

Field Artillery.

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Lethal Fire Support for the Army's Premier Raid Force

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Purpose

Originally founded as the Field Artillery Journal, the Field Artillery Professional Bulletin serves as a forum for the discussions of all U.S. Army and U.S. Marine Corps Field Artillery professionals, Active, Reserves and National Guard; disseminates professional knowledge about progress, development and best use in campaigns; cultivates a common understanding of the power, limitations and application of fires, both lethal and nonlethal; fosters fires interdependency among the armed services, all of which contribute to the good of the Army, joint and combined forces and our nation. The Field Artillery Professional Bulletin is pleased to grant permission to reprint; please credit Field Artillery Professional Bulletin, the author(s) and photographers.

Cover: Soldiers from C Battery, 1st Battalion, 120th Field Artillery Regiment, Wisconsin Army National Guard conduct Fire Control Alignment Test to ensure the M777A2 155 mm howitzers are properly aligned to provide accurate fire mission at Camp Grayling, Mich., during joint training exercise Northern Strike 20-2/Winter Strike, Jan. 24, 2020. (MSgt Scott Thompson/U.S. Air National Guard)



BG Stephen Smith

Field Artillery School Commandant

It's been an honor to serve as the 53rd Commandant of the United States Field Artillery School and the Chief of the Field Artillery. The talent across our Field Artillery (FA) force...Marines and Army... is inspirational, and all of us are privileged to serve at such an exciting time for our branch.

Through incredible teamwork and support from leaders throughout the Army and Marine Corps, our branch has made great strides over the last five years. We've updated our capstone doctrine, focused our professional military education and leader development programs towards large-scale combat operations, improved rigor across all training domains, increased and strengthened FA organizations, initiated unprecedented modernization efforts to achieve parity and eventual overmatch against our most likely adversaries, and increased the amount of FA positions in many formations. We've also begun to realign our training efforts with our professional Marine Corps Artillery Detachment here at Fort Sill. Finally, we reestablished the Field Artillery Bulletin as our professional publication designed to promote dialogue and growth within our community. In this light, I would like to thank the Field Artillery Association for being an outstanding partner and advocate for the branch. I would

Farewell from the 53rd Field Artillery Commandant

like to invite everyone to continue to leverage that far-reaching capability. Even with all of these advancements, we are not nearly ready to "spike the ball." We have much work ahead of us!

Our Joint force fights and wins predominantly through lethal fires in support of our maneuver commanders. Each one of us must continue to assertively maintain our momentum and act with a sense of urgency by assuming that we WILL fight a peer threat on our watch. Use our refreshed doctrine to plan, prepare, execute and assess tough training across all domains (institutional, organizational and self-development) to drive us toward large-scale combat and away from counterinsurgency. As leaders and Soldiers, continue the dialogue with Fort Sill. Provide feedback on emerging doctrine, write articles for publication in the Field Artillery Bulletin, provide feedback on recent arrivals to your formation from the school house and provide input on modernization efforts and FA personnel initiatives.

As we continue this momentum, we are excited to welcome COL (P) Phil Brooks as the 54th Commandant of the U.S. Field Artillery School and Chief of the Field Artillery. He is a great Artilleryman who also served as brigade combat team commander and as the deputy commanding general (Maneuver) for the 1st Infantry Division.

COL (P) Phil Brooks will undoubtedly keep our branch on the correct azimuth of fire as we continue to rapidly modernize and shift to fire support for large-scale ground combat operations.

I'd like to close by thanking our 13th Command Sergeant Major of the Field Artillery, CSM Kevin King, and congratulate him on his next assignment as command sergeant major for 1st Army Division West. While here, he relentlessly continued position improvement by increasing the number of airborne Artillery volunteers coming out of basic training, obtaining additional uniforms and personal equipment for our Soldiers and instructor cadre at Fort Sill, motivating officers in Basic Officer Leaders Course during physical training, improving rigor across our Regional Training Institutes, updating our live-fire certification/qualification procedures, improving Advanced Leaders Course, Senior Leaders Course and functional course experiences, and much more. Each of these improvements are a living and persevering reminder of CSM King's positive influence on the entire Branch. We're excited that he was selected for continued service at higher levels.

May Saint Barbara continue to watch out for the best branch in our military! As always...keep your powder dry, keep up the fire and **KING OF BATTLE!**

Improving brigade combat team intelligence collection operations for large-scale combat operations

Observations and best practices from the Joint Multinational Readiness Center

MAJ William Denn, MAJ Jason Turner and CPT Adam Wojciechowski

After detailed mission analysis, the brigade staff was confident they knew where and when the enemy would attack. Over the next two days the engineers dug extensive battle positions, platoons rehearsed their plan, scouts seeded observation posts and intelligence analysts watched their drone feeds to give advanced warning. When the enemy did arrive, they attacked with such speed and audacity so before the brigade knew it, the enemy had penetrated their defenses and was heading straight for their command post. Every echelon was surprised: from the intelligence analysts, to the scouts forward, to the platoons in their defensive positions — there was little advance warning. While this is a hypothetical vignette, unfortunately this scenario occurs far too often at the U.S. Army's combat training centers (CTC).

The U.S. Army is undergoing a dramatic shift in training competencies to fight in large-scale combat operations (LSCO) versus the counterinsurgency (COIN) and advisory missions of the past 17 years in Iraq and Afghanistan.

Brigades are learning that LSCO requires fundamentally different skill sets and competencies than the COIN fight of the past. Because of how quickly the battlefield moves — at the speed of mechanized forces attacking over large distances — the above vignette is an illustration of how brigades fail to layer their intelligence collection over large areas to give friendly forces enough warning and certainty of enemy intentions to adequately prepare for combat.

Over the course of observing multiple brigades encounter similar challenges in the last year, we, the authors at the U.S. Army Joint Multinational Training Center (JMRC) identify several challenges that brigades must address:

1. Manning and training an intelligence collection management team at the brigade level that is able to adequately plan and synchronize an effective collection strategy.
2. Scoping the brigade's deep fight adequately to give the brigade enough advance notification to prepare for contact with the enemy.

3. Adequately layering intelligence, surveillance and reconnaissance (ISR) assets to increase chances of detection, planning intelligence handover to coordinate between these ISR assets (and units) and ultimately enable targeting of the enemy throughout the depth of the battlespace.

Manning and training collection management cells

The role of the brigade collection manager (CM) is essential for planning an effective collection strategy to satisfy the commander's intelligence gaps, synchronizing all of the brigade's ISR assets (to include the cavalry squadron and radars), and integrating higher, joint, theater and national-level ISR assets. The struggle for brigades, however, is that there is no formalized collection manager position. Units choose a collection manager from existing personnel, often in a part-time capacity, and usually filled by a lieutenant or junior captain. This CM (often untrained), then attempts to manage the difficult task of planning and managing the entire ISR enterprise for the brigade. Even when the CM is trained (at the United States Army Intelligence Center of Excellence {USAICoE} or Defense Intelligence Agency courses), CMs are unprepared to effectively synchronize and integrate units such as the cavalry squadron, participate in brigade battle rhythm events like military decision-making process (MDMP) wargaming, intelligence collection/fires (IC/fires) rehearsals and contribute to targeting working groups.

Collection management is a complex enough task that requires a team to manage all of the CM requirements. Successful brigades dedicate at least four to six intelligence analysts to aid the CM in planning, ISR current operations management, assessments and

targeting — especially in support of 24/7 operations.

Successful brigades will effectively utilize subordinate liaisons, especially from their cavalry squadron, to integrate into collection management working groups to plan and task assets and units for collection. This allows subordinates to help aid in refinement based on their knowledge of their own capabilities. This input is essential to refine the IC synchronization matrix (ICSM) that is included in daily fragmentary orders (FRAGOs) with what specific indicators and source of reporting their assets and teams must answer.

Today's ISR capabilities are also increasingly complex and rapidly changing with technology. There is little expectation that a junior captain can be a subject matter expert in what these ISR assets can or cannot collect. Noting such, it is important that the brigade's warrant officers are integrated into collection management planning. The brigade's 352N Signals Intelligence Technician, 351M Human Intelligence Technician and 131A Field Artillery Targeting Technician are especially critical. For example, unused by most brigades is the ability for the Q50/53 counterfire radar to be used as an ISR asset by reporting line-of-bearings whenever enemy counterfire radar transmissions are detected. Without input from these warrant officers, these non-conventional ISR assets will not be included in a brigade's ICSM.

The brigade's ad hoc collection management team must not fight for the first time at a CTC or in combat. They require practice and training as a team in order to understand what outputs they must produce and how they integrate into a brigade staff within planning (MDMP) and execution (current operations). USAICoE's standardization of military intelligence training through the military intelligence training strategy (MITS) framework is an important first step in identifying the need to train and certify collection man-

agement crews. Rarely, however, are brigade combat teams (BCTs) arriving at JMRC with a certified CM crew that has trained together in a previous MITS exercise. Nor are they using established CM standard operating procedures to structure how they operate. BCT commanders and S2s must place more emphasis on establishing and training their CM teams prior to CTC rotations. Successful BCTs operationalize their CM cells to operate year-round even in garrison rather than on an ad hoc basis during brigade collective training events.

Finally, while school options exist for CMs, we are not yet observing school-trained CMs successfully operating at the BCT level. We encourage USAICoE to improve their collection management program of instruction focusing on: managing and leading a collection team, joint asset capabilities and integrating CM into BCT rehearsals, MDMP (course of action development and wargaming) and the targeting process.

Scoping the “Deep Fight”

Within the COIN-era the BCT often lacked a “deep fight,” instead focusing on the needs of platoons and companies in a close tactical fight. Within a LSCO environment, a BCT's deep fight is essential to mission success. FM 3-0, Operations defines the deep area as, “the portion of the commander's area of operations that is not assigned to subordinate units. Operations in the deep area involve efforts to prevent uncommitted or out-of-contact enemy maneuver forces from being committed in a coherent manner or preventing enabling capabilities [...] from creating effects in the close area. [...] The purpose of operations in the deep area is to set the condition for success in the close area or to set the conditions for future operations.”

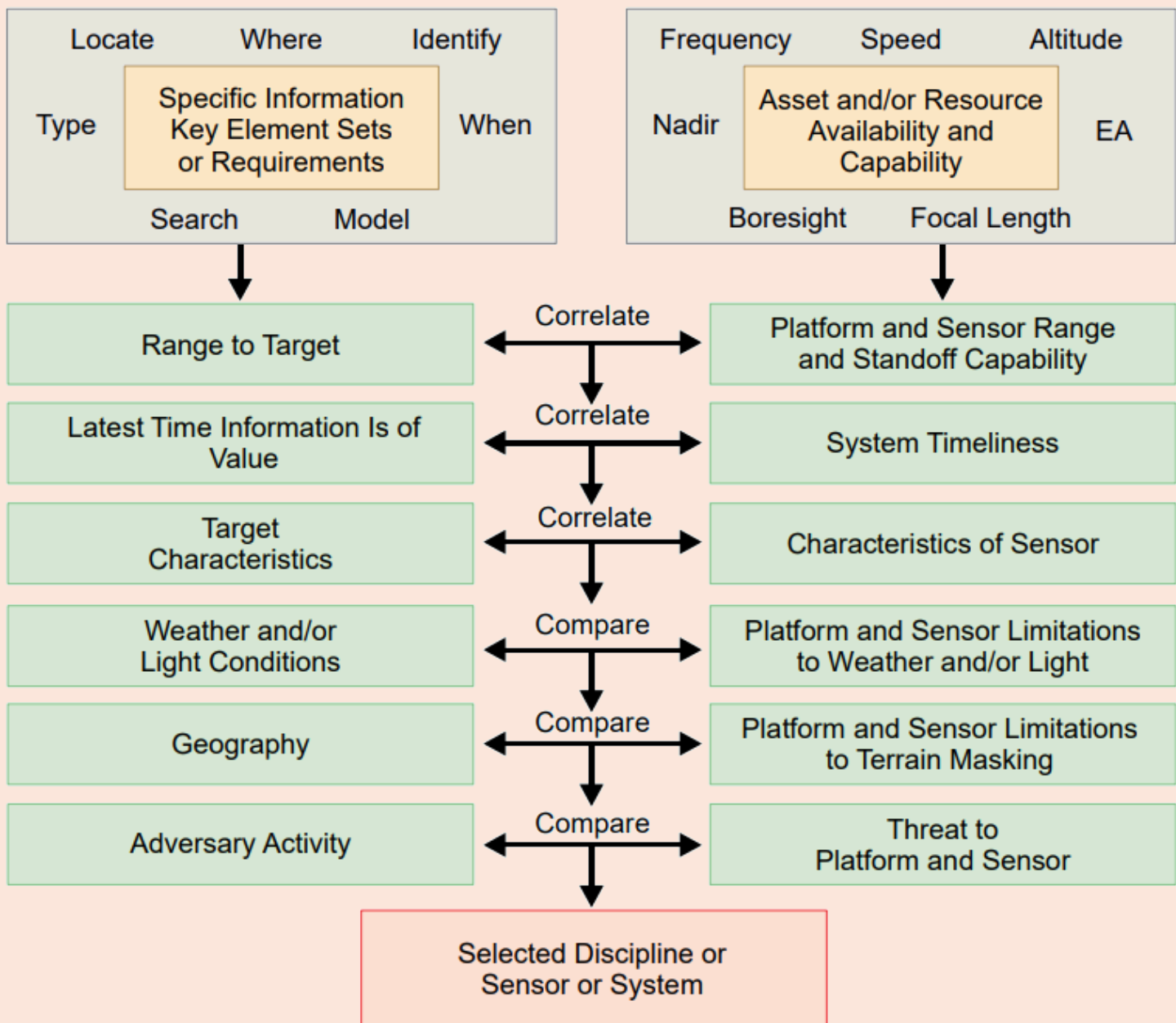
Brigades often struggle with where they should define the deep

fight. Brigades typically arrive to a CTC with their maps limited to the geographic training area boundaries or the area of operations (AO) boundaries dictated to them by their higher headquarters. Especially for a CTC like JMRC, which has a relatively small training area (10km x 20km), this decision on the scope of their maps is their first lost opportunity and requires coaching. From an intelligence collection perspective, the brigade's deep fight extends much farther outside the dictated AO.

U.S. Army doctrine provides us with assistance to help understand a brigade's deep fight utilizing the concept of area of influence (AoI). ATP 2-01.3 *Intelligence Preparation of the Battlefield* defines AoI as “a geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control. The area of influence includes terrain inside and outside the AO and is determined by both the G2/S2 and G3/S3.”

During mission analysis, brigades typically show their AO or area of interest, but do not refer to their AoI. AoI as a concept provides additional space that the brigade can not only see the enemy with ISR assets, but also gives the brigade space to shape the enemy through the use of their indirect fires, maneuver or aviation assets. When the AoI extends outside the AO, this requires coordination with their higher headquarters or adjacent units, but to ignore it shrinks the brigade's focus and increases the likelihood of tactical surprise by the enemy. Moreover, just because the higher headquarters plans for an intelligence handover line does not mean they will focus collection on the near side of it.

Our recommendation is for brigades to consider the full extent of their AoI and to conduct appropriate mission analysis (terrain, enemy and friendly capabilities) to maximize the brigade's ability to target and shape within the AoI



Asset and/or resource availability and capability factors. (Courtesy illustration)

prior to the enemy entering the brigade's AO.

Layering ISR to maximize detection and targeting

If a brigade can properly man and train their collection management cell, give them enough geographic and temporal space to plan for during mission analysis, then the final key to success is to plan and layer ISR appropriately to find the enemy.

As part of mission analysis, a BCT S2 and CM must first consider their overall approach to collection management. Joint Publication 2-01 Joint and National Intelligence Support to Military Operations, advises "When developing a collection plan, collection managers should consider to maximize efficiency by dispersing collection assets across the widest geographic area in order to maximize collection, or place them in nearby or the same geographic areas to overlap their sensor ranges for synergistic effects, thus providing more opportunities for

dynamic tipping and cueing, asset mix and/or asset redundancy." This concept of asset convergence or dispersion is determined based on whether the enemy course of action is clear versus unknown. For CTC rotations, typically the brigade understands where and when the enemy is expected to approach from and we subsequently recommend that the brigade attempt to maximize asset convergence.

Reliance on one type of collection asset severely restricts the level of certainty and dramatically increases mission risk of misiden-

tifying a target. CMs must analyze what the best assets to answer the commander's intelligence needs are, but should attempt to layer (or mix) complementary ISR assets to further increase likelihood of observation. JP 2-01.1 *Joint Tactics, Techniques and Procedures for Intelligence Support to Targeting*, Figure III-10, illustrates some of these planning factors; however, we recommend CMs study the new ATP 3-55.3 *ISR Optimization Multi-Service Tactics, Techniques and Procedures for Intelligence Surveillance and Reconnaissance Optimization*, published September 2019, which provides more detailed guidance on ISR employment for specific mission requirements based on capabilities.

Once assets are determined appropriate or not, brigades typically fail to consider layering ISR assets in order to mass their effects. Layering ISR begins with theater collection, like the Joint Surveillance and Target Attack Radar System (JSTARS), which provides important ground-moving target indicator intelligence as the enemy moves in the brigades' deep areas. Brigades understand the concept of cueing when it comes to JSTARS onto a full-motion video (FMV) asset, but they then over-rely on their aerial FMV ISR (Division MQ-1C Gray Eagle or Brigade RQ-7B Shadow).

Most brigades fail to task their cavalry formations, infantry/armor battalions or fire support teams (FIST) to observe multiple named areas of interest to confirm or deny enemy courses of action in conjunction with their aerial ISR to enable targeting. Battalions also arrive unprepared to leverage their own organic battalion-level ISR assets like small unmanned aircraft system or their own scout platoons. Moreover, brigades struggle to actually publish an ICSM daily with their FRAGOs to inform or direct ISR assets like their cavalry squadron. When weather turns poor, or division assets redirect to higher priority missions, brigades are left unprepared because they have

not adequately layered all-weather redundant ISR assets like their cavalry squadron.

Brigades also do not conduct effective intelligence handover between these assets and units. To avoid surprise, brigades must plan and conduct deliberate intelligence handovers with ISR assets. It starts with initial notification of enemy movement with theater deep assets in the division AO and an assessment on the brigade's current operations (CUOPS) floor on what routes and time horizons the enemy is expected to take. Brigade aerial ISR then should acquire the enemy to enable further advance warning and enable brigade indirect fire shaping. The brigade's CUOPS section should prepare to tip and pass these targets to their reconnaissance squadron in their series of observation posts or scout sections in depth. Once these targets are handed over, the brigade should be free to return their aerial ISR to focus back into the brigade's deep areas. Finally, the reconnaissance squadron conducts a deliberate handover of these targets into the infantry/armor battalions' close fight where the remnants of the enemy are eventually destroyed.

Intelligence handover of targets is a difficult and deliberate process that requires planning, graphic control measures and rehearsals. Brigades currently are not conducting effective IC technical rehearsals, IC/fires rehearsals and combined arms rehearsals to synchronize the handover of the enemy from the brigade's deep areas into the battalions' close fight. While outside the scope of this article, we recommend brigades spend effort to at least understand what is necessary to rehearse in the IC/fires rehearsal to shape the deep fight and conduct effective intelligence handover.

Conclusion

Evolution of our fundamental skillsets while linking ISR to targeting across the BCT will con-

tinue to utilize much that the BCT has to offer. To allow BCTs to capitalize on the myriad of collection assets and increase their lethality, we focused on three areas. First, ensuring a CM team exists and trains together year-round to plan and synchronize the BCTs collection strategy. Second, conducting analysis of the AoI to understand and plan for the BCTs deep fight. By doing so, a BCT can instead conduct a systematic attrition of their enemy instead of simply reacting to contact. To guarantee success in identifying the enemy, the BCT must maximize the utilization and layering of their ISR assets, to include their reconnaissance squadron and non-standard ISR like their counterfire radars. Lastly, conducting an effective IC and fires rehearsal is key for all operators to understand the sensor-to-shooter plan. As the U.S. Army continues training BCTs for large-scale war, we must relearn many of these fundamentals of LSCO so that we can maximize capabilities to successfully defeat our nation's emerging threats. Inclusion of these recommendations will likely, in time, reverse several of the negative trends of IC management and synchronization of IC and fires identified over multiple multinational brigade-level exercises at the CTCs.

The authors are all currently serving as intelligence and fires observer, coach/trainers at the Joint Multinational Center in Hohenfels, Germany.

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MAJ Jason Turner was formerly the 2nd ID DIVARTY deputy commanding officer and S3, the 2-17th FA BN S3 and the 2-2nd Stryker Brigade Combat Team fire support officer.

CPT Adam Wojciechowski was formerly the opposing force S2 at JMRC, an instructor at Military Intelligence Basic Officer Leader Course and the 173rd Brigade Support Battalion S2.



Soldiers assigned to the 1st Battalion, 37th Field Artillery Regiment, 1st Stryker Brigade Combat Team, 2nd Infantry Division, from Joint Base Lewis-McChord, Wa., fire an artillery round from an M777 Howitzer while conducting calibration during Decisive Action Rotation 20-05 at the National Training Center in Fort Irwin, Calif, March 5, 2020. Decisive Action rotations at the National Training Center ensure Army brigade combat teams remain versatile, responsive and consistently available for current and future contingencies. (SPC Kamryn Guthrie, Operations Group/National Training Center.)

Delivering timely Field Artillery fires

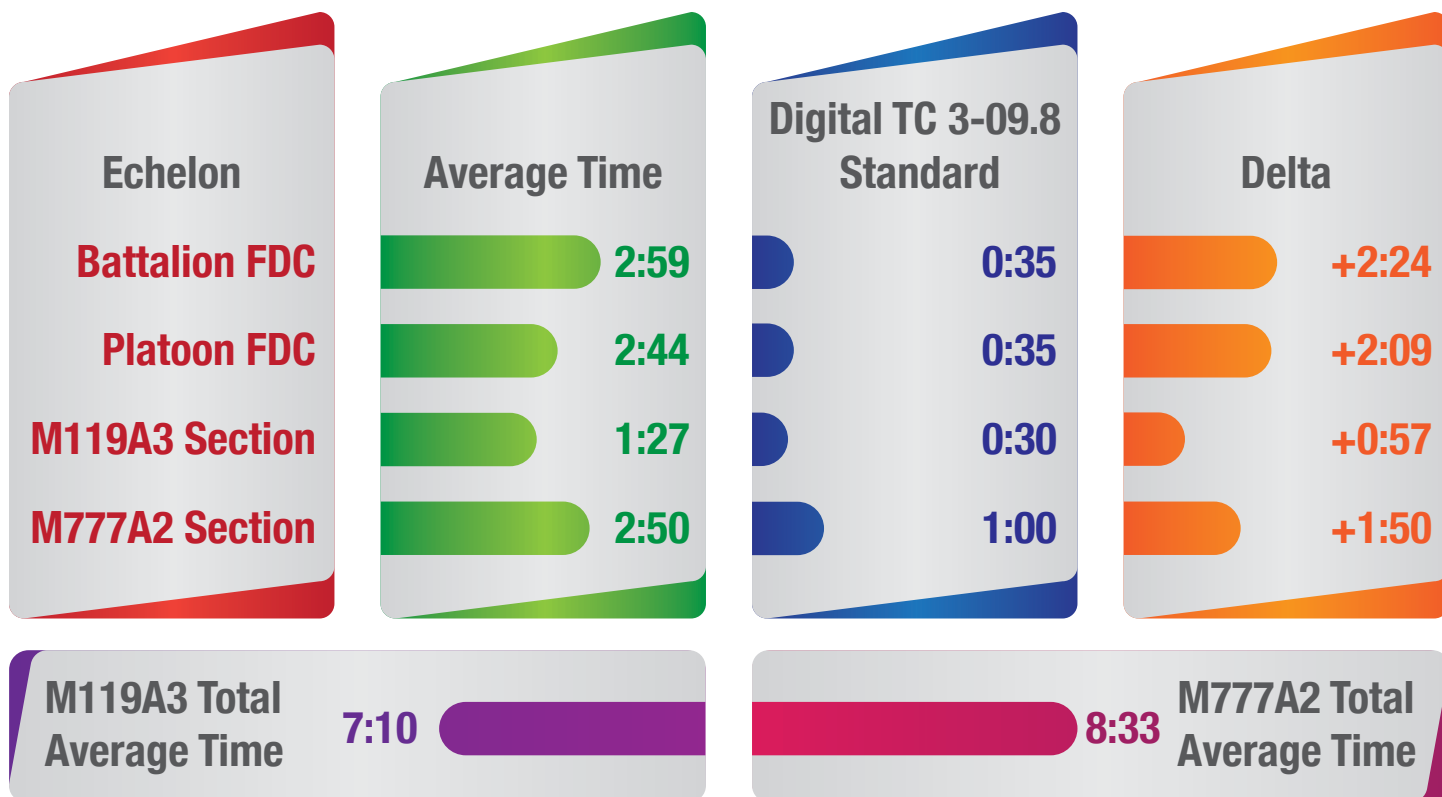
MAJ James Thomasson

A review of existing doctrine, articles, white papers and earlier Center for Army Lessons Learned (CALL) publications offer detailed references to topics discussed in this article. ATP 3-09.50, *The Field Artillery Cannon Battery*, dated May 2019, defines the hot, warm and cold platoon status. FM 6-50, *Tactics, Techniques and Procedures for the Field Artillery Cannon Battery*, superseded by ATP 3-09.50, de-

fined a hot section as a cannon section designated to maintain full crews at their posts for instant reaction to a fire mission. This technique minimizes reaction time to calls for fire and allows the other sections to accomplish various tasks that must be done during position improvement. This definition provides more direction and expectations than currently found in ATP 3-09.50. Furthermore, the

imperative to mass fire support assets in the combined arms fight is discussed in the article “Hunting with Fires: One Armored Brigade Combat Team’s Approach to Killing the Enemy.” FM 3-09, *Field Artillery Operations and Fire Support*, dated April 2014, also discusses the necessity to mass fires as well as when to mass fires.

TC 3-09.8, *Fire Support and Field Artillery Certification and Qualifi-*



Note: Chart data is for battalion and below and does not include brigade fires cell. Average time for M119A3 is 7:10, which is 5:30 over the 1:40 standard for battalion FDC, platoon FDC and howitzer sections allocated by TC 3-09.08. Average time for M777A2 is 8:33, which is 6:23 over the 2:10 standard for battalion FDC, platoon FDC and howitzer sections allocated by TC 3-09.08.

Average counterfire mission processing times based on data provided by the battalion fire direction center. (Rick Paape/ Courtesy information)

cation, dated February 2019, Table D-15, provides current counterfire mission processing time standards. The White Paper, "Fire Support Planning for the Brigade and Below," published Sept. 16, 1998, describes the necessity for wargaming to provide refinements, validate capabilities and synchronize the fires warfighting function. Additional emphasis is placed on understanding munition loads and characteristics. CPT Judith Morgan's article, "Tactical Field Artillery Munition Management," discusses planning efforts with the sustainment warfighting function to ensure ammunition resupply is forecasted and delivered in time to support brigade combat team (BCT) operations. CALL Handbook 16-12, *Musicians of Mars II*, dated April 2016, specifies the need for a detailed PACE plan (an order of precedence list based on primary, alternate, contingency and emergency communication) that is re-

hearsed to ensure lines of communication are maintained.

While the Field Artillery has made great progress over the last several years to integrate fires into the combined arms fight, Field Artillery battalions continue to struggle to deliver timely fire in support of Infantry BCTs operations at the Joint Readiness Training Center (JRTC). The purpose of this article is to share observations and trends during FY18, focused at the Field Artillery battalion and below, to better understand the issues resulting in a high average for fire mission processing time. Specifically, this article will discuss the average counterfire mission processing times, friction points and recommendations based on best practices observed during 10 rotations at the JRTC.

During FY18, the JRTC focused on counterfire mission processing time data to identify the friction points and where the friction

points occur to provide solutions based on observed best practices and observer, coach/trainer experience to reduce fire mission processing time. The figure above depicts the average counterfire mission processing times, from receipt at the battalion fire direction center (FDC) to firing of the first round of a fire mission.

This data is the collation from nine decisive-action rotations executed by active component Army and National Guard BCTs at the JRTC. However, the Field Artillery battalions' ability to deliver timely Field Artillery fires varies widely; some battalions take an average of 14 minutes or longer to process counterfire missions, while others process counterfire missions at an average of eight minutes or less. What immediately stands out from this data is that a great deal of the total fire mission processing time is consumed at the battalion and platoon FDCs.

Why so much time at the FDC?

The three most commonly observed trends that waste time at the battalion FDC are no predetermined fire orders, the battalion FDC not knowing which firing unit is ready to receive the fire mission (hot and cold platoon schedule) and lack of communication between battalion and the firing unit. First, developing a standard fire order based on the Attack Guidance Matrix (AGM) and the JRTC adjudication tables (in accordance with the Joint Munitions Effectiveness Manuals) reduces the total amount of time fire missions stay at battalion FDC before being sent to a firing unit. Outputs from the targeting process, specifically the Targeting Synchronization Matrix, is a clear indicator for how many firing units are required to be in a hot status or when the battalion must mass fires. The battalion S2 and fire direction officer (FDO) must develop a solid understanding of the enemy threat during mission analysis to determine what type of munitions and the quantity needed to achieve desired effects on the enemy. Furthermore, course of action analysis (COA) should not only focus on what enemy combat power remains on the battlefield during each phase of the operation, but also define ammunition resupply triggers. The transition from conceptual to detailed planning is evident once all movements are synchronized in time and space between the forward support company (FSC), the firing units and ammunition consumption rates. Second, a battalion FDC continues to consume more time during fire missions if it does not maintain a good system of which firing units are in a hot status, in position ready to fire, and not moving to another firing position. Battalions consistently struggle to develop and maintain “hot and cold” platoon schedules. While some battalions do not plan for “hot and cold” platoons, oth-

ers develop unrealistic schedules. I would contend that FDCs and firing units can maintain hot status for no more than four hours. Units that plan a hot status for longer times are destined to exceed fire mission processing time standards. Third, communications that might be relatively easy to maintain in simulation center or in the field during home station training are very difficult to maintain in the complex terrain and competitive environment of the JRTC. At any given time during a rotation, some Advanced Field Artillery Tactical Data System (AFATDS) are communicating over the secret internet protocol router network, some are communicating over frequency modulation radio and some are not communicating at all.

A few additional notes are in order about “hot and cold” platoon schedules. First, we must define what the hot status truly means. During FY18, units reported that they made TC 3-09.08 time standards on approximately 80 percent of the fire missions during Table VI certifications. Moreover, those missions not meeting the time standard are on average less than one minute over the time standard. This is significant because the unit can clearly process fire missions much faster than the average times collected at the JRTC. This is not due to a lack of ability or competency. Field Artillery battalions have already trained to standard and certified that FDCs and howitzer sections can achieve fire mission processing time standards prior to arriving at the JRTC. The FDCs and howitzer sections are in the “three-point stance” during Table VI certification and ready to receive the fire mission.

Second, battalion FDCs fail to develop a detailed schedule for hot and cold units, nor is there a formal process to bring a cold unit to hot status and vice versa. A formal checklist and process that notifies units when they are in a hot status, or relieved of hot status and now in cold status, alleviates confu-

sion among subordinate elements. More importantly, the battalion FDC controls this process and understands which unit to send fire missions to at any given time.

Third, the battalion must consider the maneuver plan and when the battalion is expected to mass fires or prosecute preplanned targets. There will be times when everyone needs to be in a hot status. Understanding these times is crucial to developing the hot and cold schedule. FM 3-09 states that massed fires seek to maximize the effectiveness of the initial volley on the intended target. Massing all available fires enables the maneuver commander to maximize the effect of fires on a target or targets. Massing fires must occur to disrupt enemy formations, support friendly penetration of enemy positions, destroy hasty defenses and prevent massing during counter attacks. Moreover, synchronized and intense fires can cause enemy personnel to lose the will to continue to fight. The friendly scheme of maneuver identifies these decisive points in which Field Artillery battalions are expected to mass fires. Additionally, battalions must determine if there will be a dedicated counter-fire battery and how this effects the rotation of hot and cold platoons.

Recent trends observed at the JRTC

Issue 1

Units arrive at the JRTC without a defined system for hot and cold platoons or demonstrate an inability to adhere to the defined system. There is no common understanding of what “HOT” actually means. For example, are personnel expected to be at the ready like Table VI qualification (radiotelephone operator with hand mic to ear, computer operator with fingertips on AFATDS keyboard, section personnel at the howitzer, etc.)? Soldiers are doing good things (security, main-

tenance, rest, training and other priorities of work), but are not truly in a hot posture ready for a fire mission.

Recommendation 1

Units can benefit by defining hot and cold platoon status with expectations of each status. Units must develop and track a schedule of planned hot and cold transitions with personnel assigned to manage the plan. Synchronize the schedule during COA analysis in conjunction with survivability moves and alternate position area artillery occupations. Units must maximize time during home station training to refine tactics, techniques and procedures (TTPs) and practice hot and cold TTPs.

Issue 2

Units do not develop a checklist to execute formal transfers from hot to cold status. As a result, battalion FDCs are not tracking who is hot and waste time determining who receives the fire mission. Units have been in a hot status for extended periods of time, resulting in personnel asleep or not at their assigned positions for a fire mission.

Recommendation 2

Develop a hot/cold standard operating procedures (SOPs) to include change over briefs to mitigate confusion and track the prescribed schedule. Units must define a formal process to bring cold units to the hot status, then relieve hot units to the cold status. Additionally, units must nest transitions from hot to cold status with the tempo of BCT operations to reduce section-level friction while ensuring required assets are available during critical battle periods. Some items to consider include: develop a realistic hot/cold schedule that is sustainable, intelligence reports and friendly scheme of maneuver can depict times to accept risk in the schedule and standardized reporting criteria to

ensure the battalion FDC is able to accurately track weapon statuses for howitzers and radars.

Issue 3

Units at the JRTC struggle to forecast ammunition expenditure and deliver ammunition in time to support BCT operations. The concept of sustainment lacks detailed planning and is not discussed during COA analysis to develop a feasible plan.

Recommendation: Units must know the required number and type of munitions required to achieve the desired effect against the entirety of the enemy formation. Units should know the haul capacity of the FSC and utilize other vehicles and trailers to support resupply operations. Ammunition management cannot be the sole responsibility for either the battalion FDO or the battalion S4. The battalion S3 must supervise ammunition requirements while the battalion XO coordinates with the support operations officer and brigade support area to ensure ammunition is delivered.

Best Practices

The Fire Support Division at the JRTC has observed several best practices during FY18. Some units not only improve the delivery of indirect fires, but other warfighting functions as well. For example, units that train on the Global Broadcast System (GBS) at home station are better prepared to use the system at the JRTC. While GBS is used to obtain meteorological data, the S2 can also connect the Distributed Common Ground System-Army to the GBS.

Another best practice observed at the JRTC is maintaining digital communications from battalion to the firing elements. Digital is always faster than shooting degraded and reduces the risk of receiving wrong firing data or having to repeat voice commands. Units with SOPs that define specific standards for maintaining digital communications, with triggers to

transfer technical control to another element if battalion does not meet those standards, succeed in avoiding degraded fire missions. Additionally, units that force the target description into the AF-ATDS reduce the total fire mission processing time, as well as maintain fire missions in accordance with the AGM.

Finally, technical rehearsals that integrate sensor-to-shooter establish a solid foundation for ensuring the timely delivery of indirect fires. Battalions that ensure sufficient time is allocated for the technical rehearsal, while integrating all observers, are better prepared for the upcoming operation by validating the fires plan.

Conclusion

The Field Artillery Training Strategy guidance prepares units for combat and rotations at a combat training center. The struggle is identifying how best to replicate the same posture as home station training, when executing Field Artillery Tables during live fire and operations in a decisive-action scenario at the JRTC. Field Artillery battalions that create extended periods of time for units in a hot status are more likely to exceed the standard fire mission processing times. Consider these two questions, 1) What is a reasonable amount of time for a unit to truly stay in a hot status? 2) How long can a lineman stay in the three-point stance before false starting (football analogy)? Developing a thorough and disciplined schedule to maintain hot and cold units for extended periods of combat operations is crucial to delivering timely fires.

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Soldiers assigned to the Field Artillery Squadron, 2nd Cavalry Regiment prepare to fire M777 towed 155 mm howitzers during exercise Dragoon Ready 20. Dragoon Ready is a 7th Army Training Command led exercise designed to ensure readiness and certify the 2nd Cavalry Regiment in NATO combat readiness and unified land operations at the 7th Army Training Command's Grafenwoehr Training Area, Germany, Oct. 28, 2019. (Matthias Fruth/U.S. Army)

If you are in a fair fight, division did something wrong

DIVARTY's role in the division targeting process and predictive fires

MAJ Matthew Boudro, MAJ Benjamin Griffin and MAJ Duane Clark

Throughout September and October 2019, 1st Infantry Division (1st ID) and 1st Infantry Division Artillery (1st ID DIVARTY) excelled while providing deep fires in support of two exercises, Operations Saber Junction 19 and Dragoon Ready 20. Both were blended, multinational exercises with live-force training at Hohenfels

Training Area (HTA). During the exercises, 1st ID DIVARTY served as both the counterfire headquarters (CFHQ) and the force field artillery headquarters (FFAHQ). The division won the counterfire fight and shaped enemy maneuver forces, which created conditions for the brigade combat teams' (BCTs) successful close fight. Fir-

ing nearly 10,000 constructive rounds over the two, 10-day exercises, 1st ID effectively shaped the deep fight by targeting enemy artillery, air defense and maneuver formations. The critical elements of the division's success included a simple and repeatable targeting process, DIVARTY's input to that targeting process and the use of

predictive fires to deny enemy position areas for artillery (PAAs).

ATP 3-09.90, *Division Artillery Operations and Fire Support for the Division*, establishes the DIVARTY's roles and responsibilities as the CFHQ and the FFAHQ for the division. During these exercises, the DIVARTY headquarters experienced little friction filling both roles. DIVARTY controlled the division counter fight by positioning all AN/TPQ-53 (Q-53) counterfire target acquisition radars thus ensuring maximum coverage at all times and supporting the requirements of the CFHQs. DIVARTY also utilized general support artillery to conduct counterfire missions long of the coordinated line fire, while directing BCTs to engage counterfire targets in their area of operation using direct support artillery battalions. By serving as the FFAHQ and the counterfire headquarters the fire control officer (FCO) has multiple options to engage enemy artillery formations. The fire control element attempted to use a dedicated counterfire shooter, however that was not always feasible due to range and airspace deconfliction. The option to use varied delivery systems increased responsiveness. DIVARTY serving as the FFAHQ and CFHQ, provides significant flexibility in the planning and execution of both deliberate and dynamic targets.

The targeting methodology in 1st ID is a simple, repeatable process that yields an easily executable plan. This ensures the effective integration of each staff section into a well synchronized targeting process and that all participants understand their required inputs. Its nature also ensures the process endures through staff turnover. A different command post led the process during each exercise. During Saber Junction, the division main served as higher control from Fort Riley, Kan. First ID forward played the same role during Dragoon Ready from HTA. The ability to repeat the process with two largely independent staffs proves the functionality of the system.

To keep the process simple, 1st ID uses the decide, detect, deliver and assess model organized by air tasking order (ATO) to develop targets in accordance with the commanding general's (CG) guidance. Further reinforcing the simplicity and the iterative nature of targeting, the agendas for the targeting working group (TWG) and target decision board (TDB) are identical. Following a review of the rules of engagement, the 1st ID targeting team first assesses effects from the previous ATO. It then reviews and validates planned targets for the next two ATOs. The process concludes when the CG approves targets for 72 hours out and issues guidance for the ATO that is 96 hours out. Each ATO, except for the assessment, follows the same briefing format: weather effects, higher and adjacent unit targeting, active fire support coordination measures and fire support tasks, enemy and friendly task and purpose by brigade and review of planned targets. For each planned target the targeting team briefs the formation, location, desired effect, time window to achieve effects and the assets used to detect, deliver non-lethal or lethal effects, assess battle damage assessment and integrate surface-to-surface and air-to-surface fires.

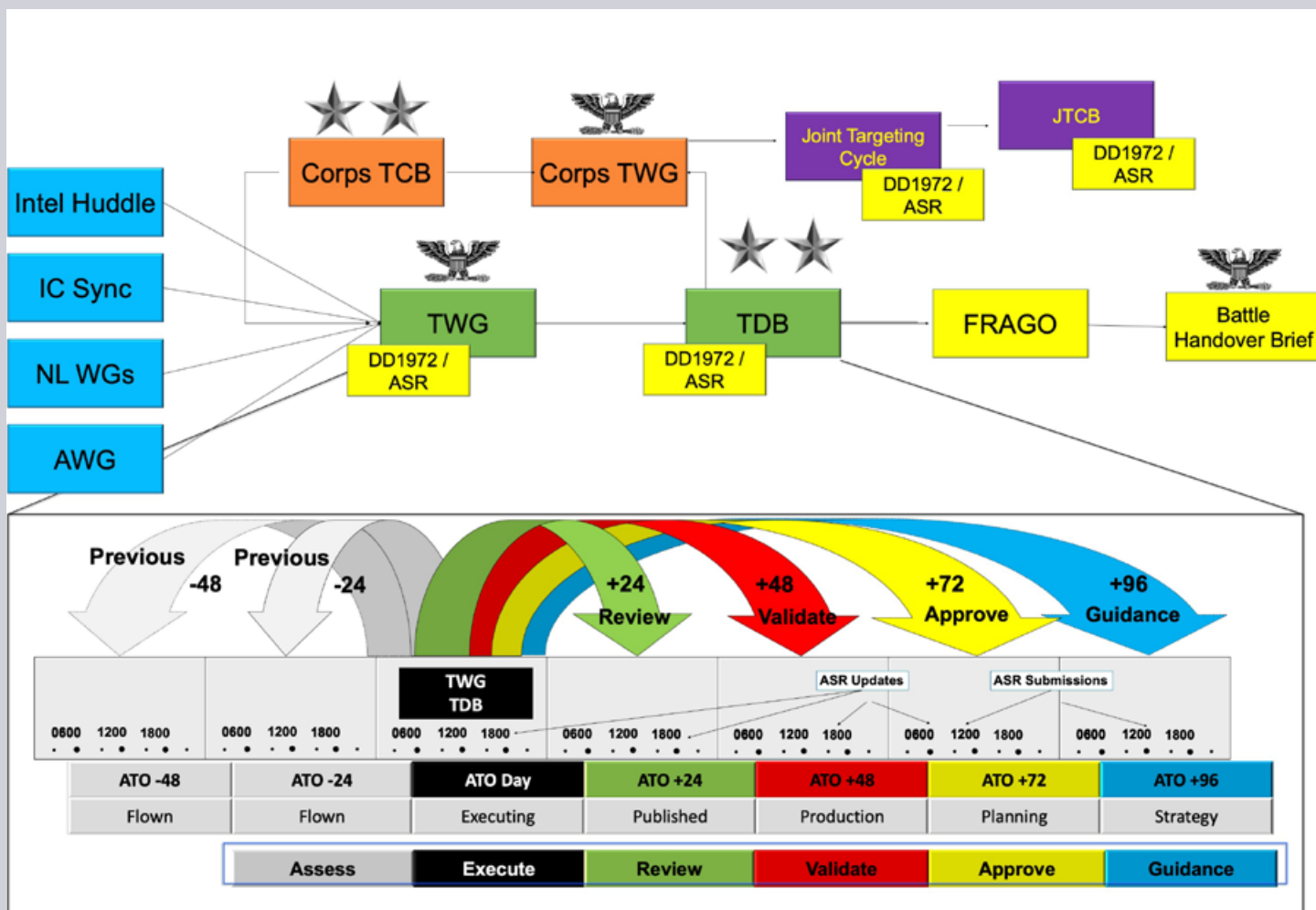
This process is effective because all members of the 1st ID targeting team come to both the TWG and TDB prepared to brief and give input, which keeps the runtime of both meetings to under one hour. First ID DIVARTY provides the key personnel to the targeting process. First, the DIVARTY commander, as fire support coordinator (FSCOORD), drove the process, and in the absence of the CG, approved the targeting plan. The DIVARTY lethal effects coordinator planned artillery targets and positioning and the DIVARTY S2 provided counterfire and battle damage assessments that helped determine priority targets.

Throughout both exercises, 1st ID drove its targeting process by focusing on specific formations. During TWGs, collaboration be-

tween personnel from DIVARTY, G2, G3 and division fires produced a list of three to five priority formations for the day. These were typically identified at the battalion level, though occasionally an individual company or battery made the list. The process utilized the high payoff target list and enemy order of battle to identify specific units to target and an event template for the ATO to provide locations as start points for collection assets in the detect phase. However, during execution, it was rare for 1st ID assets to engage a targeted unit within a planned named area of interest or target area of interest (TAI). Intelligence community assets often identified formations sooner than anticipated, allowing DIVARTY to engage and destroy the formations deeper than initially planned. Ground Moving Target Indicator radar was particularly helpful in shaping this. As the targeting process rarely called for a formation's destruction at a particular location, the division generally engaged high payoff targets as identified rather than waiting for the designated window. If a situation did require action at a specific time and location, it is then possible to maintain collection until conditions are set.

During past exercises, both the DIVARTY S3 and FCO participated in the division targeting process. During Saber Junction and Dragoon Ready, the lethal effects coordinator assumed sole responsibility for contributing to the TWG and TDB. Transitioning the targeting responsibilities to another 13 series major allows the DIVARTY S3 to focus on the overall operations of the DIVARTY and keeps the FCO involved in the current fight. For each target that had planned surface-to-surface effects, the lethal effects coordinator would determine the fire order and brief gun target line and maximum ordinate (MAXORD), which determined how the division would request or deconflict airspace.

For DIVARTY, the final output from the TWG and TDB is the field artillery support plan (FASP). DI-



The targeting framework for the 1st Infantry Division. (Courtesy illustration)

VARTY published the FASP, including the target list worksheet (TLWS) daily, providing guidance for the next three ATO days. The internal DIVARTY battle rhythm included a fire synchronization meeting following the target working group. Led by the effects coordinator, attendees to the fire synchronization meeting included the DIVARTY S2, S4, air defense airspace management/brigade aviation element (ADAM/BAE) and FCO. For each planned target the effects coordinator reviewed the fire order, positioning guidance and coordinating measures. Each section validated that every target was properly resourced. This meeting allowed the ADAM/BAE cell to submit airspace control measures (ACMs) and enabled the S4 to forecast ammunition expenditures 72 hours in advance. Following the synchronization meeting, the lethal effects coordinator,

with assistance from the targeting cell, drafted the FASP and TLWS. After approval in the TDB, the DIVARTY headquarters published the FASP for execution.

Planning for airspace during the targeting process enabled the rapid execution of preplanned fire missions. When a MAXORD exceeded the coordinating altitude of 20,000 feet mean sea level, the lethal effects coordinator identified the need for an ACM. This prompted the division airspace manager to create an ACM and request approval from corps. After the TWG, the DIVARTY ADAM/BAE cell built the ACM in Tactical Airspace Integration System and sent it to the division joint air ground integration cell for inclusion as a preplanned measure in the ATO. This relationship between the division and DIVARTY air cells ensured fixed and rotary wing air

operations did not shut down surface-to-surface fires.

Throughout operations Dargoon Ready and Saber Junction, 1st ID DIVARTY shaped the battle through predictive fires that denied enemy PAAs. Firing unobserved fires on likely PAAs, without an intelligence, surveillance and reconnaissance (ISR) trigger, significantly disrupted enemy fire formations and led to the destruction of numerous enemy batteries. Successfully planning these fires began intelligence preparation of the battlefield (IPB) and completion of the military decision-making process (MDMP), requiring a strong understanding of the enemy's position relative to space and time throughout the operations. DIVARTY's predictive fires were more TAI dependent than the targeting process, though still guided by the need to target a specific formation. As these fires often

occurred unobserved and with a minimum of indicators, terrain analysis often led to the identification of likely areas for enemy artillery to fire from.

During step two of IPB, “Describe the Environmental Effects on Operations,” analysts in the DIVARTY S2 shop worked closely with the FCO for terrain analysis. This analysis produced in-depth examinations of feasible PAAs throughout the battle space which could be used by either friendly or enemy fires assets. The identification of these PAAs facilitated both friendly fires planning and development of enemy courses of action (COAs).

Creation of an accurate threat template proved essential for conducting effective PAA denial fires. Analysts needed to capture how enemy forces use fires assets to support maneuver. This included the enemy’s doctrinally preferred distance from supported elements and the volume and type of fires the enemy preferred to use. An accurate threat template allowed analysts to provide rapid assessments on the location of enemy fires assets based on the identification of any enemy formation. Understanding the volume and type of fires used by the enemy to support their formations enabled accurate assessments of when and how the enemy would employ fires.

The information gleaned from fires-focused analysis during steps two and three, contributed to step four, “Determine Threat Courses of Action.” Here DIVARTY analysts again worked with the FCO to use the PAAs from step two to identify the most likely ones for the enemy to utilize. These then became preplanned fire zones for use during operations. Development of a fires-centric event template that depicted location by battery, of enemy formations at critical points furthered understanding of the fight and set conditions for predictive fires.

Terrain analysis of PAAs, the threat template, and event template provided the tools for the

DIVARTY S2 shop to recommend execution of predictive fires. They provided the ability to understand how the fight was developing in space and time. Once friendly assets identified an enemy formation, analysts used event templates to identify the echelon of the force and the fires assets supporting it. The threat template provided the base information for analysts to understand the geographic relationship between the identified formation and its supporting fires, and the terrain analysis showed the PAA that best fits enemy doctrine. Analysts then provided recommendations to the FCO on where to shoot and on the composition of enemy forces in the targeted area. The entire process of initial identification of an enemy formation to templating its supporting fires took under one minute, allowing for the rapid creation of a fire mission and delivery of timely and lethal fires.

It is also possible to plan predictive fires based off time analysis of enemy COAs. Using expected rates of movement, analysts can support targeting by identifying windows where enemy fires assets are likely to be occupying PAAs to support maneuver elements. Even if ISR is unavailable, a commander then has the option to shape the battlefield by denying important terrain at a key moment. Predictive fires should also become more effective through each phase of the operation. As the battle unfolded, the DIVARTY S2 shop gained greater understanding of how the enemy commander was utilizing fires based on pattern analysis of enemy fire missions, ISR providing fuller understanding of the enemy order of battle, and confirmation of enemy COAs. These sources of information led to further refinement of the predictive fires plan creating the opportunity for these fires to be at their most effective at the decisive point of the battle.

Executing predictive fires in this way greatly helped DIVARTY shape the deep fight. It seized initiative in the fires warfighting function and enabled operations in envi-

ronments with scarce ISR. There is risk in exposing friendly assets and unobserved fires also carry a heightened risk of harming non-combatants. The significance of these risks means it is essential to begin planning terrain denial fires from the very beginning of MDMP. Deliberate planning of predictive fires paired with an opportunistic DIVARTY staff can greatly impact the ability of a division to shape the battlefield.

Overall, 1st ID sustained success during the previous two exercises by executing a simple and repeatable targeting cycle, integrating DIVARTY into the targeting process, and by executing predictive fires. The effects of division deep fires included the destruction of over 70 percent of enemy artillery. Additionally, deep fires set conditions for aviation and ground operations. During both Saber Junction 19 and Dragoon Ready 20, these tactics, techniques and procedures served as best practices that should be repeated during future command post exercises and warfighters. They offer a way for divisions to create unfair fights and isolate enemy formations, allowing BCTs to destroy enemy forces and rapidly transition operations.

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Flexibility in the fires enterprise

LTC Derek Baird

Over the past several years, the Army shifted focus from counter-insurgency operations to a more dynamic, and lethal focus on decisive action operations through combined arms maneuver. This paradigm shift provided the Field Artillery community a great platform to train and execute fire support flexibility during high operational tempo (OPTEMPO) missions. Over the past year, the 3rd Battalion, 16th Field Artillery Regiment, trained its fires enterprise to conduct deliberate fires planning, executed under dynamic and fluid conditions during high OPTEMPO. The National Training Center (NTC) provided a fantastic training opportunity to validate, and actualize lessons learned from our yearlong training strategy. The NTC shifted from a planning period, battle period, planning period rotational framework to create an open phasing construct enabling the opposing force, and the rotational unit to execute extremely flexible, and dynamic operations against each other. During the NTC rotation 19-06, the 2nd Armored Brigade Combat Team, 1st Cavalry Division, *Black Jack*, published a single operations order (OPORD) for the entirety of the mission, and then published several short fragmentary orders (FRAGOs) during the operation to adjust the brigade's tasks as required. This open phasing construct, and single OPORD enabled the fires enterprise to use the brigade and Field Artillery (FA) commander's visualization and intent to deliberately plan targets through the military decision-making process and targeting. Due to the fluid nature of these operations, the fires enterprise had to be flexible enough to provide massed fires at the decisive point and shift priorities based off the dynamic environment. The fluid operations provided distinct lessons learned. The fires enterprise had to understand when to prioritize massing effects, take advantage of success and opportunities through dynamic execution of deliberate fires plans, and ensure fires assets remained flexible



LTC Derek Baird provides an information briefing during an intelligence and communications Fires rehearsal. (Courtesy photo)

to respond to the rapidly changing operational environment.

Prior to the NTC 19-06, the 2nd ABCT published an extensive OPORD covering the entirety of the 2nd ABCT's mission. This OPORD provided solid commander's intent that was conveyed through multiple commander-to-commander dialogues, rehearsals and back briefs. The 2nd ABCT commander, COL Jeremy Wilson, used the commanders' process to provide his understanding, visualization and direction to depict how he intended to fight the brigade, and where he wanted to mass joint fires in support of maneuver operations. This enabled me, as the brigade fire support coordinator, to understand his thought process, and allowed me to nest my visualization and intent to the fires enterprise. The brigade focused targeting efforts on deliberate fires planning, flexible enough to adjust quickly to the fluid environment inherent in our operations. One of the biggest challenges we faced was to dynamically re-task assets, or quickly coordinate resources we requested 72 hours out, due to the rapidly evolving operational environment. At the fires battalion, the 3-16th FAR focused planning efforts using a 72-hour construct, focusing heavily on course of action (COA) development and analysis using my intent to ensure we were in place ready to fire at the right time, with the right ammunition and classes of supply to support this fluid environment. The 72-hour planning cycle also allowed the 3-16th FAR to

rehearse operations using maps, and terrain sketches, at echelon, to synchronize our operations. The 72-hour targeting and planning construct came with its own risk, mitigated through understanding the decisive point, and priorities of fires to enable the brigade to mass joint fires at the appropriate time, and space.

The brigade targeting team focused on the 72-hour targeting cycle, coordinating joint resources to mass at the appropriate time, and space through deliberate planning efforts. However, we quickly realized our deliberate planning efforts were not flexible enough to adjust to the rapidly changing operational environment. This was due to maneuver forces taking advantage of success, and continuing to expand areas of operations. Operations we anticipated supporting 72 hours in the future, tended to occur in a more rapid manner. This dynamic execution often-times meant we had to dynamically re-task resources to support maneuver operations, or deny requests, based off of priorities of fire. This ensured that appropriate assets were available at the brigade's decisive point.

At the brigade level, the fires team used products such as the attack guidance matrix, commander's intent, decision support matrix and commander-to-commander dialogue to ensure we provided the appropriate effects in time and space. The fire support rehearsal is another key event that assisted in refining and synchronizing fire support in an ev-



LTC Derek Baird provides a briefing of the commander's intent during training at National Training Center, Fort Irwin, Calif. (Courtesy photo)

er-evolving environment. One of our major lessons learned was to ensure the fire support rehearsal not only synchronized all joint fires assets, but helped visualize potential changes to fires plans based off maneuver actions during a dynamic, high OPTEMPO environment. This is not an exact science, and in the early stages of our rotation, we tended to “play whack-a-mole” with minimal success. However, as the brigade progressed through its NTC rotation, the fires enterprise was able to better prioritize joint fires to provide more lethal effects in support of the *Black Jack Brigade*. This was especially true when planning for organic fires through the 3-16th FAR. Organic fires assets are more responsive to the dynamic nature of a high OPTEMPO environment. For more flexible organic fires response, the Field Artillery battalion shifted to a 72-hour planning process to ensure organic assets were available to provide timely, and accurate fires for the *Black Jack Brigade*.

As operations became more fluid, the 3-16th FAR had to quickly adjust its planning method to meet the fluid operational environment. The dynamic nature of our brigade's operations meant that we had to provide flexibility in our combat configured loads (CCL), and resupply operations to provide organic fire support to the brigade. Our biggest challenge was to forecast when, and where to best provide the correct package based off the high OPTEMPO nature of our operations. The 3-16th FAR standard operating procedure was

a great starting point, enabling the staff to account for CCL flexibility by ensuring our Palletized Loading System trucks, and Carrier Ammo Tracks were configured to provide appropriate effects at the right time and place. For example, we needed to provide primary and alternate battery shooters for constant suppression and obscuration to enable rapid maneuver across the open desert, a high explosive package for the counter-battery, and family of scatterable mines to support blocking operations. However, my staff initially struggled with appropriately forecasting when, where, and how to resupply the battalion to support current, and future operations. I shifted the staff's focus to a daily planning battle rhythm, focused on a 72-hour planning cycle, aligned with the brigade's targeting efforts, to enable the staff to provide more flexibility in a high OPTEMPO environment. The brigade's single OPORD enabled my planning staff to initially conduct a detailed mission analysis for the entire operation (rapidly updated throughout our operations), allowing the staff to focus more on COA development, and analysis using my commander's intent, and decision points to ensure we were flexible enough to provide timely and accurate fires for the *Black Jack Brigade*. The 72-hour planning cycle allowed the staff to better anticipate fuel, ammunition, medical and maintenance requirements to support our operations. Batteries increased efficiency by understanding the nature of the brigade's fluid environment, us-

ing my commander's intent, participating in multiple brigade and battalion rehearsals and through commander-to-commander dialogue. The combination of our 72-hour planning cycle, and the batteries' operations, allowed the battalion as a whole to provide effective organic fires in a rapidly evolving brigade area of operations.

A brigade's fires enterprise must deliver organic, and joint fires rapidly through flexible, deliberate fires plans, executed dynamically, to enable the brigade's success during a rapidly changing, high OPTEMPO environment. This seemingly Herculean effort takes understanding and training, initiated during home station training events. The 2nd Brigade Armored Combat Team, 1st Cavalry Division, spent tremendous energy ensuring that its fires enterprise could rapidly respond to a fluid operational environment using a single OPORD, multiple short FRAGOs, and commander's intent to guide effective, timely and accurate joint fires during the NTC Rotation 19-06. Throughout the NTC rotation, the 2nd ABCT fires enterprise gathered lessons learned and put them into action. The brigade, and the 3-16th FAR focused on a 72-hour planning cycle to maintain flexible joint fires operations to support the 2nd ABCTs dynamic operations, prioritized massing effects during decisive operations and took advantage of maneuver success through the dynamic execution of deliberate fires plans. Home station training and combined training center exercises provide the Field Artillery community a way to prepare for flexible field artillery support during high OPTEMPO operations.

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“A brigade’s fires enterprise must deliver organic, and joint fires rapidly through flexible, deliberate fires plans, executed dynamically, to enable the brigade’s success during a rapidly changing, high OPTEMPO environment. This seemingly Herculean effort takes understanding and training, initiated during home station training events.

THE MULTI DOMAIN TASK FORCE FROM A DIVISION ARTILLERY HEADQUARTERS

MAJ Branton Irby and CPT Austen Boroff

THE MULTI DOMAIN TASK FORCE PILOT PROGRAM

America's 1st Corps is facilitating phase two of the Multi Domain Task Force Pilot Program (MDTF-PP) with 2nd Infantry Division Artillery (DIVARTY) as its headquarters through fiscal year 2020 until 1st MDTF reaches initial operating capability (IOC).¹ Second ID DIVARTY has maintained the progression of the MDTF since April 2019 when the mission was reassigned to employ both 17th Field Artillery Brigade (17th FAB) and 2nd ID DIVARTY as the MDTF headquarters.² Second ID DIVARTY was assigned exercises Pacific Sentry (PS19) and Talisman Sabre (TS19), and later established as the sole MDTF headquarters in support of MDTF-PP.³ This article provides recommendations for 1st MDTF that will enable its progress through IOC to full operational capability utilizing 2nd ID DIVARTY's experience during PS19, TS19 and FY20 Pacific Pathways exercises.

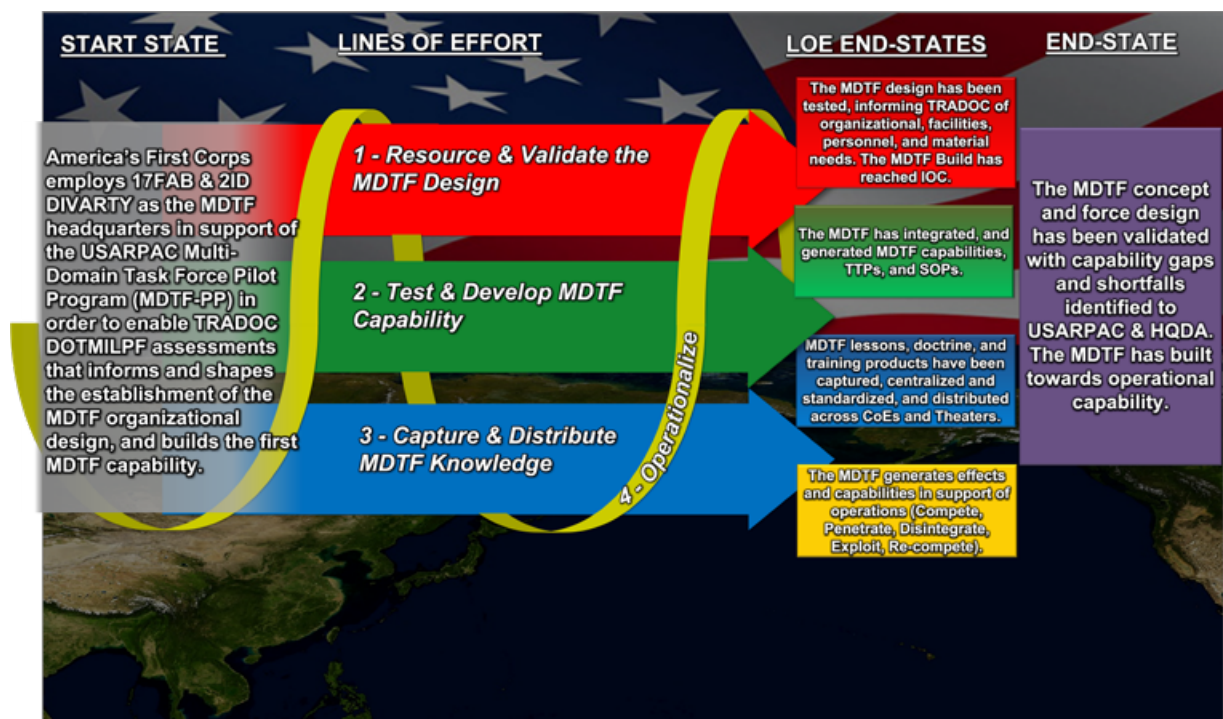
1 OPORD 097-20 (Multi Domain Task Force - Pilot Program FY20) 18NOV19.

2 FRAGORD 03 to OPORD 339-18 (Multi-Domain Task Force Pilot Program) 29APR19.

3 OPORD 097-20 (Multi Domain Task Force - Pilot Program FY20) 18NOV19.

BACKGROUND

The Multi Domain Task Force campaign plan. (Courtesy illustration)



LACK OF LIAISON PACKAGES AT ECHELON AND INSUFFICIENT COMMAND AND SUPPORT RELATIONSHIPS

DIVARTY and 1st MDTF will train and operate in assigned exercises as a composite MDTF until 1st MDTF reaches FOC with all subordinate and assigned units established. Without organic, assigned units under the MDTF, DIVARTY and 1st MDTF will be required to receive attached units and integrate them into planning and multi-domain operations for the foreseeable future. Hence, the process and lessons learned by which DIVARTY as the MDTF has trained, deployed with, and integrated attached units is the baseline in standard operating procedures until FOC. Additionally, as the MDTF will be required to integrate with a newly formed CJTF, liaison packages from the MDTF, and potentially component commands, will be required within the operations or fires cells to adequately coordinate and synchronize multi-domain effects.

TS19 presented the DIVARTY with several cases highlighting the importance of command and support relationships between the MDTF headquarters (HQ) and attached units. The attached forward support company (FSC) from the 634th BSB, 33rd Infantry Brigade Combat Team, Illinois Army National Guard and the LHP from 17th FAB are poignant examples of attached unit integration when coupled with an inadequate command and support relationship. The I Corps TS19 White Order did not establish command relationships between DIVARTY HQ and the subordinate MDTF units until vessel outload for TS19 departure. While direct liaison authority was granted prior to vessel departure, the coordination was hampered by additional training events in Pacific Pathways for both DIVARTY and 17th FAB. As a result, the planning efforts of DIVARTY to organize the HIMARS air insertion and live-fire events were not fully disseminated to the LHP. Those examples speak to the larger challenge of incorporating a composite ADA BN and Aviation TF. With future MDTF events scheduled for DIVARTY before MDTF activation, the HQ's ability to receive subordinate units, plan and execute effectively correlates with early staff, and subordinate unit integration.

The unique positioning of a brigade-size headquarters element (with accompanying modification table of organization and equipment {MTOE}) at the CJTF echelon reinforces the challenges of the MDTF at the convergence of the operational and tactical levels of war. The assignment of the MDTF comes with a price tag of liaison noncommissioned officers (LNOs). This includes LNOs from the MDTF up to the CJTF, as well from subordinate units into the MDTF HQ. Liaison teams must be integrated throughout the MDTF's higher and lower echelon's early in the planning process to allow leaders to understand capabilities and gaps, allow for integration into the joint air-ground integration center, and establish reporting requirements. All subordinate units should have a LNO team within the MDTF in order to aid planners, describe capabilities, and execute combined battle drills. The significance of the MDTF LNO team at the CJTF speaks directly to the MDTF's operational and tactical convergence. Operating with future long range artillery capabilities, the MDTF is required to execute tactical actions to shape the deep area of the battlefield with operational, and potentially strategic, effects and considerations. The MDTF LNO team ensures that tactical clearance of ground, sea, and air space occurs and those effects are integrated into the operational framework of the CJTF commander's intent.

COMMUNICATING AT ECHELON

As stated, the MDTF resides at the changeover point between tactical and operational levels of war. Its unique positioning creates challenges for a brigade headquarters in its ability to communicate with organic units and joint task force level components. These challenges arose due to the lack of available communications equipment and accessible networks associated with a DIVARTY's MTOE. While 1st MDTF's MTOE will not replicate a DIVARTY's, the data points between a FAB and DIVARTY provide a baseline for understanding capability requirements in mission command and communication equipment needed at echelon's above brigade and units below. Until MDTF FOC, it exists solely in the aggregate. While communication is always a challenge, integration into the MDTF and its higher headquarters will require standardization for both supporting and supported commands. The aforementioned changeover point signals the demand for the MDTF HQ to pull a common operating picture across the JOA, not only for situational understanding but also for clearance of air, ground, and sea space for its subordinate units. Future training must establish a baseline for a communications architecture that integrates attached units while rapidly assimilating the MDTF into its higher headquarters.

The INDOPACOM AOR dictates an environment hindered by a tyranny of distance and distributed communications across varying terrain interwoven with sea space. The expanse in which the MDTF and its units will operate requires robust and redundant communication packages and plans to include high frequency, satellite communications (SATCOM), and upper and lower tactical internet. Until the full task organization of the MDTF is established, attached units must be outfitted properly by parent units to ensure the communication requirements are fulfilled to connect with HQ over voice and digital. This was encountered during the MDTF's mobilization of an LHP to train distributed platoon operations in support of a Combined Joint Forcible Entry Operation during TS19. The LHP was improperly outfitted and thus hampered the ability of the MDTF to provide mission command outside of the brigade's SATCOM link that spoke directly to Task Force Fires (1st Marine Division, which received and maintained tactical control of the LHP during distributed platoon operations). A robust primary, alternate, contingency and emergency plan solution includes possible assets such as Link-16 over Multifunctional Information Distribution System radio and the expansion of Warfighter Information Network-Tactical assets such as SATCOM radios for firing units and lower echelon packages.⁴ Likewise, the MDTF is not equipped to communicate with the higher echelons to which it is assigned. A modular communications array will be necessary to meet MDTF mission requirements considering the likelihood of geographically separate detachments each needing significant bandwidth across multiple communication transports. An immature communications architecture will be compounded with the additions of ADA and Combat Aviation brigade units and remains untested with tactical employment of I2CEWS capabilities.

⁴ Fannelli and Allen, "HIMARS Over the Horizon Communications—The Way Forward at the HIMARS Battery and Below-."

SUSTAINING THE MDTF

The MDTF is a conglomerate of equipment and units that not only requires specialized maintainers, but also for leaders to be both specialists and generalists for a multitude of systems and platforms. DIVARTY required a significant capability increase to fulfill its MDTF requirements with emphasis in logistics and sustainment. Based on guidance from I Corps, DIVARTY received a FSC, however, the geographic dislocation of the FSC and lack of direct command relationship early on degraded the benefits of having additional sustainment planners within the MDTF. The organic BSB within the FAB is capable of the required sustainment and logistical planning for the BDE due to proximity, staff capacity and established interoperability. Though the 1st MDTF will have an organic BSB based on projected task organization, the MDTF must incorporate realistic sustainment operations into future training and be able to effectively integrate attached sustainment and maintenance support to ensure requirements are fulfilled.

The nature of 1st MDTF operations in the INDOPACOM AOR presents the challenges of sustainment across an archipelagic environment. Internal sustainment requires a concerted effort of the Aviation TF in addition to coordination and execution from fellow service components. While the organic BSB can alleviate mission command and planning challenges from an attached unit, an over taxed and unspecialized BSB supporting ammunition consumption for multiple “large bullet” units will encounter enormous logistical constraints that remain untested. The unit basic load for the MDTF is largely ill-defined and must be adjusted to give deference to both rapid deployment and sustained operations. Extensive foresight is needed to anticipate and request ammunition resupply which may potentially require sustainment operations across a denied or contested environment.

While the MDTF exists in the aggregate, the integration of attached units carries with it a demand for their specialized sustainment and maintenance needs. During TS19, the MDTF faced challenges ordering parts for units not organic to the organization. Attached units must recognize the requirement for deployment with a bench stock of specialized parts and the maintainers to keep pacing items functional. Once established, the MDTF and its BSB must maintain a bench stock for subordinate units, and priority within the Logistical Support Area for parts shipment. Whether deploying for training or real-world missions, the integration into the MDTF is an essential window to establish mission command and shared understanding between attached units and their higher headquarters. The assignment of attached units will necessitate a directed command support relationship early in the planning that is crucial to the successful establishment and deployment of a fully operational MDTF.

THE FUTURE OF THE MDTF

Until 1st MDTF reaches IOC, the headquarters and subordinate units will exist as a nonhomogeneous organization learning how to best achieve synergistic effects. While assigned units and task organization will change from the pilot program, the lessons learned over the past two years will continue to be developed to make a more functional tactical and operational asset. The future MDTF, however, must consist of robust liaison teams consisting of technical experts that have established relationships prior to deployment, armed with communications packages, and integrated early with adjacent and higher units. It must train in a way that stresses not only the headquarters, but also subordinate units focusing in the realms of logistics, sustainment and clearance of assets.

The future MDTF communications architecture must be altered to facilitate communication “up” to echelons above brigade, and “down” to the tactical level. It must simultaneously provide additional communication nodes that empower liaison teams to help inform and drive decision making at their respective attached component commands or unit. The way we “conduct” exercises for the MDTF must be amended as to how capabilities are replicated in order to maintain a realistic training environment. While the MDTF calculated its own probabilities of success for capabilities to enhance training value, this was not evaluated or replicated by external observers or the simulation itself. As the MDTF program transits into 2020, 2nd ID DIVARTY will continue its efforts in establishing best practices and standard operating procedures through joint and combined exercises to aid in the establishment and success of 1st MDTF.

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CPT Austen Boroff currently works in the 2nd ID DIVARTY operations cell. She was previously assigned as the branch proponent's Field Artillery engagement officer and to 1-320th FAR, 101st ABN DIV. She is a 2014 graduate of the United States Military Academy.



Muzzle velocity management

A way toward efficiency

CPT Andrew T. Patterson

The five requirements of accurate predicted fire is a holistic fire support framework, starting from a target acquisition system through a higher headquarters' (HHQs) meteorological message and tactical fire direction, and finally ending with the myriad of responsibilities within the position area of artillery (PAA) by both the gun line and platoon operations center (POC)/ battery operations center (BOC), resulting in the timely and accurate fires in support of maneuver forces.

TC 3-09.8, *Fire Support and Field Artillery Certification and Qualification* requires fire direction centers' (FDCs) fire mission processing times to be 35 seconds when digital and 45 seconds when degraded, with only a ten second buffer between the two operations. This crew drill within a cannon FDC moves the minimum personnel requirement from three to potentially seven, with necessary safe-

ty checks in between. Condition setting for responsive degraded fires starts long before reconnaissance, selection, and occupation of the initial PAA and starts with the building of an efficient muzzle velocity logbook. Number three of the Big Three is imperative for accurate weapon and ammunition information, but accounting for predicted muzzle velocity variation (MVV) ahead of time will save the technical computation of fire direction seconds, even minutes.

Chapter 4, TC 3-09.81, *Field Artillery Manual Cannon Gunnery* provides a guideline for the building of a unit's MV Logbook, but stops there. The half a page dedicated to the building and utilization of an MV Logbook in the TC 3-09.81 and lack of implementation strategy outlined in ATP 3-09.23, *Field Artillery Cannon Battalion* or ATP 3-09.50, *The Field Artillery Cannon Battery* leave units to find their own way to succeed. The FA bat-

talion FDC should create the FA battalion's standard operating procedure (SOP), implemented in each platoon FDC. Regardless of the potential of operating in a denied or degraded communications environment, cables and digital systems will break or fail. The necessity of gaining and maintaining firing capability is solidified by the maintaining of an analog MV logbook. A way to create the SOP is to segment the battalion logbook by reference material and each subsequent firing battery. The reference material portion should include the agenda, the entirety of Chapter 4 of TC 3-09.81, the MVCT-2, MACS propellant efficiency tables, Rock Island updates to changes in MV or specific lot issues, and any other needed reference material. Each individual firing battery (recommended by platoon for units that fight traditionally this way) should be segmented into three portions within the battery.

Table 1. The numbers utilized for EFC Factors and Cumulative EFC RDS fired for this cannon and on every gun card in the Army are calculated for fatigue, helping track the life of the tube and condemnation criteria. Fire Direction Centers cannot employ these numbers for shooting strength or muzzle velocity loss due to it not being derived from erosion. (Courtesy illustration)

1. Tube Serial 376	2. Cannon Type, Model or Series M20/M20A1/M119A3 Cannon, 105mm Howitzer		3. ORGANIZATION (UIC/UNIT) WEQ2B0 (FA BN 02 BTY B 105T IB				
5. End Item Identification SN: 220 (Howitzer, Light, Towed: 105mm, M119A3)			6. RDS/EFC COMPUTATION				
7. Cannon Serial 376	8. Retubings 0	9. Rebushings	ZONE	EFC FACTORS			
			1-6	0.1 EFC			
			3-6	0.1 EFC			
			6	0.1 EFC			
			7	0.4 EFC			
			8	1 EFC			
			M121: 6-7	1.0 EFC			
			M34: 7	3.2 EFC			
4. SPECIAL LIFE DATA							
Condemn the cannon tube, muzzle brake, and breech mechanism when 6500 EFC rounds have been fired.							
11-20-2019	M1, HE	M67 7	24	9.600	1135	6,233.250	Chiarella, Joseph

The first element is each individual howitzer's updated gun card. The requirement to conduct a pullover gauge (POG) reading or borescope is outlined within TM 9-1000-202-14, *Evaluation of Cannon Tubes*, and must be done at either six months or within 500 equivalent full charges (EFCs). This POG reading which should be posted on the Tank and Automotive Command's Unique Logistics Support Application (TULSA) {strongly recommend FDOs have at least "view only" access to their unit identification code to print updated copies when needed} is accompanied by the rounds fired between the semi-annual POG and borescope. These rounds are accounted for as total EFCs by specific charge within this digital gun card, but by fatigue and not erosion. To accurately account for EFCs on top of the most recent POG, TULSA does not provide the final solution for an MVV. For example, Table 1, previous page, depicts 9.6 EFCs based off of fatigue, but 12.0 off of erosion. The difference, though seemingly minuscule (less than a tenth between the two numbers when converting it to a MV lost), can be exponentially different several months after a POG update and the firing of hundreds of rounds at the higher charges. A recommendation to TULSA is to

include EFCs by erosion on each gun card to ensure there is zero error when firing degraded, acknowledging that the reasoning for the M20A1 cannon tube on the M119A3 EFCs are only computed by erosion because condemnation criteria of the tube is calculated by erosion only. Units can find success by adding their total number of rounds fired by individual charge together and finding the MV lost by erosion.

The second portion of each unit's segment within the MV logbook should include predicted MVV by charge for each howitzer. Each tabular firing table demonstrates a significant change in MV based off of which charge is about to be fired. Table 2 illustrates the difference between Charge 1 and Charge 7 when it comes to MV lost. A way to be prepared to fire degraded is to have each zone calculated for each individual howitzer. For example, MV lost for a single M119A3 should have six separate predicted MVVs based off of charge zones (1/2/3, 4, 5, 6 and 7).

Recommendation for 105 mm units is to only utilize the shooting strength without propellant efficiency for predicted MVV. There is no baseline for ammunition efficiency for 105 mm units due to lack of useful/up-to-date propellant efficiencies. The platoon

FDC should handle the calculations which should then be given to battalion with the updated gun card. Then the predicted MV can be easily plugged into a CENTAUR based off of which specific charge the FDC is about to fire. As the unit continues to fire, the difference will continue to increase between the Advanced Field Artillery Tactical Data System (AFATDS) if operating in advanced mode and updates will be necessary, but this will provide an initial quick method. The third portion that could provide assistance is historical MVVs from previous lots of charges fired.

A shared and streamlined MV logbook across a battalion can potentially assist in transfer of control from one unit to another. The intent is not for each platoon FDC to have all 18 howitzers' gun cards or predictive MVVs, but for each platoon to have all six in the battery and for the battalion to have all 18. The battalion can then either transmit the necessary information to another BOC/POC or control the technical fire direction themselves. A deliberate step must be built into the battalion and battery after operations maintenance process for updating gun cards after every live fire and predicted MVVs within the platoon and then battalion MV logbooks.

Table 2. A comparison between charge 1 and charge 7 in regard to change in muzzle velocity. (Courtesy illustration)

FT 105-AS-5

FT 105-AS-5

The following tables may be used as a guide in estimating muzzle velocity departures from the firing table standard due to uniform wear in cannon: M20A1.

Approximate Losses in Muzzle Velocity*

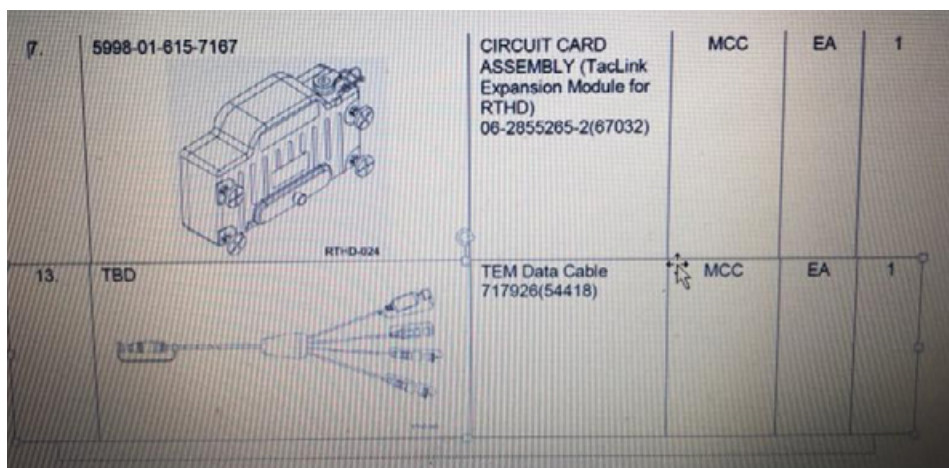
105mm Howitzer, Cannon: M20A1; Charges: 1, 2 and 3

Number of equivalent full service rounds (erosion)	Wear measurement (inches)**	Muzzle Velocity Loss (m/s)
0	4.134	0.0
1000	4.138	1.5
2000	4.144	3.1
3000	4.150	4.6
4000	4.156	6.2
5000	4.161	7.7
6000	4.167	9.2
7000	4.186	10.8
7500	4.190	11.2

Approximate Losses in Muzzle Velocity*

105mm Howitzer, Cannon: M20A1; Charge: 7

Number of equivalent full service rounds (erosion)	Wear measurement (inches)**	Muzzle Velocity Loss (m/s)
0	4.134	0.0
1000	4.138	2.3
2000	4.144	4.6
3000	4.150	7.0
4000	4.156	9.3
5000	4.161	11.6
6000	4.167	13.9
7000	4.186	16.2
7500	4.190	16.8



A listing of the circuit card assembly and data cable in a virtual technical manual. (Courtesy photo)

Additionally, periodic digital sustainment training can verify that a unit's predicted MVVs are calculated appropriately and bump with other systems checks.

A couple other small things HHQs can do for subordinate units to ensure the third requirement is consistently met and streamlined is upgrading their borescope and investing in digital CENTAUR cables. The new digital borescope, NSN 6650-01-631-0369, will cost a unit roughly \$15,000. A forward support company equipped with a digital borescope has high resolution video and picture taking capability that drastically outperforms the old system. Questions into burrs or tube cleanliness can be answered more efficiently with this new system. This information should be shared with sister maneuver battalions as these would help their 91Fs (small arms/artillery repairman) with inspections of their mortar systems as well. Lastly, the digital capability of the CENTAUR enabled by the TEM data cable, NSN 5998-01-615-615-7167, and TAC-Link expansion module, P/N 717926, provide exceptional degraded capability (See photos above and right).

The 2nd Battalion, 15th Field Artillery Regiment tested this system during FY 19 with good, but limited results. The FDC chiefs within the battalion were able to get the CENTAUR to speak digitally between both an AFATDS and an M119A3 Howitzer. The CENTAUR

received metrological (MET) data, firing unit, and weapon/ammunition information. The digital CENTAUR transmitted a fire command to the fire control cell (FCC) of an M119A3 after Alpha Battery took it out to the field during a training exercise. The FCC did not, however, compute its own firing data and a secondary independent check was still needed. If a firing unit within the Army does eventually receive the digital CENTAUR cables, it is strongly recommended to use it to transmit data only from an AFATDS. At a bare minimum, it will save the FDC upwards of ten minutes by not having to input 20 lines of a MET message. In preparation of an air assault

raid, this may enable the quick receipt of necessary information to each CENTAUR prior to going wheels up, but a secondary check (chart or another CENTAUR) must be brought along and bumped prior due to the inability of the gun to calculate its own data via this method.

The techniques, tactics and procedures within this article do not necessitate strict adherence, but a way to minimize mission processing times within technical fire direction centers through the management of muzzle velocity variation by battalions and with work from their subordinate units. Most issues between secondary and tertiary independent checks can be traced back to poor muzzle velocity management. Through a deliberate, streamlined process implemented by a battalion MV logbook SOP, testing and implementation during digital sustainment training, and having the right equipment on hand, the Field Artillery battalion's technical fire direction woes can be addressed before they occur.

CPT Andrew Patterson is currently the commander of Bravo Battery, 2nd Battalion, 15th Field Artillery, and has served as the battalion's FDO for one year previously planning and executing fires in support of platoon through division-level operations.

A circuit card assembly with data cable attached. (Courtesy photo)





BALANCE IS NOT A FOUR LETTER WORD

LTC Daniel Von Benken

Balance is a commonly misunderstood topic in the Army. When leaders mention the need to have balance, many react with an eye roll (here we go again), or a smirk (does it really exist?). Many leaders are viewed as having workaholic-like characteristics. A cursory Google search confirms this: Army leaders possess workaholic characteristics. We come in early to free up time during the day; we spend more time at work than intended; we work hard because our buddies are working hard. But we are who we are: Soldiers and leaders who have endured 18 years of persistent conflict, force structure realignments, and fluctuating promotion rates. We are in a profession that comes in early, works hard, and depending on requirements, stays late. Balance is difficult to understand.

My promotion in 2018 caused me to reflect on my years as an “Iron Major” – the years often considered the most challenging in an officer’s career. It subsequently led me to reflect on the ebbs and flows of balance during my career and ask myself where I was out of balance, why I was out of balance, and how did my family and I make it work? When I looked at the problem through this lens, I concluded balance does exist, and it is a combination of personal choices and professional requirements.

The personal choice

First and foremost we must define who we want to be, and have that common vision with

our families and people who help us find balance. Upon graduating Command and General Staff College in 2013 I quipped to my wife, “I’ll see you in three years.” The comment was tongue-in-cheek, but what I was really saying was my professional demands are about to become very high, and that I needed my family to understand why I was about to stress the meaning of the word balance. I was reporting to a unit pending an Afghanistan deployment and a combat training center. I was assuming the role as the brigade fire support officer (FSO), never having served in an FSO position before. I had the personal goal to be a lieutenant colonel and a battalion commander; the road to success – I knew – was paved with hard work. Balance was going to be a personal choice where professional requirements stressed personal decision space. This required my family and I to define what was acceptable to us.

A few examples lend credence to people – both civilian and military – in situations where tough personal choices are balanced with professional requirements. Sports commentator Colin Cowherd dedicates a portion of his book to discuss balance and professional athletes, challenging how balance is viewed. Regarding elite athletes, he writes:

“Like any industry, the top of the sports food chain is filled with serious people who have pruned away life’s excess branches at an early age. They’ve found jobs and projects they love, and they’ve set out to create a path they can control to achieve goals that are

within reach. They seek the kind of certainty a relentless work ethic can make possible.”

Cowherd continues by citing examples of Payton Manning’s dedication in the film room, and Michael Jordan’s workout routine following every game.

In another example, LTG Matthew Ridgway’s assumption of command at Eighth Army during the Korean War offers a challenging personal choice. While attending a holiday party in Washington, D.C., Ridgway received a phone call informing him that the Eighth Army Commander, LTG Walton Walker, had been killed in a vehicle accident, and that he was selected as Walker’s replacement. Ridgway kept the news that evening to himself and closed the evening quietly with his wife. The next morning Ridgway notified his wife of his pending command and deployment. Upon his departure, Ridgway had no family gathering, no goodbye; he departed quietly from his office, boarded a plane and reported for duty. The Vice-Chief of Staff of the Army informed Ridgway’s wife of his departure.

These cases – while on the extreme-end of personal choices in relation to professional requirements – are relatable to decisions Soldiers and leaders make on a daily basis. Platoon sergeants stay late to tend to Soldier issues; planners stay late to finish orders and presentations. The Army is a profession that continuously manages violence and risk. The

seriousness of the profession makes defining balance a difficult choice.

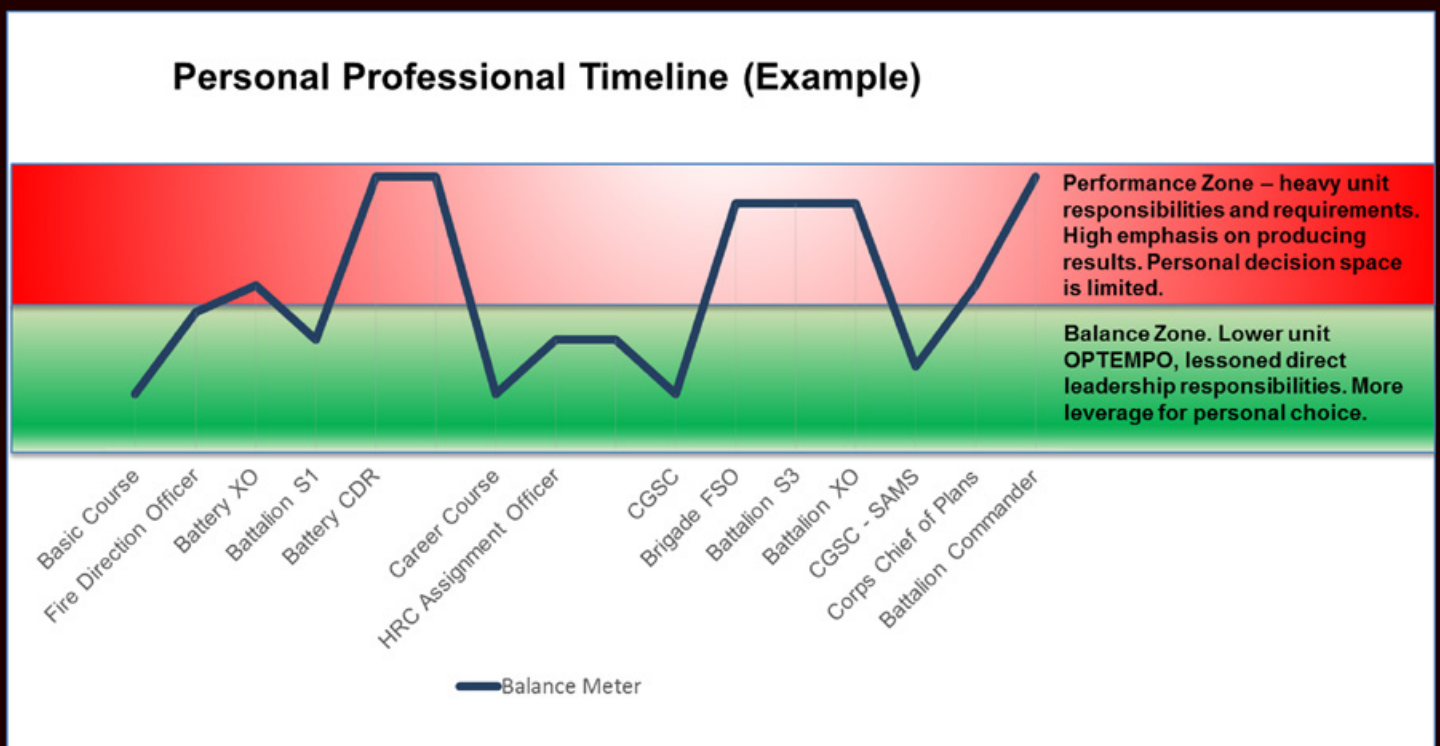
The professional requirements

Not all Army jobs put extensive demands on your personal/professional balance. Professional requirements and high-pressure demands to produce results ebb and flow. Knowing where you are in your professional timeline and knowing your unit’s disposition are two critical components to seeing yourself clearly and defining balance appropriately.

Your professional timeline is a sine wave of demands and requirements. Certain jobs require you to be “all-in.” Jobs such as command or direct leadership of either staff or platoon-sized elements fit into this category. These jobs demand personal time, energy and a willingness to go the extra mile. Conversely – and not to downplay importance – there are jobs where you may only be in charge of yourself, or feature few direct-leadership requirements. The impetus to produce results in a compressed timeline are lessened. Certain broadening assignments and professional military education (PME) fit into this category.

Figure 1 depicts my career timeline and how I assessed personal choices in relation to

Figure 1. The Balance Meter. Describes duty positions in relation to personal decision space. (Courtesy illustration)



professional demands. I propose two terms, “Performance Zone” and “Balance Zone,” to describe my approach to help define personal balance. The Performance Zone characterizes jobs where my professional demands were high, and where it was imperative to make the deliberate effort when defining balance. Battery executive officer (XO), battery command, brigade FSO, battalion S3 and XO were jobs I determined fit this category. The Balance Zone characterizes jobs where my professional requirements were lower, and personal choices had more leverage. Battery fire direction officer, battalion S1, Human Resource Command assignment officer, corps chief of plans and PME fit this category. The teams I led were smaller in size, or didn’t exist. I had more freedom to pursue personal goals and family equity.

The model isn’t intended to be one-size fits all; it is intended to help you see yourself clearly to aid in your definition of balance. Everyone has unique timelines and personal situations. Taking time to reflect on what makes you unique helps Soldiers and leaders to better define balance.

Tips for success

It is critical for Soldiers and leaders to take time to assess their personal decisions and professional requirements. We need to not only see ourselves, but our subordinates, superiors and organizations clearly. Below, I’ve attempted to capture these considerations and provide tips for managing the balance equation.

- As leaders, we must first take time to know ourselves and our families. Different times in our careers call for different levels of responsibility (see Figure 1). Open communication with our families and loved ones is key – develop the definition of balance together!
- Encourage family participation in work-related events. Organizational days, Family readiness group (FRG) meetings, etc., assist Soldiers and leaders in having a common balance vision; as a by-product, you are spending time with your family in a work environment. We clearly spend a majority of our adult lives at work.
- Know your subordinates; emotional intelligence plays a critical role in this capacity. It is imperative to un-

derstand not only the professional demands you place on subordinates, but to understand the balance choices you are influencing. Knowing when to lessen requirements on a subordinate requires you to share the wealth elsewhere or personally assume the responsibility.

- Communicate how you view balance with your subordinates by living it. Put family events on your calendar, and more importantly, follow through with those events! This will not only force you to maintain personal balance, but setting the example permeates with those you lead.
- “Leading up” is a critical component to the balance equation. Leaders need rest too, even your boss. As a battalion S3, I had to know when the commander’s balance meter was pegged. If he was off balance, the unit would be off balance.
- Be comfortable with risk associated with your balance decisions. An example, after completing my battalion XO time, I was offered the position of Division Artillery (DIVARTY) S3; I declined the DIVARTY S3 position and attended the School of Advanced Military Studies. I risked attaining more key and developmental time for my promotion and command board files by making the personal choice of a lower operations tempo position.
- Know your organization. Find perspective on: what echelon you work and how that effects downtrace units; what position you are in; where the unit is in its deployment or training cycle. The list goes on, but understanding these components of your organization allow you to define balance appropriately.
- Relentlessly manage your calendar. This becomes more important the more senior you become. Calendar management permits personal and professional flexibility, ultimately creating more space in the balance zone.
- Most important, understand how all of these personal and professional choices and requirements interact so

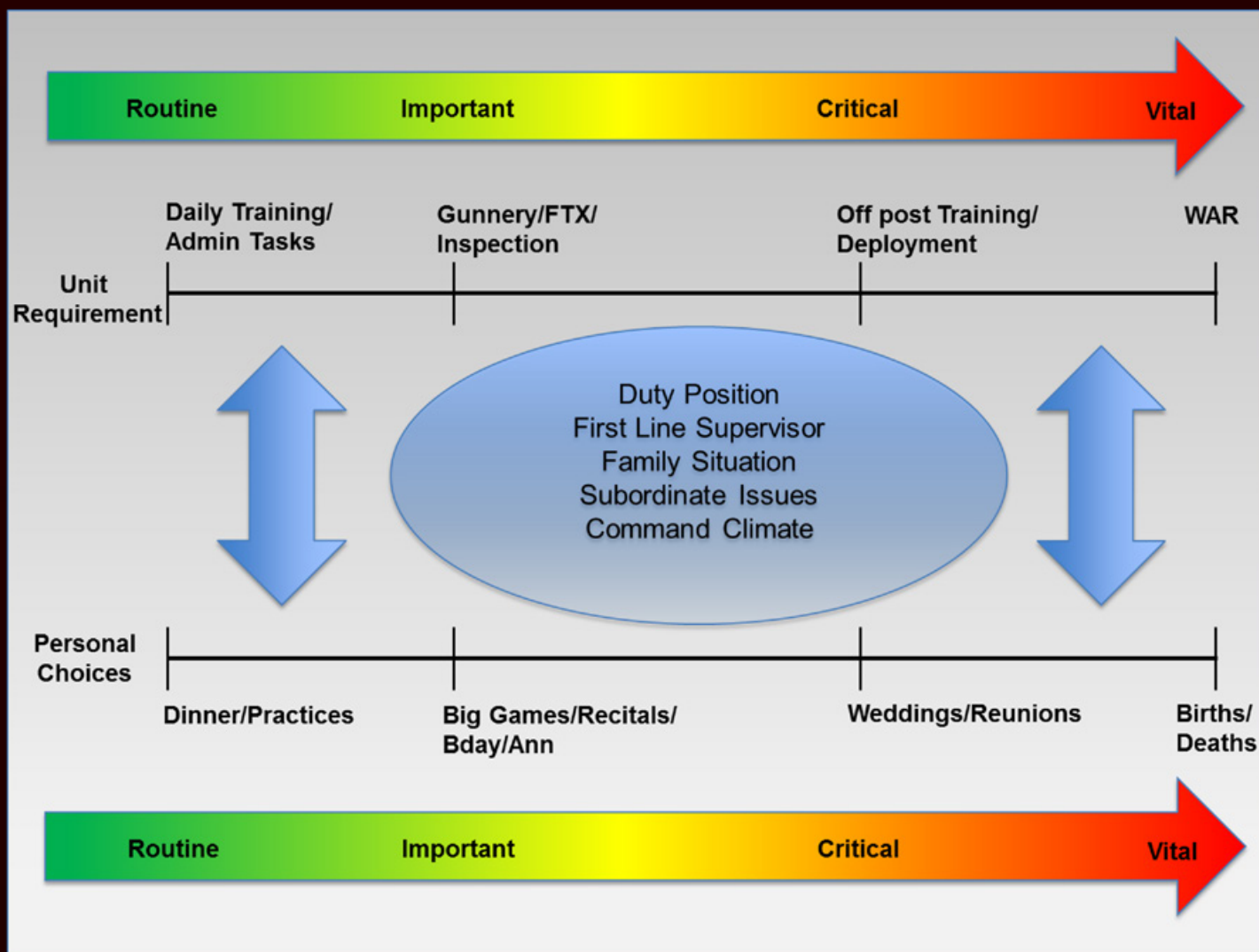


Figure 2. Balance Decision Matrix. An adaptation of a model presented at the pre-command course by the CSA and VCSA.

you can best define your personal balance. A mentor of mine counseled me using a tool on how he sees balance; two years later I discovered the Chief of Staff of the Army (CSA) presents this at every battalion and brigade level pre-command course. I have modified the figure to account for more factors in making balance decisions. Figure 2 is a modification to the tool the CSA uses to mentor leaders on balance. To explain, if you choose to request to forego a National Training Center rotation in order to attend your daughter's recital, you may be out of balance. A second example, if you choose to go to a parent's funeral instead of a physical fitness test, you're probably in balance. These choices should also take into account all those considerations above like family situations, duty positions, etc.;

that is what the middle bubble insinuates.

Conclusion

Balance is the relationship of personal choices with professional requirements. One size does not fit all. Do your best to see yourself and organizations clearly. Communicate this effectively with your family and personnel in your organizations; only then will you come to a definition of balance that is right for you!

LTC Daniel J. Von Benken is a husband, father and field artillery officer. He currently serves as the battalion commander for 2nd Battalion, 17th Field Artillery Regiment in 2nd Stryker Brigade Combat Team, 2nd Infantry Division.

RANGERS LEAD THE WAY...and so do the Ranger Fire Supporters

Lethal Fire Support for the Army's Premier Raid Force

The 75th Ranger Regiment Fire Support community is an outstanding organization that serves as the tip of the spear in the Global War on Terrorism and is comprised of the absolute best fire support officers and NCOs the United States Army has to offer. For almost two decades, the Ranger Fire Support Teams (RFIST) have fulfilled a unique mission through continuous combat in support of Operation Freedom's Sentinel by providing lethal fires in support of the regiment's global strategic mission. The RFISTs are comprised of specially selected and highly trained Rangers from across the joint force. The Fire Supporters of the 75th Ranger Regiment are specially selected Soldiers who have dedicated themselves to living the Ranger Creed while ensuring their actions continually give back to the fire support community across all levels of the Army.

Constantly tested in combat, rigorously trained to perfection, and held to the highest standards, the Ranger Joint Fires team provides all aspects of joint firepower employment, and some not found in any other special operations or conventional force. The knowledge, experience and discipline developed in the 75th Ranger Regiment provides a unique set of skills and experience that is translatable to any organization in the United States Armed Forces.

History of the 75th Regiment and Fires

The history and evolution of the fires community in the 75th Ranger Regiment is exceptional and is a true testament to the outstanding Fire Supporters in the Ranger

Regiment. COL William O. Darby, the first commander of the Rangers during WWII, originally commissioned into the United States Army as a Field Artillery officer with the 82nd Field Artillery Regiment in the mid-1930s. During WWII, Ranger Fire Supporters were key personnel on the battlefield against the Germans across the European theater. It was during Operation Overlord at the invasion of Normandy on the cliffs of Point Du Hoc where aerial bombardment and naval gunfire facilitated the Rangers as they climbed the cliffs to take the German artillery position. LT Howard K. Kettlehut, a forward observer (FO) from the 56th Armored Field Artillery, conducted an artillery barrage that enabled 2nd Ranger Battalion to take Hill 400 in the Hurtgen Forest near Brandenburg. Ranger Fire Supporters in Vietnam attached to the Long Range Reconnaissance Patrol teams planned and executed air strikes and artillery fire on high-value enemy targets. In 1983, during Operation Urgent Fury in Grenada, Ranger Fire Supporters employed an AC-130 Specter Gunship in order to provide suppression on enemy forces, allowing the Rangers to move on the objective. The rich history between Rangers and the Field Artillery continues to shape the Ranger mission and mold the modern day Ranger Fire Supporter as the most lethal element on the battlefield.

Ranger Fires Task Organization

The current task organization structure of the Fire Supporters for the 75th Ranger Regiment fa-

cilitates operations in support of the Global War on Terrorism in the Middle East, while remaining poised and ready to fight near-peer threats. At the regimental level, the regimental fire support officer (RFSO) and the regimental fire support NCO (RFSNCO) head the fires section. A 14-person staff consisting of the regimental assistant fire support officer, the 17th Special Tactics Squadron, Joint Terminal Attack Controller (JTAC) program manager, as well as the targeting section under the supervision of the regimental targeting warrant officer assists the RFSO and RFSNCO. The Ranger Battalion Fire Support Element (FSE) is under the supervision of the battalion fire support officer and the battalion fire support NCO. The tactical air control party officer and NCO from the 17th Special Tactics Troop assists the Ranger Battalion FSE. The Ranger Battalion FSE is responsible for managing the training and proficiency of the Company Fire Support Teams as well as the JTAC program. Each Ranger company consists of a Company FSO and FSNCO who manage the FO / Radiotelephone Operator teams that are at the platoon level. In addition, each Ranger company has two JTACs from the 17th Special Tactics Troop. This task organization has enabled the Ranger regiment to employ and execute the most lethal and complex fires with a vast array of assets since the beginning of the Global War on Terrorism in 2001.

In the Global War on Terrorism, fires is at the core of our success against terrorist organizations. On a daily basis, Ranger Fire Supporters execute complex air-to-surface and surface-to-surface strikes on

enemy personnel or facilities in order to neutralize the ability to conduct attacks against the homeland. In addition, our Ranger Fire Supporters at the strike force level control between eight to 10 lethal assets while conducting direct-action raids. Over the course of an entire year, Rangers Fire Supporters conduct more than 2,000 close air support missions, both real world and in training, resulting in the expenditure of more than 100,000 pounds of munitions. Additionally, Ranger Fire Supporters accurately and safely employ the full spectrum of special operations forces air assets and conventional surface-to-surface assets. The 75th Ranger Regiment Fire Supporters will continue to push the envelope of fires lethality in order to further special operations joint firepower employment.

How you become a Ranger Fire Supporter

The Ranger Assessment and Selection Program (RASP) is an 8-week course that trains future Rangers at the rank of private through sergeant in the basic skills and tactics required to operate in the 75th Ranger Regiment. Upon completion of this course, Rangers will have the advanced skills, training and confidence to be a member of the 75th Ranger Regiment, capable of conducting operations as a member of a Ranger strike force or command element. RASP II is a 21-day course for Soldiers in the rank of staff sergeant and above, and all officers volunteering for assignment to the 75th Ranger Regiment. This course assesses the suitability of mid and senior-grade leaders for assignment to the regiment, and teaches them the operational techniques and standards of the Ranger Regiment. This course provides training in the special tactics, equipment and missions that make the regiment unique. Upon successful completion of this course, applicants will be assigned to one of our three rifle battalions and begin

their career as a Fire Supporter in the 75th Ranger Regiment.

Ranger Fire Supporter's career progression

Building on our skill set as Fire Supporters in the 75th Ranger Regiment at all levels within our ranks is at the core of our leader development program. Upon completion of RASP, a Ranger Fire Supporter will attend an array of challenging schools and training events that will test their mental and physical toughness while under stressful conditions. Typically, between the ranks of private to sergeant, a Ranger Fire Supporter will attend Airborne School, the Joint Fires Observers Course and Ranger School. In addition, they will participate in live-fire exercises with Ranger platoons and will have served between two to four combat deployments before the rank of staff sergeant.

Once promoted to staff sergeant, our Ranger Fire Supporters continue their career progression by attending either the Special Operations Terminal Attack Controller Course or the Joint Terminal Attack Controller Qualification Course in order to become a Special Operations Joint Terminal Attack Controller. Ranger Fire Supporters also have the opportunity to attend Jumpmaster School, Pathfinder School and Targeting Courses. In addition, they will have had the experience of working with every element in the Joint Special Operations Command community both in training and while conducting operations overseas.

The 75th Ranger Regiment is currently experiencing a period of unprecedented growth in size, capability and increased employment as the special operations force of choice. Due to this growth, positions in most MOS' have increased. The 75th Ranger Regiment is continuously looking for energetic and highly motivated individuals to fill its ranks. Qual-

ifications to join the 75th Ranger Regiment are to be a U.S. citizen, be on active duty and volunteer for assignment. Candidates must have a General Technical Score of 105 or higher, have no physical limitations (PULHES of 111221 or better), qualify and volunteer for the Basic Airborne Course. All candidates must be of good character (no pending UCMJ action or drug or alcohol related incidents within 24 months). Candidates must enlist into or currently hold an MOS found in the 75th Ranger Regiment and be able to attain at minimum a secret security clearance. **Candidates must pass all physical requirements which include the Ranger Fitness Test (58 push-ups, 69 sit-ups, run five miles in 40 minutes or less, six pull-ups), and 12-mile foot march with a 35-pound rucksack and weapon in under three hours.**

Our four-time volunteer force provides the nation a range of capabilities not found in any other special operations or conventional force. We conduct large-scale joint forcible entry operations while simultaneously executing surgical special operations raids across the globe. We are an innovative organization that remains true to GEN Creighton Abram's charter by developing the equipment and technologies that enables our Army to win our nation's wars. We lead the way for advancements in training and readiness that bridge the gap between special operations and conventional forces. We are loyal to the regiment, the Army and the Nation. We live the Ranger Creed. We honor the sacrifices of our Rangers and their families by fostering life-long relationships that support the success of our Rangers. If you are looking for a challenging, fast-paced and professional work environment that will test your craft in training and in combat on a daily basis, then this is the organization for you.

Editor's Note: Information provided by 75th Ranger Regiment for those interested in serving please visit <https://www.benning.army.mil/Tenant/75thRanger/Recruiting.html>

The 2020 submission deadlines for the Field Artillery Professional Bulletin:

Fall edition, Aug. 1

Winter edition, Sept. 1

Submit your articles to:

sharon.g.mcbride4.civ@mail.mil
john.m.folland.civ@mail.mil

SSG Jesse Reynolds, a multiple launch rocket system crewmember, assigned to 1st Battalion, 14th Field Artillery Regiment, 75th Field Artillery Brigade, Fort Sill, Okla., looks out the hatch of an M142 High Mobility Artillery Rocket System (HIMARS) during a field training exercise on Feb. 14, 2020, on Fort Sill. The battalion continues training to support world-wide contingency as III Corps and Fort Hood, Texas, only airmobile long-range precision fires capabilities. (SGT Dustin D. Biven/75th FA BDE)



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