fight in the beginning of the conflict, it quickly adapted and defeated its adversaries in Iraq and Afghanistan. During the past seventeen years, the Army and the field artillery gained an invaluable amount of experience in a COIN fight but lost the edge in preparing for conflicts with state adversaries such as Russia, Iran, and North Korea. Those states did not stop training their militaries while the United States fought terrorist and insurgent organizations in OIF and OEF. The aforementioned nations continued to strengthen their militaries to place themselves in a better position to achieve their national interests. No matter the amount of combat experiences the field artillery gained during OIF, OEF, and now in *Operation Inherent Resolve* (OIR), the experience was, for the most part, against an untrained and ill-equipped force. Now nearing the end of the second decade of the 21st century, is the field artillery ready to meet an adversary on the battlefield who is a ‘near-peer’ threat?⁹

In 1991, when questioned about the artillery’s role in *Operation Desert Storm*, Deputy Secretary of Defense Paul Wolfowitz responded that Army artillery systems, rockets, and howitzers were much more devastating to the Iraqi artillery than anything that could come from the air.¹⁰ Today, North Korea is the most likely threat to the United States military. North Korea is a country that has continued to prepare for future conflict since the signing of the armistice that ended the Korean War. According to military interpretations of the North Korean offensive doctrine, attacking Korean forces could count on 150 to 180 artillery tubes per one-kilometer frontage and an inventory totaling over 10,400 artillery pieces; such an artillery capability is the highest artillery to supported troop ratio in the world.¹¹ Not only do the North Koreans have the

equipment to make them a formidable adversary on the battlefield, they also have an understanding how to apply it.

Artillery has inflicted more casualties than any other weapon system on post 19th-century battlefields. More specifically, artillery and mortar shells kill more combatants on the battlefield than any other weapon system over the past century of warfare.¹² The North Koreans understand how to use artillery in a combined arms fight, unlike the adversaries which the United States Army has faced over the last seventeen years in Iraq and Afghanistan. Not only does the North Korean Army have domestically produced artillery systems, such as the 170mm Kochan artillery piece that has a greater range than United States artillery, but it also understands and can implement the concept of shoot, move, and communicate.¹³ Reports also show that a majority of these artillery systems are in dugout tunnel systems to provide protection and the ability to relocate throughout the peninsula. With this knowledge of the United States future adversary capabilities, the Army has to have a better-trained field artillery force to provide the needed support to its maneuver forces.

Issues Holding Back the King

The first of the newly authorized DIVARTYs was re-established at the 1st Armor Division, located at Fort Bliss, TX, at the end of 2014.¹⁴ This was an effort to correct troubling trends, discussed later in this paper, seen during training which hampered the ability of the field artillery to support maneuver elements throughout the Army. The BCT 2020 conversion and the DIVARTY force design update (FDU) were not meant to send the Army back to a pre-2004 force structure. Instead, it intended to establish a higher headquarters for the Field Artillery within each division to assist maneuver commanders with training and certifying field artillery

soldiers in the division.¹⁵ The initial plan was not to break up the modular BCT but to give those BCT commanders a senior field artilleryman to help guide the artillery specific training within the BCTs. However, trends from the Army's Combat Training Centers (CTC) have shown the field artillery is still not meeting basic standards in order to best support its maneuver elements.¹⁶ This supports the argument why the Army needs an organization like the pre-2004 DIVARTY where field artillery BNs were organic to the DIVARTY.

The National Training Center (NTC), located at Fort Irwin, CA, and the Joint Readiness Training Center (JRTC), located at Fort Polk, LA, are two of the three CTCs in the Army that reported continuing negative trends for this paper. Units go through NTC or JRTC rotations to validate their level of training proficiency in an environment that attempts to replicate some of the rigors of combat. The goal is for these units to go to the CTC only after completing training in their mission essential tasks (METs). The identified negative trends are divided into the separate categories of fires organization trends:

- BCT Fire Support Felt (FSC) Trends
- BN FSC Trends
- Company Fire Support Team (FIST) Trends
- Field Artillery BN Trends
- Firing Battery Trends
- BN FDC Trends
- Battery FDC Trends
- Firing Battery Gunline Trends

The following trends are from 2014-2017 and will show that the field artillery still needs to adapt to reach the appropriate level of proficiency in order to be relevant in the combined arms fight.

The first major trend is the lack of advanced field artillery tactical data system (AFATDS) digital connectivity across the entire Fires warfighting function to include the BCT FSC, the BN FSCs, the BN FDC, and the platoon FDCs. This has resulted in inefficient fire support planning, fire support execution, and fire mission processing.¹⁷ The AFATDS (see appendix B) is the primary digital mission command system that connects all elements of the fires warfighting function from the BCT FSC to the platoon FDC. With all the AFATDS in the BCT working together, it is possible to present a fires common operating picture to the BCT commander.

The next trend seen throughout the fires warfighting functions is the attack guidance matrix and the standard fire orders are not used correctly.¹⁸ The attack guidance matrix and standard fire orders enable rapid tactical and technical fire direction when used the correct way. When this does not happen, then maneuver units are not receiving the timely accurate fires they deserve. Finally, a common theme was that field artillery BNs lack degraded standard operating procedures for the lack of digital connectivity between the FDC and howitzer sections.¹⁹ Digital connectivity is important because it alleviates the amount of traffic using voice communications on radios. Maintaining digital connectivity is a must for artillery units as they prepare for the next conflict in an unknown operating environment which may be in a global positioning system (GPS) denied environment. Just because digital systems do not work does not mean that the maneuver units will not request fire support. Alternate means of communication from the FDC to the howitzer sections, such as using a soldier to relay information or DR-8 wire, must be trained. Relying only on voice communication will delay the responsiveness of artillery support to maneuver units but not delivering accurate fires is unacceptable.

The field artillery BN commander is the most senior artilleryman in the BCT and he/she is responsible for everything related to fires in the BCT. Field artillery BNs are making mistakes that lead to bigger issues throughout the CTC rotation. Reception, staging, onward movement, and integration (RSOI) is the process of generating combat power by transforming arriving personnel and materiel into forces capable of meeting operational requirements. RSOI normally takes place when deploying units to a CTC or into a combat situation.²⁰ During RSOI operations field artillery BNs are struggling to execute a comprehensive validation of all digital mission command systems to ensure they are operational and have the ability to communicate with each other.²¹ The field artillery BN has to not only plan a validation of all digital mission command system at its home station but a secondary validation must occur once the unit arrives at the CTC before the BCT begins operations. The BCT will not be able to operate at its peak ability without its full array of mission command systems.

The goal of the firing battery is to achieve accurate first round fire for effect (FFE).²² In order to accomplish this capability, an artillery unit must account for the five requirements for accurate predicted fire. The five requirements for accurate predicted fire are:

1. Accurate target location
2. Accurate firing unit location
3. Accurate weapon and munition data
4. Accurate meteorological information
5. Accurate computational procedures.²³

The field artillery BN headquarters are not aggressively tracking the five requirements for accurate predicted fire status for their firing units throughout CTC rotations.²⁴ In these situations, it is important to trust the field artillery batteries but verify their information to ensure the five

requirements are being met and continually updated. By staying up to date on all firing batteries five requirements, the field artillery BN will not only be able to better its common operating picture but it will also ensure its units are prepared to support the maneuver units in the best way possible. The systems which allows the field artillery BN to monitor the batteries' five requirements for accurate predicted fire is the AFATDS. Maintaining the five requirements for accurate fire will allow an artillery unit to provide accurate first round fire for effect.

Next, field artillery batteries are starting to show troubling trends during CTC rotations which have the possibility of leading to dangerous outcomes in combat. Planning is a must although the reality is most plans do not survive the first contact with the enemy. A unit has to be prepared to deal with any situation that it will face in combat. To prepare for these unknown situations a unit conducts pre-combat checks (PCCs), pre-combat inspections (PCIs), and timely rehearsals. PCCs and PCIs ensure that all soldiers have the required fully mission capable (FMC) equipment for the operation while the rehearsals are to ensure all soldiers understand how to act in a given situation. CTCs are witnessing that due to poor time management at the battery level, PCCs, PCIs, and rehearsals are not occurring.²⁵

Another trend firing batteries are displaying are tendencies from firebase operations which appeared and evolved during the GWOT. Those units that were lucky enough to conduct an actual field artillery mission while deployed during the GWOT conducted a majority of their fire missions from a developed firing point on a forward operating base or a combat outpost. Firing batteries did not have to worry about the shoot and move technique because there was minimal threat to massed effective counterfire. In a decisive action fight against a 'near-peer' enemy, this would not be the case. A firing battery thus must have the ability to shoot its fire mission and then quickly relocate to a new location before the enemy can fire on its location.

Firing batteries are not showing proficiency in movement and occupation of firing points in a contested tactical environment and are showing vulnerability to enemy threats, especially at night.²⁶ Movement and security are basic collective tasks that feed into the batteries mission essential tasks. Without providing security to protect itself, a firing battery will not be effective in combat.

Battery FDCs have the same issues as the BCT FSC during CTC rotations. The BN FDCs continue to have difficulty maintaining digital connectivity and database management throughout the rotation.²⁷ Some field artillery units have these issues multiplied when there is no digital standard operating procedure (SOP) to provide rapid and continuous digital connectivity and troubleshooting for any issues that develop.²⁸ The BN FDC is the connection between the battery FDCs and the BCT FSC. It is a crucial part of the fire support system that has to operate at a fast pace to keep up with all the fire missions coming from the battery FDCs. High volumes of fire missions, close supporting fires happening concurrently with counterfire missions and paired with the lack of a well-defined fire mission processing crew drill, causes the BN FDC to become overwhelmed. This leads to confusion that delays and slows fire mission processing times.²⁹ This occurs because there is one BN FDC that, on average, supports six platoon FDCs. It is critical for the BN to be prepared to deal with the high volume of fire missions without delaying the fire support to the maneuver units.

Digital connectivity between the FSCs and the FDCs are not the only connectivity issues seen at the CTCs. The digital connectivity between the battery FDCs and firing platoons is a continual problem throughout CTC rotations.³⁰ Without this digital connectivity, the only way to conduct fire missions inside of the battery is through voice communications which only adds further congestion to the radio nets. Another trend for the battery FDCs is the lack of analog,

tracking, such as acetate charts, of fire support coordination measures, the five requirements for accurate predicted fire, target list worksheets, and the fire support execution matrix.³¹ Soldiers are too reliant on their digital systems and are missing the importance of analog methods such as coordination measures drawn on a map and post standards operational procedures. By tracking these requirements through an analog means, it creates a common operating picture inside of the FDC. A common operating picture will not only cut down on fire mission processing but will also enable all soldiers in the FDC to understand the current situation. The last major trend for the battery FDC is that the FDC advance party is not taking a technical fire direction capability forward during advance party operations in order to reduce in position ready to fire times.³² A device such as the CENTAUR (see Appendix C) would alleviate this problem by giving the advance party the ability to conduct digital fire direction.

The gunline is the element that executes the final portion of the fire support function. It is where the artillery shell leaves the tube and that shell travels a great distance to provide some kind of support to a maneuver element. Everything that occurs inside the gunline has to focus on maintaining the ability to operate the howitzers. Once again, common themes are appearing which reveal poor security, bad maintenance plans, and the inability to maneuver correctly. Gunlines are not securing themselves with adequate defenses due to the lack of fighting positions, howitzer and crew-served weapon range cards, and incomplete defensive diagrams.³³ Once the gunline is in a firing position, there is a lack of consideration for enforcement of howitzer, vehicle, and weapons maintenance which further puts the security and operability of the unit at risk.³⁴ Lastly, units are starting to show the lack of knowledge on movement techniques during tactical marches.³⁵ If the gunline does not know how to position itself in a

firing position or protect itself during a tactical march, then it puts itself at risk and by doing so risks not be able to provide artillery support to the maneuver unit.

Fire support is the fires that directly support land, maritime, amphibious, and special forces to engage enemy forces in pursuit of tactical and operational objectives.³⁶ The trends seen through the BCT's FSCs lead to desynchronized plans that keep the field artillery from support the maneuver commander's intent. The BCT FSC is responsible for planning, preparing, and executing fires in support of current and future operations.³⁷ The FSC back briefs the targeting guidance to the maneuver commander in accordance with the commander's intent for fires and maneuver and prioritizes targets for execution.³⁸ The major negative trend limiting the BCT FSC from accomplishing its mission is its inability to execute a daily fire synchronization battle rhythm event that provides shared understanding throughout the BCT fires warfighting function.³⁹ A daily fires synchronization event is a time to ensure target prioritization and friendly fires assets are synchronized throughout the BCT. An event as simple as a daily synchronization can help present a common operating picture for all field artillery soldiers in the BCT.

Furthermore, issues are present in operation orders production is the BCT FSC that cause misinterpretations of the task and purpose of supporting fire missions. Annex D, which is the fire support annex in an operations order, lacks the comprehensive fire support tasks that fully encompass task, purpose, TTLODAC, fire support coordination measures (FSCMs), and end state.⁴⁰ If this information is unclear at the BCT level, then how can a fire support team at the company level understand how to accomplish their mission? Finally, the fire mission processing drills in the current operations cell are inefficient due to the lack of fire support voice and digital nets.⁴¹ A BCT FSC has to train how they will fight and the lack of voice and digital

communication nets will make it impossible to understand the effects of its fire planning. This is a simple task and should be the first thing a BCT FSC attempts to establish once the BCT tactical operations center (TOC) is established.

Many of the systemic issues occurring at the BCT FSC cause issues in the BN FSCs. The biggest trend seen throughout multiple unit rotations at the CTCs is a simple fact that BN level fire support rehearsals are not occurring due to a lack of time management. A fire support rehearsal focuses on the execution of the fire support tasks, the fire support execution matrix, and the timing and synchronization of all fire support assets that support the maneuver operation.⁴² Without this very important rehearsal, it is difficult to determine the feasibility of the fire support plan and to have an opportunity to visualize how the fire support plan will support the maneuver throughout the operation.

The CTCs are also starting to see trends of the BN FSCs struggling to develop and disseminate the fire support products, including the target list worksheet, fire support execution matrix, and the attack guidance matrix, during the course of action development in the military decision-making process (MDMP).⁴³ The timing of the published products is important because it gives subordinate units the ability to provide bottom-up refinement. Finally, BN FSCs are not maintaining a fires common operating picture to include fire support coordination measures, mortar and artillery locations, and the friendly front-line trace.⁴⁴ Without developing a visual picture of what is occurring on the battlefield, it then is difficult to synchronize efforts in order to better support the maneuver commander's plan. As seen above with the BCT FSC shortfalls effecting the BN FSC, the BN FSCs are not setting the company fire support teams.

A common theme during historical CTC rotations is that company fire support planning is not consistent with the supported maneuver commander's plan or the BN FSC plan.⁴⁵

Company FSOs are routinely changing the purpose of the BN targets which cause friction and can desynchronize the entire BCT's fires plan.⁴⁶ A BCT or BN fire support rehearsal will normally identify these friction points and give the FA BN commander an opportunity to correct the deficiencies. Furthermore, during fires planning, triggers are determined for executing targets on the move. A trigger is a physical point on the ground or an action that will trigger an event or maneuver action.⁴⁷ Trends are developing showing the observation plans do not support the target triggers and the forward observers are not in position to observe targets or triggers.⁴⁸ Without observers in the correct observations points to observe the correct triggers, the maneuver elements will not have the needed fire support that it requires. If the occurs, it negates the reason the field artillery exists.

Moreover, another alarming trend seen through some company level fire support elements is that fire support personnel deploy to the CTC without all authorized assigned equipment; also in some units, the equipment they bring is missing some of the needed basic issue items (BII) to make it FMC.⁴⁹ This is a troubling mistake that leads the observer-trainer controllers (OCT) at the CTCs to wonder how such a unit is able to train at its mission essential tasks when the equipment needed for training is not operational. Finally, when the fire supporters bring the correct equipment to the CTCs, such as all their digital platforms, some do not understand how to correctly operate the equipment.⁵⁰ Digital systems are the way of the future and it is imperative that the fire supporters understand and are trained on how to properly employ and operate these systems. The fact that the CTC are seeing trends of fire supporters not understanding how to properly operate the pocket-sized forward entry devices (PFED) or the target location devices, such as the lightweight laser designator rangefinder (LLDR), shows that changes need to occur in the field artillery branch to correct this mistake.

Why a Standardized DIVARTY Is Important Across the Army

The erosion of core competencies for the field artillery cannot be overstated. To this day, field artillery BNs potentially may fail at providing basic support to maneuver commander in training. As mentioned previously, in 2015, General Abrams, delegated the decision for the command relationship of the new DIVARTYs to each of his ten division commanders until a final decision would be made on the future of DIVARTYs. One of the initial changes in the force structure for the field artillery was the BCT 2020 conversion. In 2014, 3rd Battalion, 29th Field Artillery Regiment (3-29 FA), 3rd BCT, 4th Infantry Division was the first field artillery BN to reorganize to the new force structure. With the continuing implementation of the BCT 2020 concept, the fire support personnel in the BCTs are once again assigned to the brigade's field artillery BN.⁵¹ This was a critical move for fire supporters due to the field artillery BN commander also playing the role of the BCT fire support coordinator (FSCOORD). One of the primary duties of the BCT FSCOORD is to train and certify every node of the brigade's fire support system.⁵² Now with the FSCOORD providing the needed oversight to the fire support training, the possibility to correct deficiencies in the fire support system greatly increases. This is especially true with regard to the underutilized digital systems.

When the Army entered the GWOT, the utilization of digital fire support systems on the battlefield was not a common practice. Voice communications were the standard means to conduct fire missions. Over the past seventeen years, there have been major advances in the technological capabilities that soldiers have at their fingertips. One of these capabilities is the digital call-for-fire and fire mission processing systems that are now commonplace in the field artillery community.⁵³ It was clear from the beginning of the transition that most of the fire

supporters in 3-29 FA were proficient at calls-for-fire with voice communications but this proficiency did not exist with regards for calls-for-fire using their digital platforms.⁵⁴

Moreover, the major shortfall for the fire supporters in 3-29 FA was the utilization of their digital systems such as the forward observer system (FOS). This system includes the standalone computer unit (SCU), the ruggedized handheld computer (RHC), and the PFED.⁵⁵ During the integration of the fire supporters, the unit discovered that one primary reason caused these systems not to be utilized. The majority were inoperable due to missing parts components of the end item (COEI). The BN fire direction officer (FDO) and the battery executive officer were responsible for getting these systems FMC; in a matter of weeks, the FMC rate for the SCUs went from 60 percent to 91 percent and the FMC rate for RHCs went from 47 percent to 78 percent.⁵⁶ All of this work led to a digital FIST qualification. Now with all the fire supporters under the field artillery BN, FISTs certifications became the number one priority for all fire support personnel. Without a concerted effort to certify all FISTs based on a common standard across the BCT, there will inevitably be disparities in the abilities and skills of the fire supporters.⁵⁷

Finally, when the maneuver companies and battalions within 3rd BCT begin their external evaluated combined arms live fire exercises, 3-29 FA will attach the FISTs to the maneuver unit to which it is aligned. These FISTs will remain with the maneuver unit through the combined arms live-fire exercises, the unit's rotation to NTC, and its eventual deployment.⁵⁸ Attaching the FISTs to the maneuver unit prior to the combined arms live fire exercise allows the FISTs and the maneuver unit time to familiarize themselves with one another. Yes, more time together before these events is an optimal solution. However, the most important issue during this process

is that, ultimately, the maneuver units will receive a highly trained and lethal FISTs to help enable maneuver on the battlefield.

Recommendations for the Future of DIVARTYs

The mission of the field artillery is to destroy, defeat, or disrupt the enemy with integrated fires to **enable maneuver commanders the ability to dominate in unified land operations**.⁵⁹ The highlighted portion of the mission statement is the most important. The field artillery has to have the capability to do everything possible to be a valued and trusted contributor in the combined arms fight. The following are recommendations on how the field artillery branch can put itself in the appropriate position to better support maneuver in combined arms warfare. This in the future includes an operation against a near peer force. These small changes will provide the field artillery expertise that the United States Army needs.

The first recommended change is to standardize the DIVARTY structure across the Army and assign all artillery soldiers to the DIVARTY. The first benefit of this restructure would be to centralize the training for all artillery soldiers under one colonel level command. Instead of three separate BCTs training its field artillery soldiers on what they believe the priorities are, all soldiers would train under one standard. This move would also give those DIVARTYs the ability to prioritize training based on the level of training a unit has on its mission essential task list.

It is essential for the field artillery to return to the basics and what gives it the name of the King of Battle. After seventeen years of conflicts in Iraq and Afghanistan, the field artillery needs to return to the basics and rediscover its identity after years of being a jack of all trades but not an expert in its own. Once all field artillery soldiers are placed within the DIVARTY then the training can begin at the individual level and then build to the collective level which will lead to

the battery level mission essential tasks. The DIVARTY commander will approve the BN training plans and then the BN commanders will execute the plans through their battery commanders. It is also important to remember the importance of certifying not only the FISTs but the FSCs as well. The field artillery BN commander is responsible for the certification of both BN and BCT FSCs and he/she must ensure that the FSCs can integrate fires in support of the maneuver commander.

Furthermore, just as previously discussed in the BCT 2020 section, once a FIST reaches a predetermined level of qualification, then the FISTs will attach to its aligned maneuver element so that the overall combined arms team can start working together. This can only happen after individual-level certifications occurs followed by the FIST certifications. By doing it this way, the maneuver element will receive a well-trained FIST and that maneuver element will learn to trust the field artillery through effective combined arms training. There is one additional step that needs to occur when training fire supporters in an Armored Brigade Combat Team (ABCT).

Fire supporters in an ABCT also have to qualify for the M3A3 Bradley Fire Support Team Vehicle. Historically, more time is allotted to gunnery training for fire supporters in an ABCT since the training is very intensive but there is a major flaw that comes with this ideology. Using 3rd BCT 4th Infantry Division as an example again, when a company fire support officer (FSO) was asked, “What is the main weapon on your M3A3 BFIST?”, the most common answer is, “the Bushmaster 25mm main gun.” However, the correct answer should be the fire support sensor system and the radios.⁶⁰ Maneuver commanders view the BFIST as another mechanized fighting platform but fire supports have to sell the commanders on the idea that radios and sights on the BFIST are more valuable than the main gun. This can be accomplished by having FIST certified fire supporters in the BFIST that can call in accurate and timely fires.

The next recommendation is that there is at least one trained M2A3 master gunner in every DIVARTY headquarters. The M2A3 master gunner is a senior noncommissioned officer who graduates the master gunner school and can certify crews during a gunnery qualification. This will enable each DIVARTY to establish its own gunnery program. By doing so, the DIVARTY can train and qualify its fire supporters through crew level qualifications. Once a fire support team goes through FIST certifications and then goes through crew level BFIST gunnery qualifications, that FIST can be reattached to the maneuver unit through the combined arms live-fire exercises, followed by the unit's rotation to the NTC, and eventual deployment.⁶¹ After that deployment is complete, the FIST will be reattached to the DIVARTY to start the training process all over again.

Another recommendation is to establish a standardized digital sustainment training (DST) program across all DIVARTYs. With all the issues the field artillery is having maintaining digital connectivity throughout operations, digital sustainment must become a priority in DIVARTYs. The digital landscape in the field artillery is becoming more complex requiring constant training to maintain the appropriate level of proficiency. An example of how DST can run is to have it facilitated by the BN FDO and have a singular weekly focus, such as obscuration fires planning, smoke missions and execution, family of scatterable mines (FASCAM) employment, or a coordinated illumination fire mission.⁶² Conducting one fire mission at a time will limit the focus the DST each week while building an overall knowledge base. With all field artillery soldiers falling under the DIVARTY structure, the DIVARTY will be able to test the digital system from the observer, through the BCT FSC, to the BN FDC, and finally to the gunline for mission execution. Practice in utilizing the complete digital architecture will only increase the accuracy and speed of support to the supported maneuver elements.

The final recommendation is that DIVARTY needs to require degraded operation training for all fire supporters. The field artillery has grown accustomed to operating in an environment where there is little worry about an adversary effecting the digital connectivity. However, what happens when the next conflict is against a ‘near-peer’ enemy who has similar capabilities to the United States? The Army cannot predict where the next war will be fought or who it will be against, but one constant is known: The field artillery will be tasked to provide fires by any means necessary to enable maneuver commanders have the ability to dominate in unified land operations.⁶³ It is important for the field artillery to be as familiar with manual systems as it is with digital systems. Scheduling training time for all training events to cease work on the digital systems and conduct fire missions manually is an absolute necessity. This should be applicable for all levels in the fires warfighting function from the fire supporter on the observation post to the FDC computing the firing data to send to the gunline. The field artillery must always be prepared to support the maneuver element in any situation.

In summary, the field artillery has to be ready to fight in an unknown future operational environment and the best way to prepare for this future conflict is to:

- Standardize the DIVARTY structure across the Army and assign all artillery soldiers to the DIVARTY.
- Return to the basics and direct all focus to the core competencies of the field artillery.
- Control the training management for the field artillery BNs at the DIVARTY level. This will create a standard for the field artillery BNs in each division.
- Create a position for at a M2A3 master gunner in each mechanized infantry and armor division DIVARTY.
- Establish a standardized digital sustainment training (DST) program across all DIVARTYs.
- Establish a standardized degraded operation training for all fire supporters.

These recommendations are not a quick fix for all the negative trends occurring at the CTCs but they are a step in the right direction. Now is the time to make these recommended changes so the field artillery will be ready to provide accurate and timely fires to any maneuver unit that requests it.

The above discussion argues why it is important for the Army to make the decision to standardize all DIVARTYs by assigning all field artillery personnel to the DIVARTY but there are also good reasons to keep the field artillery BNs assigned to the BCTs. Time is the most valuable commodity and there is never enough of it. Limited time and money force Army leaders to make tough decisions in dealing with how to structure the force and how to maintain its readiness. The BCT has been the primary conventional fighting force of the Army for the past fourteen years and these units gained priceless experiences throughout the GWOT. It is crucial that with a transition to a standardize DIVARTY that the leadership in the field artillery BNs maintain a relationship with the BCT to which they are aligned. When the field artillery BNs work with the BCTs then they are involved in all aspects of combined arms training starting from the planning phases and ending with the execution.

Conclusion

In 2015, General Mark Milley, the Chief of Staff of the Army, sent to the Army his initial message discussing his priorities and where he wants leaders to apply their focus. His message was crystal clear and left no room for interpretation.

#1. Readiness: (Current Fight) Our fundamental task is like no other, it is to win in the unforgiving crucible of ground combat. We must ensure the Army remains ready as the world's premier combat force. Readiness for ground combat is and will always remain the United States Army number one priority. We will always be ready to fight today, and we will always prepare to fight tomorrow. Our most valued assets, indeed, the Nation's most valued assets, are our soldiers and our

solemn commitment must always be to never send them into harm's way untrained, poorly led, undermanned, or with less than the best equipment we can provide. Readiness is the number one priority, and there is no other number one.⁶⁴

The BCT structure, from 2004 to 2014, was the best option for what the Army faced during the GWOT, but that structure may not be the best structure for the Army to prepare for the unknown future operational environment. The field artillery branch gained some invaluable experiences over the past seventeen years, but is that relevant to future challenges which the United States may face near the end of the second decade and into the third decade of the 21st century? It is now time to return to basic artillery core competencies in order to build readiness throughout the branch for possible future conflicts. The decision for each division to create a DIVARTY headquarters was a very important first step but now is the optimal time for the DIVARTYs to control and be responsible for all the field artillery units in a division. That optimal decision is not enough.

It is critical for the United States Army to transition to a standardized, full DIVARTY structure to ensure that the artillery branch stands ready to support the maneuver forces in future conflict through combined arms warfare. The recommended DIVARTY transition is the best way to build readiness in the branch. The Army continues to make small changes to the field artillery structure, such as the BCT 2020 concept, but major changes need to occur to ensure the field artillery is ready to provide support to maneuver units throughout the Army in any environment. The trends from the CTCs show that the field artillery is failing at basic tasks which lead to bigger problems as these issues start to compile on each other. Something as simple as digital sustainment operations in the garrison footprint can lead to successful digital communication exercises prior to conducting operations at the CTCs. The field artillery needs to refocus its training priorities and the best way to accomplish this is under a standardized

DIVARTY structure. The one thing the Army can be sure of is the next conflicts will be in unknown operational environments, each with its independent challenge, and it is critical for the field artillery to step back in its role as the King of Battle. This is how the field artillery will once again become an expert in its core competencies and not just a jack of all trades.

Appendix A – Army Division (Component 1) Laydown

1st Armor Division – Fort Bliss, Texas

1st Infantry Division – Fort Riley, Kansas

1st Cavalry Division – Fort Hood, Texas

2nd Infantry Division – South Korea / Fort Lewis, Washington

3rd Infantry Division – Fort Stewart, Georgia

4th Infantry Division – Fort Carson, Colorado

10th Mountain Division – Fort Drum, New York

25th Infantry Division – Hawaii, Alaska

82nd Airborne Division – Fort Bragg, North Carolina

101st Airborne Division – Fort Campbell, Kentucky

***Bold Units denotes Divisions that transitioned to a full DIVARTY structure (field artillery soldiers assigned to the DIVARTY).**

Appendix B – Acronyms

ABCT

Armored Brigade Combat Team

AFATDS	Advanced Field Artillery Tactical Data System
BCT	Brigade Combat Team
BII	Basic Issued Item
BN	Battalion
COEI	Components of the End Item
COIN	Counter Insurgency Operations
CTC	Combat Training Center
DIVARTY	Division Artillery
FASCAM	Family of Scatterable Mines
FDC	Fire Direction Center
FDO	Fire Direction Officer
FDU	Force Design Update
FFE	Fire for Effect
FIST	Fire Support Team
FMC	Fully Mission Capable
FSO	Fire Support Officer
FORSCOM	United States Forces Command
FOS	Forward Observer System
FSC	Fire Support Cell
FSCM	Fire Support Coordination Measure
FSCOORD	Fire Support Coordinator
GPS	Global Positioning System
GWOT	Global War on Terrorism
JRTC	Joint Readiness Training Center
LLDR	Lightweight Laser Designator Rangefinder
MDMP	Military Decision-Making Process
MET	Mission Essential Task
NTC	National Training Center
OCT	Observer Controller/Trainer
OEF	Operation Enduring Freedom

OIF	Operation Iraqi Freedom
OIR	Operation Inherent Resolve
PCC	Pre-Combat Checks
PCI	Pre-Combat Inspections
PFED	Pocket-Sized Forward Entry Device
RHC	Ruggedized Handheld Computer
RSOI	Reception, Staging, Onward Movement, and Integration
SCU	Standalone Computer Unit
SOP	Standard Operating Procedure
TOC	Tactical Operations Center
TTLODAC	Target, Trigger, Location, Observers, Delivery System, Attack Guidance, Communications.

Appendix C – Definitions

Advanced Field Artillery Tactical Data System (AFATDS) – is the Fire Support Command and Control (C2) system employed by the U.S. Army and U.S. Marine Corps units to provide automated support for planning, coordinating, controlling, and executing fires and effects.

CENTAUR – is the lightweight technical fire direction system that provides an automated cannon ballistic firing solution to the Fire Direction Centers (FDCs). Its primary function is a secondary technical calculation check for AFATDS or manual calculations.

Fire for Effect (FFE) – a command to indicate that fire for effect is desired; fire that is intended to achieve the desired result on a target.

Lightweight Laser Designator Rangefinder (LLDR) – provides a unique capability to Forward Observers, Forward Air Controllers and Naval Gunfire Spot Teams. The system can recognize targets in day/night/obscurant conditions, range to the target at an eye safe wavelength, and calculate grid coordinates with its own GPS/Elevation/Azimuth capability.

Joint Readiness Training Center (JRTC) – conducts tough, realistic, Unified Land Operations with our Unified Action Partners to prepare Brigade Combat Teams and other units for combat.

National Training Center (NTC) – conducts tough, realistic, Unified Land Operations with our Unified Action Partners to prepare Brigade Combat Teams and other units for combat.

Pocket-Sized Forward Entry Device (PFED) – is used by forward observers and fire support teams to transmit and receive fire support messages over standard military-line-of-sight, high-frequency, and satellite communications radios.

United States Forces Command (FORSCOM) – the mission of FORSCOM is to train and prepare a combat ready, globally responsive Total Force in order to build and sustain readiness to meet Combatant Command requirements.

Appendix D – Pre-2004 DIVARTY Structure

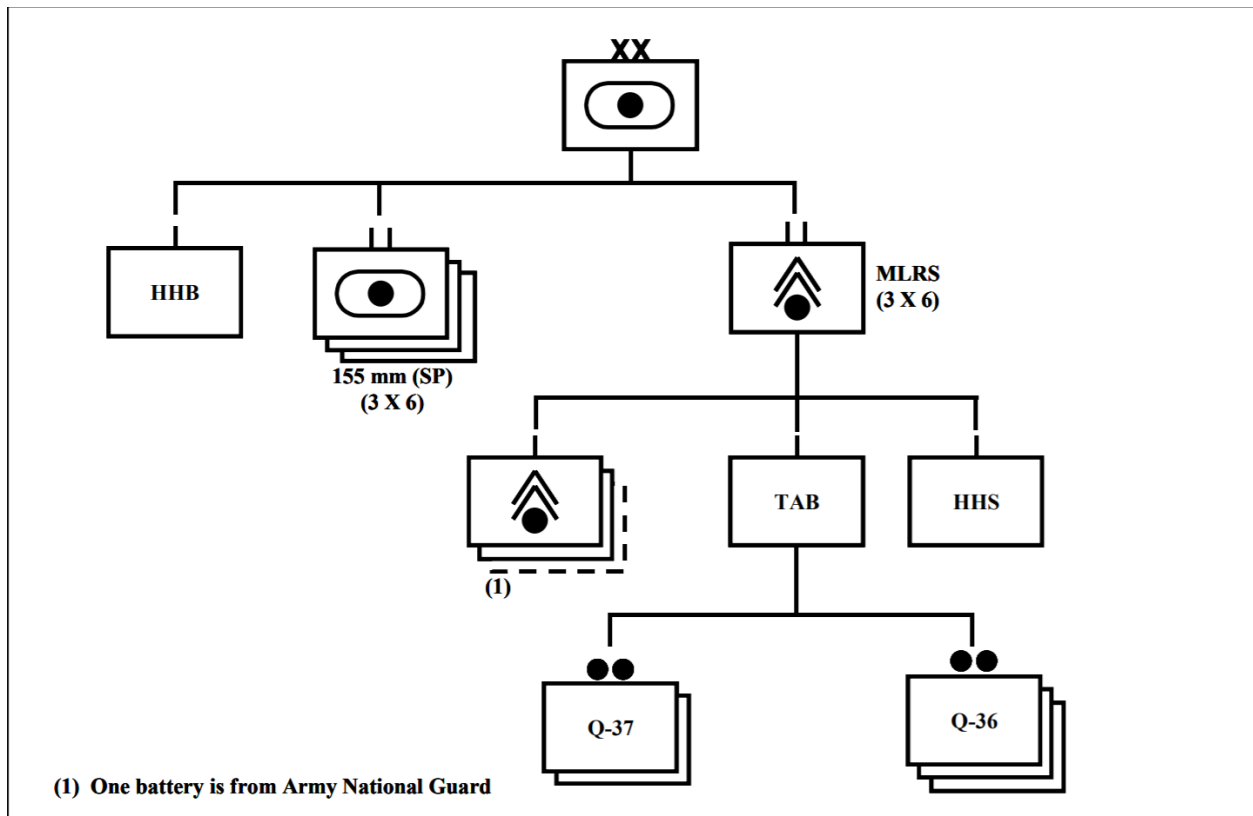


Figure 1 (Pre-2004 Heavy DIVARTY Structure)⁶⁵

- The field artillery BNs are organic to the DIVARTY.
- Each armored and mechanized infantry DIVARTY is organized with three 155mm SP howitzer BNs (one BN in direct support of each committed maneuver brigade within the division).⁶⁶

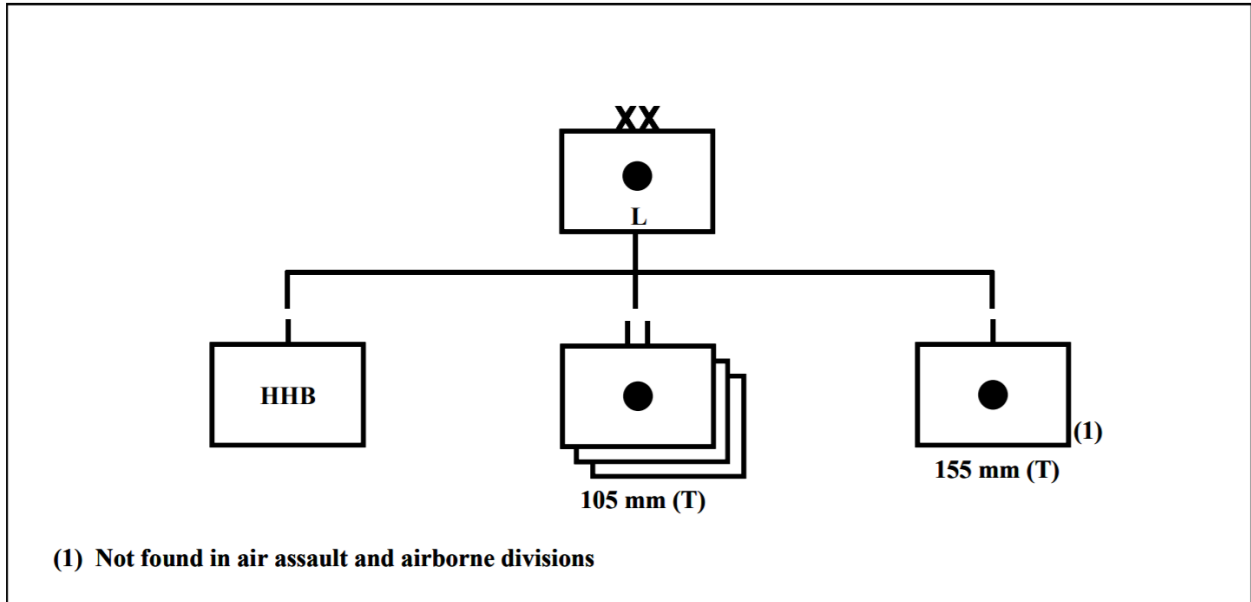


Figure 2 (Pre-2004 Light DIVARTY Structure)⁶⁷

- The field artillery BNs are organic to the DIVARTY.
- Each light infantry division has three organic howitzers BNs supporting light maneuver brigades; however, the direct support BNs are limited to 105mm towed (T) howitzer BNs.
- The DIVARTY has one organic 155mm towed (T) howitzer BN.

Appendix E – BCT Structures

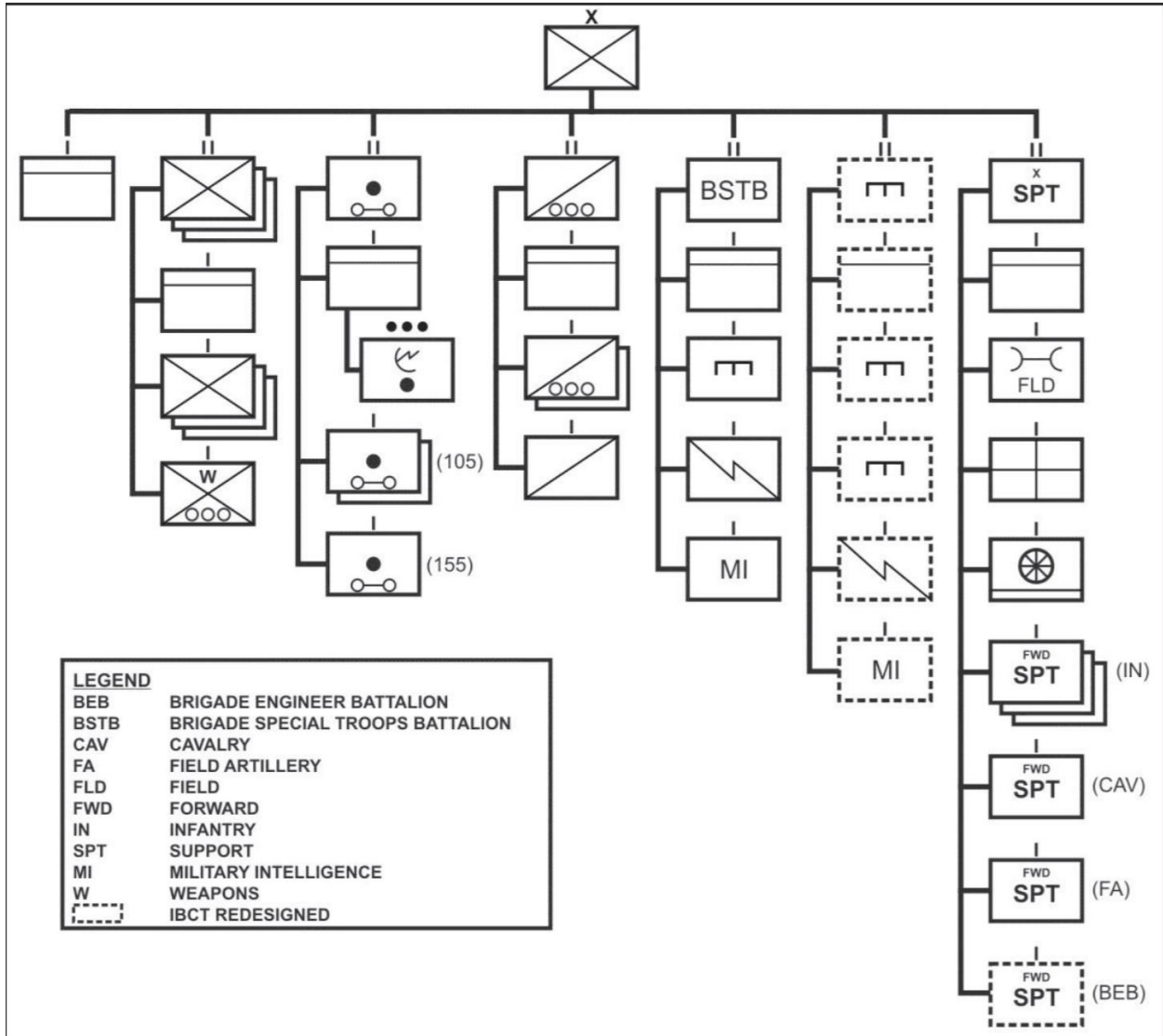


Figure 3 (IBCT Structure)⁶⁸

- Three infantry BNs serve as the IBCT’s primary maneuver force.
- The IBCT is a combined arms force organized around dismounted infantry. Cavalry, **field artillery**, engineer, intelligence, signal, sustainment, and CBRN reconnaissance units are organic to the IBCT.⁶⁹

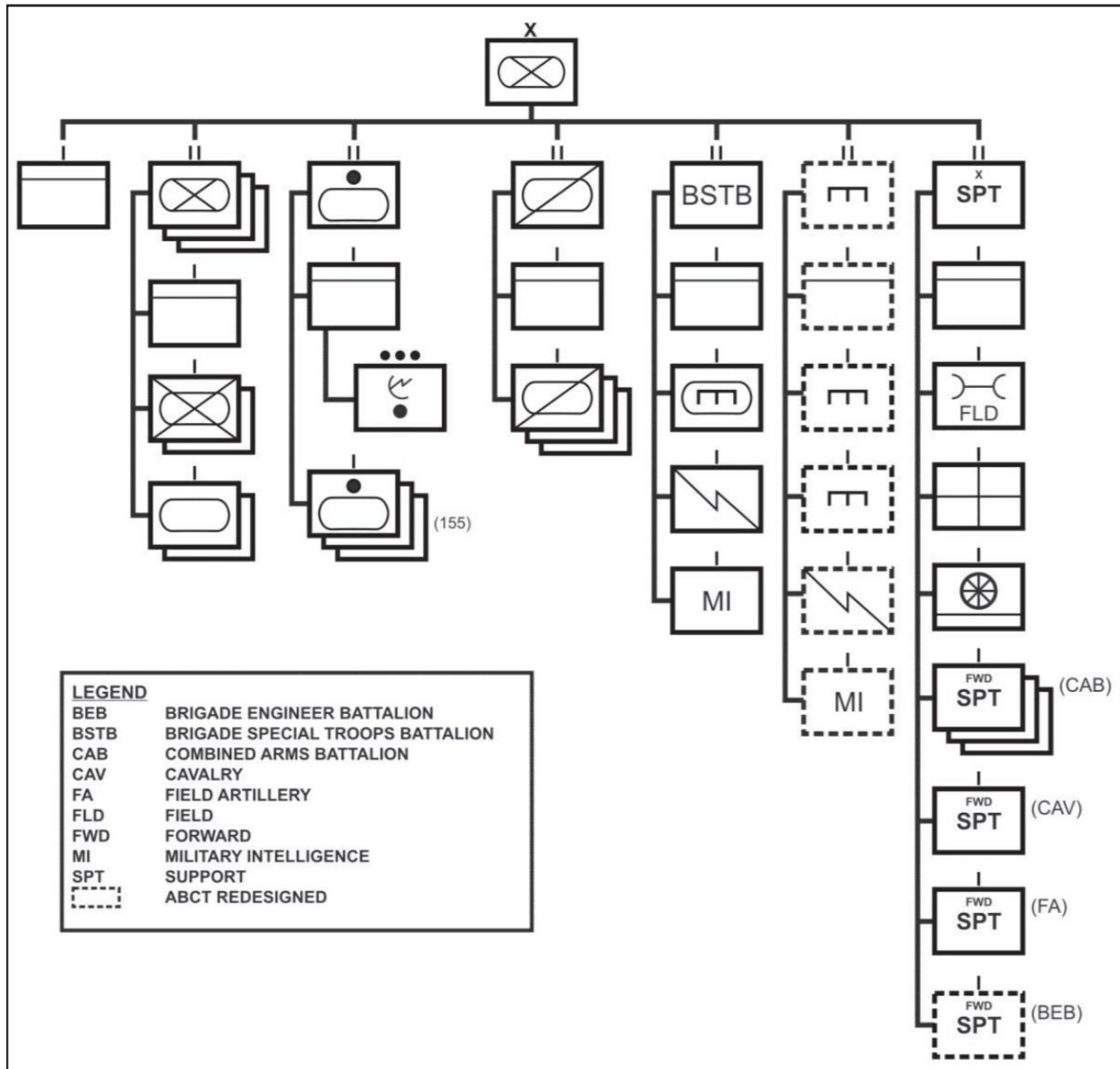


Figure 4 (ABCT Structure)⁷⁰

- Three combined arms BNs serve as the ABCT's primary maneuver force. Combined Arms BNs have a mix of mechanized infantry and armor capabilities.
- The ABCT is a combined arms force organized around dismounted infantry. Cavalry, **field artillery**, engineer, intelligence, signal, sustainment, and CBRN reconnaissance units are organic to the ABCT.⁷¹

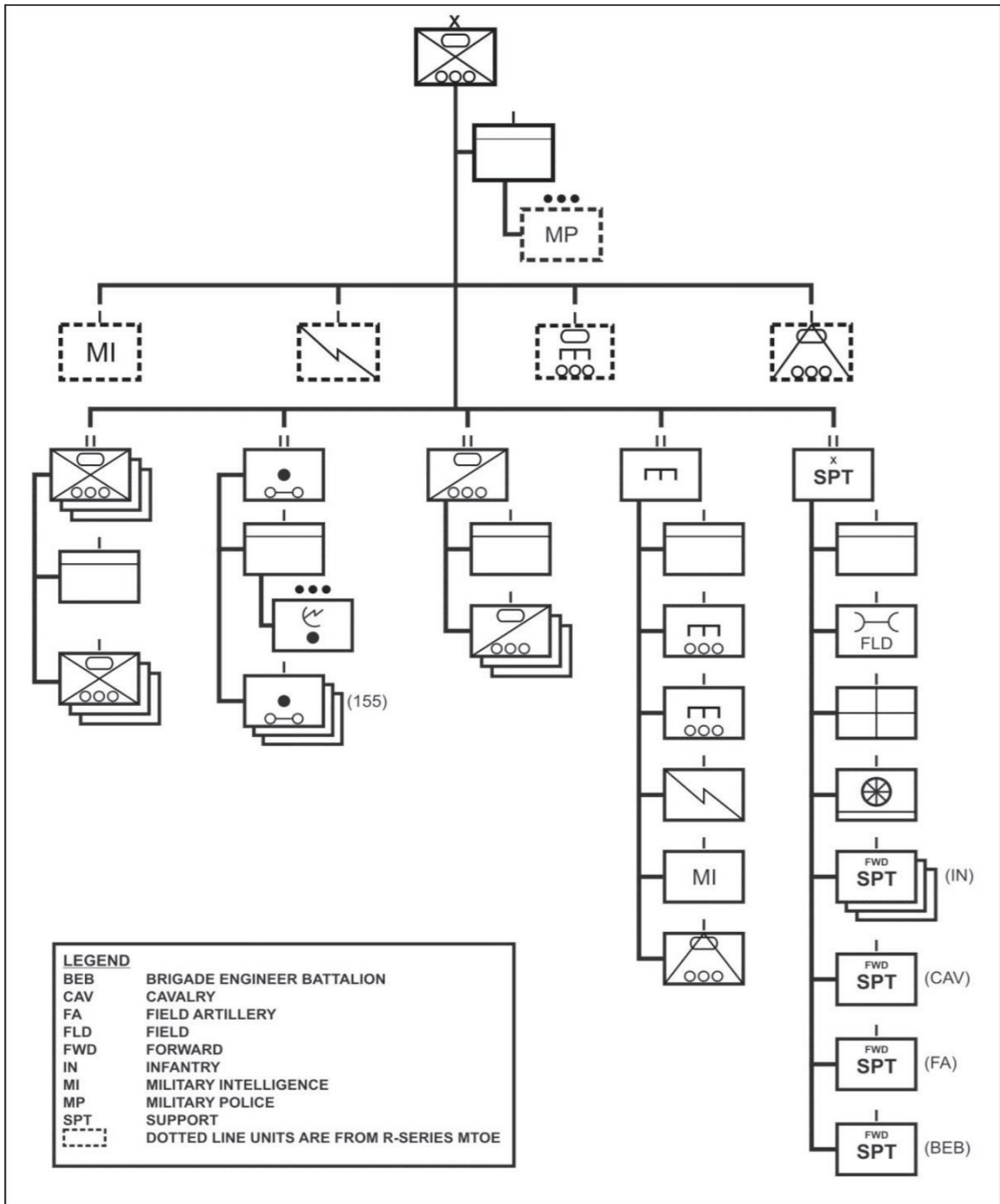


Figure 5 (SBCT Structure)⁷²

- The SBCT primarily fights as a dismounted infantry formation that includes three SBCT infantry battalions.
- The SBCT is a combined arms force organized around dismounted infantry. Cavalry, **field artillery**, engineer, intelligence, signal, sustainment, and CBRN reconnaissance units are organic to the SBCT.⁷³

Appendix F – Current DIVARTY Structure

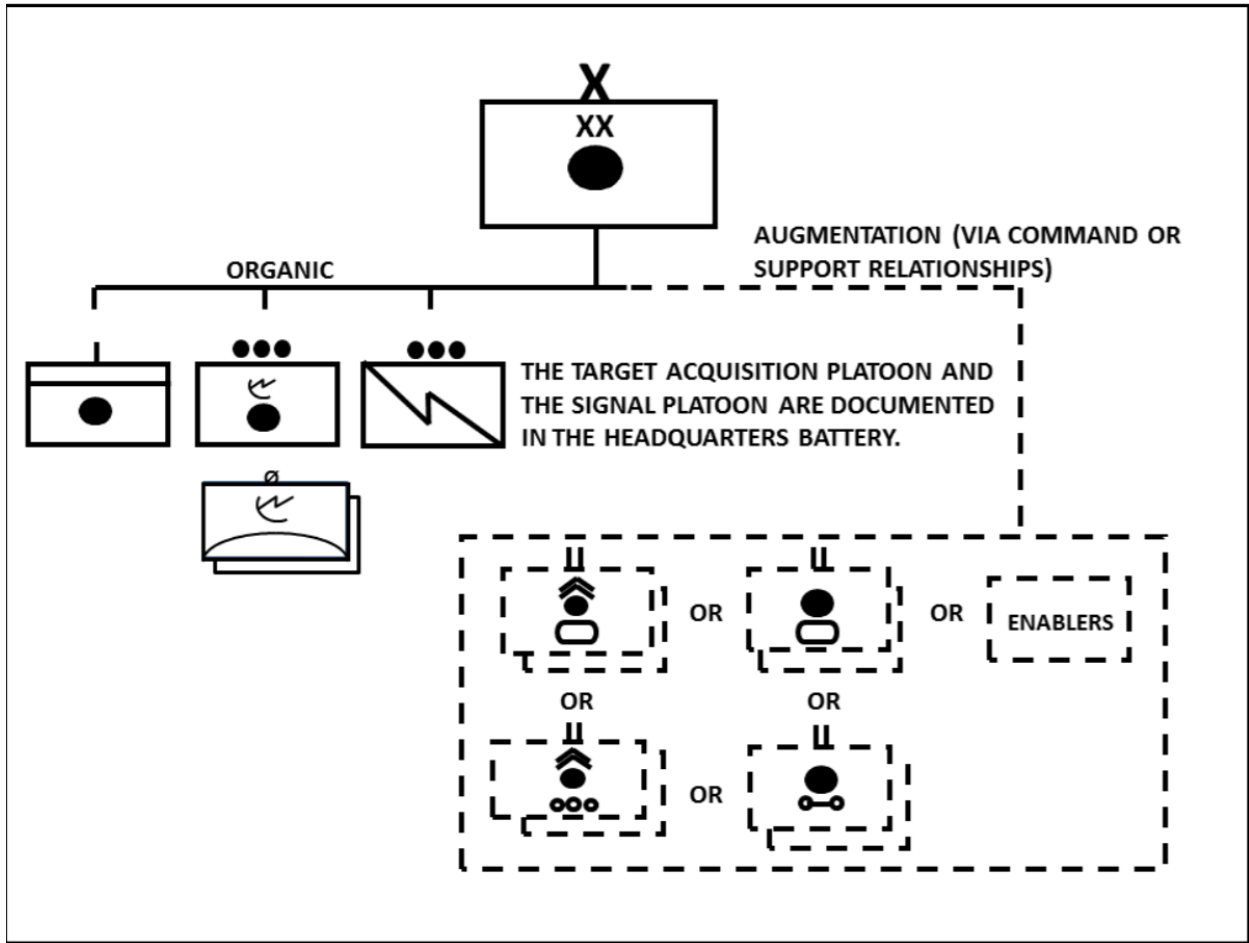


Figure 6 (Current DIVARTY Structure)⁷⁴

- The only units organic to the DIVARTY is the headquarters and headquarters battery and the target acquisition platoon.
- The field artillery BNs are not organic to the DIVARTY.
- Currently, division commanders have the authority to align the field artillery BNs under the DIVARTYs or leave them organic to the BCTs.

Endnotes

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A 2014 SAMS paper on the US Forces Command (FORSCOM) implemented the activation of the division artillery (DIVARTY) and field artillery (FA) brigade force structure. The purpose for the implementation was to establish command relationships to exemplify mission command that produced trained and ready FA units capable of providing synchronized strategic, operational, and tactical level effects in support of combined arms maneuver. This reference discusses how the move to DIVARTYs in 2014 is a step in the right direction and supports the argument that the Army needs to take the final steps to correcting the issues in the field artillery branch.

CPT Davidson, Lazarius, interview by Justin Hunter. 2018. *Field Artillery Trends at JRTC from 2014-2017* (January 2). Original notes in author's possession.

The interview took place after receiving documentation from CPT Davidson on common trends throughout rotations at the Joint Readiness Training Center at Fort Polk, Louisiana. The negative trends support the argument that a change needs to occur within the force structure of the field artillery, a standardized DIVARTY.

CPT Devera, Phil, interview by Justin Hunter. 2018. *Field Artillery Trends at NTC from 2014-2017* (January 2). Original notes in author's possession.

The interview took place after receiving documentation from CPT Devera on common trends throughout rotations at the National Training Center at Fort Irwin, California. The negative trends support the argument that a change needs to occur within the force structure of the field artillery, a standardized DIVARTY.

LTC Bateman, Sean and MAJ Hady, Steven. 2013. "King of Battle Once Again: An Organizational Design to Effectively Integrate Fires in Support of the Tactical, Operational, and Strategic Force." *Fires*, March: 23-27.

This reference discusses the specific responsibilities of the division FSCOORD to include integration and delivery of Fires in support of the division commander's concept of operations, serve as the division force FA HQs, synchronization of counterfire and radar employment operations in the division area of operations, detailed targeting, training and professional development of Fires personnel across the division, and oversight of the training and certification of BCT Fires battalions in close coordination and cooperation with the BCT commanders.

COL Hartig, Michael. 2010. *The Future of the Field Artillery.* Carlisle Barracks: United States Army War College.

This reference identifies how long it would take to restore FA core competencies in support of Major Combat Operations, how the branch could best balance itself in order to support current operations as well as prepare for future operations, when the branch should be ready to conduct operations in either a hybrid or MCO environment, and how much lead time would be needed to ensure success in either operation.

Headquarters, Department of the Army. 2012. *ADP 3-09 - Fires*. Washington, DC: Headquarters, Department of the Army.

This reference provides fires doctrine that enables the development of interoperable, networked, and integrated systems capable of executing multiple missions throughout unified action. It discusses how, through fires, commanders initiate and integrate all fires systems and actions toward a common goal, mission accomplishment.

—. 2012. *ADP 3-09 Fires*. Washington, DC: Headquarters, Department of the Army.

This ADP describes the fires warfighting function while incorporating the roles, core competencies, critical capabilities, characteristics, and principals of fires, as well as fires in support of unified land operations, and decisive action.

—. 2012. *ADRP 3-09 Fires*. Washington, DC: Headquarters, Department of the Army.

This ADRP describes the fires warfighting function while incorporating the roles, core competencies, critical capabilities, characteristics, and principals of fires, as well as fires in support of unified land operations, and decisive action.

—. 2017. *ATP 3-09.90 - Division Artillery Operations and Fire Support for the Division*. Washington, DC: Headquarters, Department of the Army.

This reference describes Division Artillery (DIVARTY) operations and fire support for the division. It discusses the roles and relationships which the DIVARTY plays inside a division. This doctrinal publication was released in October 2017. However, it does not dictate the correct command relationships for DIVARTYs with the division and BCTs. This doctrine is important to my argument because it shows an outlined for a successful DIVARTY organization.

—. 1999. *FM 100-17-3 - Reception, Staging, Onward Movement, and Integration*. Washington, DC: Headquarters, Department of the Army.

This manual establishes the doctrinal framework for RSO&I, the process by which combat power is generated. Often viewed as a logistics problem, it is, in fact, a critical operational challenge that relies on a logistical infrastructure for successful execution. During RSO&I, a unit is allotted a certain amount of time to make final preparations for a mission or to enter a theater of operations.

—. 2001. *FM 3-09.22 - Tactics, Techniques, and Procedures for Corps Artillery, Division Artillery, and Field Artillery Brigade Operations*. Washington DC: Headquarters, Department of the Army.

This doctrinal field manual provides tactics, techniques, and procedures (TTP) for corps artillery, division artillery, and field artillery (FA) brigades. It is intended as a general guide to assist in force standardization with sufficient flexibility to adapt to local conditions as reflected in unit tactical standing operating procedures. This was the last Army doctrine dealing with DIVARTYs prior to the Army deactivating them in 2004 in order to build BCTs.

—. 2015. *FM 3-96 - Brigade Combat Team*. Washington, DC: Headquarters, Department of the Army.

FM 3-96 provides doctrine for the brigade combat team (BCT). This publication describes relationships, organizational roles and functions, capabilities and limitations, and responsibilities within the BCT. This doctrinal publication is important to my argument because it describes how the BCT is the primary combined arms fighting organization for the Army.

—. 2016. *TC 3-09.81 - Field Artillery Manual Cannon Gunnery*. Washington, DC: Headquarters, Department of the Army.

The training circular sets forth the doctrine pertaining to the employment of artillery fires. It explains all aspects of the manual cannon gunnery problem and presents a practical application of the science of ballistics. It includes step-by-step instructions for manually solving the gunnery problem which can be applied within the framework of decisive action or unified land operations.

Headquarters, United States Field Artillery School. 2014. *DIVARTY: A Force Multiplier for the BCT and Division*. Fort Sill, OK: Headquarters, Department of the Army.

An implementation memo addresses the establishment of the renewed DIVARTY structure in 2014. It will not be a repeat of the 2004 DIVARTY. The Army was not going to merely pull and implement DIVARTY doctrine from days gone by, dusting it off, and calling it good. The DIVARTYs will provide modernized relevance through focused implementation of emerging Fires technologies and expert integration of Joint and Combined Fires.

Hillard, Michael and Francey, Richard. 2002. "Improving the Responsiveness and Lethality of Fires at the BCT Level." *Field Artillery* 22-25.

This article discusses how, in 2002, fire supporters throughout the Army struggled to guard against compliancy in providing unresponsive fires. Many critics believe fire supporters had lost the edge and become unresponsive and ineffective, thus failing to support their maneuver commanders. The authors discuss the importance of increasing the responsiveness of the field artillery.

House, Jonathan. 1984. *Total Combined Arms Warfare: A Survey of 20th Century Tactics, Doctrine, and Organization*. Fort Leavenworth: United States Army Command and General Staff College.

An overview of how the Army shifted its focus to professional military education during the interwar period. This shift in focus was cost effective but also led the major innovations with the field artillery including a process to fire of targets of opportunity.

The White House. *The National Security Strategy of the United States of America*. Washington, DC, 2017.

The National Security Strategy, signed in 2017, outlines the major national security concerns for the United States of America and discusses how the United States will deal with each major threat. This NSS identifies China, Russia, Iran, and North Korea as the current main threat to the national interests of the United States.

Jackson, Joseph. 2010. "Moving Artillery Forward: A Concept for the Fight in Afghanistan." *Small Wars Journal* 1-14.

A discussion of the importance of the field artillery's ability to provide fire support in mountainous terrain in order to gain an advantage against adversaries in Afghanistan. This is an important argument since senior leaders noticed the decrease in the field artillery's core competencies during the Global War on Terrorism.

GEN Milley, Mark. 2015. "39th Chief of Staff of the Army Initial Message to the Army." Washington, DC: Headquarters, Department of the Army.

This initial message to the United States Army describes General Milley's priorities for the Army. The intent is to leave no doubt to what the new Chief of Staff's number one priority is: readiness.

CPT Moen, Alex and MAJ Robison, Travis. 2016. "Reinventing the Wheel: Operational Lessons Learned by the 101st Division Artillery during Two Warfighter Exercises." *Military Review* 72-77.

This reference discussed lessons learned from the 101st Airborne Division DIVARTY upon its reestablishment in 2016. The lessons learned were taken from the warfighter exercise which is a training event to test the high headquarter elements of a division.

Nenninger, Timothy. 1994. "Leavenworth and Its Critics: The US Army Command and General Staff School 1920-1940." *The Journal of Military History* 199-231.

A classic assessment of the importance of the Command and General Staff School during the interwar period and how innovations during this time led to advances on the battlefield. The innovations with the education systems in the military directly led to advances in field artillery procedures which gave the United States the fires advantage entering World War II.

CPT Padalino, Anthony and LTC Delger, Cory. 2014. "Fire Support Conversion BCT 2020." *Fires*, July: 40-43.

The author discusses lessons learned from the first field artillery battalion to convert to the BCT 2020 concept. Part of this concept involved assigning all of the fire support personnel in the maneuver units back to the field artillery battalion. Not only were the fire support personnel returning to the field artillery battalion but the fire support equipment returned as well. This article discusses how this conversion took place and why it was important for a change to take place.

School, United States Army Field Artillery. 2014. *White Paper: Field Artillery Brigade and Division Artillery*. Fort Sill: United States Army Field Artillery School.

An information paper that describes the future concept of the DIVARTY, as seen in 2014. This information paper is the initial version of the ATP 3-09.90. It describes, in detail, how a DIVARTY is assigned to each of the ten active component Divisions. It also discusses initial roles and responsibilities.

COL MacFarland, Sean, COL Shields, Michael, and COL Snow, Jeffrey. 2007. *White Paper: The King and I: The Impending Crisis in Field Artillery's Ability to Provide Fire Support to Maneuver Commanders*. Washington, DC: Memorandum sent to the Chief of Staff of the Army.

An information paper written by three BCT commanders who were concerned about the deterioration of the field artillery branch during the Global War on Terror. The BCT commanders witnessed their field artillery battalions suffer an identity crisis while conducting counterinsurgency operations. They argue why it is crucial for changes to be made to ensure the field artillery is positioned in the future to provide accurate and timely fires.

LTC Tracy, Tommy James. 2004. "Field Artillery at the Crossroads of Transformation." *Military Review*, January: 32-44.

This reference discusses the crossroads of transformation of the United States field artillery arsenal, stressing that military leaders should not dismiss lethal and non-lethal artillery when exercising instruments of military power, since the best way to destroy artillery is with artillery.