

Royal Flush: Commanders, Fire-Support Officers Use Echelonment of Fires to Dominate Fight

by MAJ David A. Saxton

This article addresses issues associated with the lack of echeloning fires at the maneuver-battalion level while incorporating indirect fire (howitzers and mortars). Critical to this success is the integration and synchronization of maneuver commanders and fire-support officers (FSOs) at the battalion and company levels during the planning, execution and analysis of fires in support of maneuver. This minimizes the maneuver force's exposure to the maximum effective range of the enemy's direct- and indirect-fire weapon systems, and it reduces the threat on the objective.

Echelonment of fires

Army Techniques Publication (ATP) 3-09.42, *Fire Support for the Brigade Combat Team*, cites that echelonment of fires is "a technique for integrating and synchronizing maneuver and fires. Echelonment of fires is the execution of a schedule of fires fired from the highest caliber to the lowest caliber weapon, based on risk-estimate distances and weapons-system range capabilities, as the maneuver force moves toward an objective.

"Echelonment of fires helps ensure that ground forces are able to move to an objective without losing momentum, helps set the conditions for the direct-fire fight and reduces the risk of friendly casualties. Echelonment of fires is accomplished when the maneuver commander wishes to conduct preparation fires on an objective."¹

Observations also identify three critical areas in the planning and execution phase required for commanders to successfully execute an echelonment of fires. These are (1) target detection/confirmation; (2) asset/munition selection ("massing" on the objective); and (3) calculation of time-based triggers for both friendly and enemy movement speeds.

Commander, FSO collaboration

To properly use an echelonment of fires, commanders must have clear dialogue with their FSOs to properly relay the commander's intent for fires. Such a dialogue is necessary to drive the "nine steps for echeloning a preparation" (from ATP 3-09.42, Table 2-2):

1. Determine what assets, to include ammunition, are required and what assets are currently available or allocated.
2. Verify risk-estimate distances and attack criteria with the commander.
3. Plan targets.
4. Develop a communications plan.
5. Determine what the rate of movement will be.
6. Develop the schedule of fires and decide how the preparation schedule will be initiated.
7. Brief the plan and confirm the method with the commander.
8. Complete the scheduling worksheet(s) within Advanced Field Artillery Tactical Data System (AFATDS) or manually using DA Form(s) 4656 (scheduling worksheet).
9. Rehearse and refine the plan.

The nine steps raise multiple questions the FSO should either be asking or developing an answer to based on the maneuver plan. Step 5 must include the phrasing of *time*. As alluded to earlier, the communication necessary between commander and FSO is already lacking from the preceding list. Commanders and FSOs need to discuss the following: Where does detection come into play? How and when will detection of enemy forces occur to achieve better effects on enemy forces?

Target detection and refinement

Proper identification of enemy location, size and disposition is the first critical step in making an echelonment of fires effective. Instrumental for setting the conditions for an echelonment of fires to be successful is having all maneuver and fires current operations updated and accurate on the fires common operating picture (COP).

At this moment we shall pause and examine the fires COP for the following:

- Are firing-battery positions updated and accurate?
- Has Class V (ammunition) been monitored and updated throughout the fight?
- Does the FSO have a clear understanding of what effects can be achieved with shell/fuze combinations currently on hand?
- Where is the battalion in precedence for howitzer support in the current phase of the operation?
- Are we able to achieve the effect of destroy, neutralize or suppress the enemy; how will that affect the commander's plan?
- Are mortars in an effective location to offset their maximum range in relation to friendly maneuver forces projected movement(s)?
- Have the battalion fire-support element (FSE) and battalion operations officer (S-3/AS-3/battle captain) conducted targeting synchronizations to nest with the commander's guidance?

These are just a few recommended considerations in question format the FSO should be addressing as running problems during current operations that feed into effective echelonment of fires as they pertain to Step 1 of the nine steps.

Tools include, but are not limited to: leader's reconnaissance; scouts; snipers; intelligence, surveillance and reconnaissance (ISR) such as the company-level Raven unmanned aerial vehicles; and company fire-support teams (FiSTs). The proper use of detection assets enables a more accurate picture visualized for the FSO to refine attack options. When detection reveals a larger or armored enemy force, the FSO may realize that the battalion's 120mm mortars are ineffective and that howitzer support from the brigade combat team's field-artillery (FA) battalion is necessary.

Take, for example, the detection of enemy T-90 tanks when previously the S-2 (intelligence section) had templated BMP-3s (*boyevaya mashina pekhoty*; that translates to Russian Infantry Fighting Vehicle-3). The 105mm howitzers and mortars will have very little effect on a T-90 from a weaponeering perspective, but what can the FSO do to address this threat? Using a light BCT as an example, the battalion FSO can state "Sir, Charlie Battery (155mm towed, M777A2) can provide BONUS Mk II (155mm target detection anti-armored vehicle shell) and dual-purpose improved conventional munition (DPICM). They are low on BONUS Mk II. I recommend a battery mix of Bonus Mk II and DPICM to destroy the enemy." The correct understanding of asset, Class V and effects is critical for nesting with the commander's guidance, but this can only be achieved if the maneuver force has painted a clear picture of the enemy composition and disposition. It is paramount that commanders understand the importance of positive target detection to maximize the effects of indirect fires.

Conversely, the risk of "unobserved fires" (i.e., having no clear detection/observer) will unnecessarily expose the brigade or battalion commander's assets to counter-battery fire from an enemy radar, a Russian 1L-220 for example, when firing.² Such an action will now deny the maneuver commander additional fire support while he or she waits for a friendly-firing battery to jump to a new firing location after its previous fire mission. Leaders must realize that howitzers and mortars must jump firing points after each fire mission against a peer threat until it is confirmed that enemy radar has been neutralized.

Takeaway: *Accurate detection and identification of enemy assets on the objective drives refinement of asset/munition selection and will have an effect on time-based triggers for the echelonment of fires.*

Asset and munition selection: delivering mass

The proper selection of firing system and munition (both type and quantity) will be the difference in destroying, neutralizing or suppressing a target; this in turn has a direct effect on the maneuver force being able to successfully exploit an objective based on the enemy threat. Should the proper effects with fires not be achieved, the commander's mission success is at risk of failure due to not properly preparing the objective with enough fires through a previous echelonment of fires.

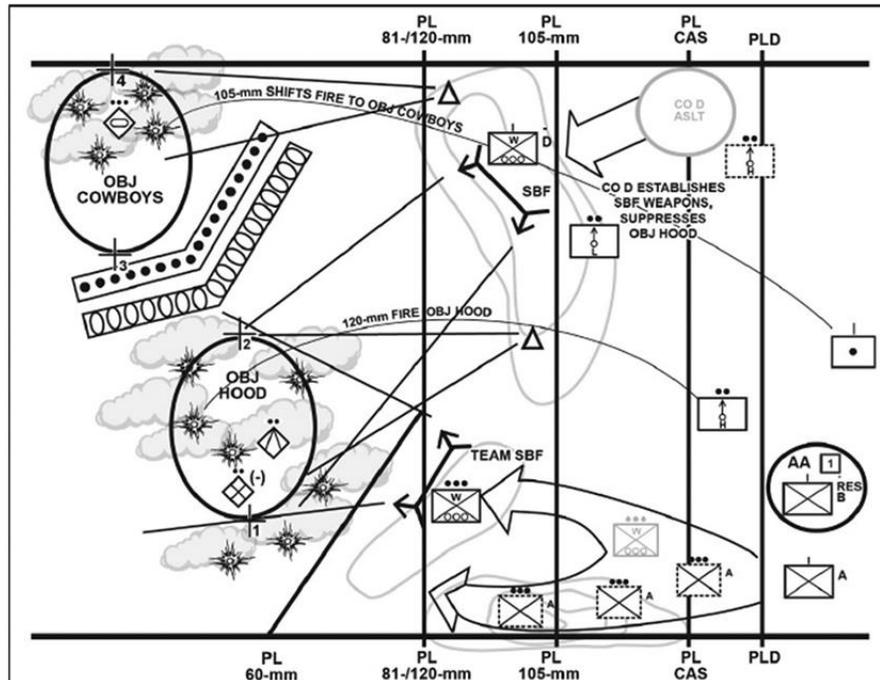
Proper asset selection by the FSO at either battalion or company level begins with proper communications established with both digital (AFATDS) and voice (frequency modulated or high frequency). Clear communication allows the seamless transfer and knowledge management between FSOs and FSE. Also, the battalion FSE must be constantly tied into its higher-brigade FSE and FA battalion fire-direction center to maintain an accurate fires COP within the maneuver battalion tactical-operations center. All this culminates with ensuring unity of effort for commanders and FSOs working off the same COP for planning and executing an echelonment of fires.

Figure 1 gives an example fires COP. It is imperative that FSOs maintain accurate Class V information to ensure that the selection of fires volume is feasible for the gunline.

ASSET	LOCATION	DIS.	AMMO						FSCMS		DTG
			HE	SMK	ILLUM	DPICM	BONUS	FASCAM			
60MM	32X XX XXXXXXXXX		xxx							CFL	
81MM	32X XX XXXXXXXXX		xxx	xx							
120MM	32X XX XXXXXXXXX		xxx	xxxx	xxx						
105MM	32X XX XXXXXXXXX		xxx	xxxx	xx					FSCF	
155MM	32X XX XXXXXXXXX		xxx	xxxx	xxx	xxx	xxx	xxx			
H/MLRS	32X XX XXXXXXXXX									NFA	
			Gun	Rocket	Missile	Bomb					
AAA	32X XX XXXXXXXXX		xxx	xx	xx						
CAS	32X XX XXXXXXXXX		xxx			x					
UAV	32X XX XXXXXXXXX									ROZ	
UNIT	COMM	TARGET #	DESCR			ASSET	DTG	PAA			
BN											
A											
B									MFP		
C											
D											
THDR									CFFZ		
WC											
BDE											
									CFZ		

Figure 1. Fires COP (example of a battalion FSE COP).

To properly achieve the desired commander's endstate on the objective, the forward observer ensures that enough resources are requested and delivered during the execution. This can be best summarized by answering the question: How many projectiles from a specific weapon system, based on the target threat, are needed to achieve the desired effect? When engaging an armored target as opposed to dismounts, the munition and quantity will be different. Does the fire order for the method of engagement truly make sense? See Figure 2 for an example.



This example demonstrates the effectiveness of shifting the 105mm howitzer support from Objective Hood to Objective Cowboys while echeloning with 120mm battalion mortars upon Objective Hood. It is important to note that maneuver units must move in conjunction with the risk-estimate distance of each system in relation to the phase line associated with that weapon system.³

FSOs must understand the system they are planning to engage targets with in relation to three criteria:

- The maximum/sustained rate of fire;
- Burst size/method of engagement; and
- Quantity on hand.

In relation to the first criterion, this subject will spill into the subject of **time**: from the first burst until the last burst on the target, how long will that fire mission take? This valuable window of time allows suppression of the enemy while achieving lethal effects that friendly units can exploit to bound on the battlefield. If using smoke, what is the build/sustainment time for that smoke mission? Has the FSO clearly communicated this time to his commander for fidelity in the mission? Has the commander ensured he or she understands the time and relayed that information to subordinate leaders across the formation?

Addressing the second criterion is to look at the weaponeering solution for enemy engagement. If enemy dismounts are dug in, has the shell/fuze combination been properly changed to address this threat – high-explosive (HE) variable time as opposed to HE/point detonating – using howitzers as an example)? When engaging an armored threat, do commanders and FSOs plan to use BONUS Mk II or DPICM?

With respect to the latter, FSOs must clearly articulate the dud rate of DPICM and possible impact to friendly maneuver movements across the objective. It is imperative that FSOs understand what effect a projectile can achieve on an identified enemy threat based on size, disposition and type. A standard HE projectile from any howitzer or mortar will have minimal effects on enemy armor unless it is fired *en masse* at an extremely high volume.

Finally, there's the issue of quantity on hand in relation to massing on a target. How does a controlled supply rate (CSR) affect fire orders? The CSR for a specific munition type may limit a battery fire order to a low quantity that does not achieve the desired effects. In this scenario, the FSO must anticipate quantity on hand vs. the supply rate to proactively plan targets during sustained operations.

FSOs must understand the importance of massing in sufficient quantity of system(s), total number of projectiles in effect and munition type for an effective echelonment of fires. Take, for example, the BONUS Mk II projectile. This munition requires sufficient method of engagement to achieve a projected 100-percent destruction rate.

This example relays the importance of delivering sufficient quantity *en masse* to meet desired commander's endstate in support of maneuver forces. A lack of mass will lead to degraded effects while creating the additional problem set of bleed time until the next fire mission. Both commanders and FSOs must realize that firing units in large-scale combat operations will jump their firing location after each fire mission in a high counterfire threat scenario. Fire missions must be made to count in each iteration.

Takeaway: *An effective echelonment of fires requires sufficient massing of the target born from rate(s) of fire, method of engagement and quantity available that will prevent "the enemy from observing and engaging the assault by forcing the enemy to take cover, which allows the friendly force to continue the advance unimpeded."*⁴

Time: Creating safe gap

A successful echelonment of fires will enable a commander to create a safe cushion rooted in time that is based on triggers, both enemy and friendly, to have his forces close upon an objective. The incorporation of time based on movement triggers applies to both the defense (enemy) and offense (friendly).

"In the defense, triggers are tied to the progress of the enemy as it moves through the area of operation, enabling the leader to engage the enemy throughout the depth of the area of operation," according to ATP 3-21.20, **Infantry Battalion**. "In the offense, triggers are tied to the progress of the maneuver element as it moves toward the objective protecting the force and facilitating momentum up to the objective."

Most commonly, leaders overestimate the amount of time required for a force, friendly and enemy, to move across the battlefield. The result is "dead space," where fires are no longer providing effects on enemy forces in support of maneuver forces. Such a scenario can be mitigated in heeding the fifth step in ATP 3-09.42, **Echelonning a Preparation**, "determine what the rate of movement will be."

Takeaway: *The calculation(s) for movement speeds is a process that from inception to execution does not stop. It is a running staff process that is monitored by the battalion FSO to support the commander's plan so that during operations "the lead elements of the battalion approach the designated phase line en route to the objective, the FSO begins the preparation (of fires). Lead-element observers [scouts, snipers] and company [FISTs] track movement rates and confirm them for the battalion FSO."*⁵

Calculating movement speeds by the FSO for an echelonment of fires is a critical task that occurs during planning but also occurs during execution to refine targets to adapt to changes in real time. ATP 3-21.20 stipulates that the battalion FSO adjusts the plan during execution based on unforeseen changes to anticipated movement rates. What is missing from the planning process is the importance of the synchronization of the staff in the planning process. Leaders should discuss these questions:

- Has the FSO engaged the S-2 for the most current knowledge on enemy capabilities for calculating movement speeds?
- Do enemy vehicles have amphibious capabilities to cross swampy terrain with intermittent water features?
- What engineering assets does the enemy possess that may speed up their ability to traverse the battlefield?
- Has the staff taken into the account the effect of weather for slowing the rate of movement for the enemy, and similarly, how will poor weather affect friendly force's movements in the offense?

It is imperative that FSOs collaborate with their peers across the staff for unity of effort to take into account the variables that will impact movement speeds.

Movement speeds are most often overestimated and result in fire missions such as a smoke screen – supporting a breaching operation in the offense, for example – lacking the appropriate effects. Smoke missions with the purpose of obscuration must be appropriately coordinated based on movement triggers so the build/sustainment rate of smoke is properly synchronized in both time and space. Similarly, screening smoke that shields friendly

forces in the offense must have the same movement triggers applied. In both scenarios, the FSO must have clear communication with his peer fire-direction officer (FDO) in the FA battalion to give an accurate capabilities briefing to his commander. This in turn will refine the commander's plan for how to echelon fires to transition from indirect- to direct-weapon systems.

Double down

An echelonment of fires, successfully planned and executed, is a robust and technical process that requires practice and rehearsal to be properly executed. Combat-training-center decisive-action training exercises afford commanders the opportunity to put an echelonment of fires in practice against a dynamic opposing force. While this article does not cover every aspect of planning and executing an echelonment of fires, I have attempted to present and discuss what I have identified as the three most common trends that lack in rigor.

FSOs are encouraged to examine the manner of target detection, ability to mass and calculation of movement times to provide better feedback to their commanders. Finally, commanders and FSOs must dialogue to increase their understanding of both the commander's intent and the capabilities and options available to the commander. They need to look inward to how their organization plans and executes an echelonment of fires.

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Notes

¹ ATP 3-09.42, *Fire Support for the Brigade Combat Team*.

² Brad Marvel, "Shattering the Snow Dome," *Military Review Online* exclusive, June 2017.

³ ATP 3-21.10, *Infantry Rifle Company*.

⁴ ATP 3-21.20, *Infantry Battalion*.

⁵ ATP 3-21.20.

⁶ ATP 3-21.10.

Acronym Quick-Scan

AA – assembly area (Figure 2)

AFATDS – Advanced Field Artillery Tactical Data System

CAS – close air support (Figure 2)

COP – common operating picture

CSR – controlled supply rate

DPICM – dual-purpose improved conventional munition

FA – field artillery

FDO – fire-direction officer

FIST – fire-support team

FSE – fire-support element

FSO – fire-support officer

H – heavy (Figure 2)

HE – high explosive

L – light (Figure 2)

PL – phase line (Figure 2)

PLD – probable line of deployment (Figure 2)

RES – reserve (Figure 2)

RoK – Republic of Korea

SBF – support by fire (Figure 2)

W – weapons (Figure 2)