

Introducing Maneuver Adds Significant Benefits, But the Viability of Creating and Deploying Such a Force Is Unresolved

IN CHAPTER FOUR WE EXPLORED A CHANGE from conventional light forces by making them smaller and more dispersed (the path 2 option). One of the key limitations of the reconfigured light forces was that they were more vulnerable than conventional light forces, both because they were lighter and because they were limited in their ability to maneuver on the battlefield. In some cases, the use of precision remote fires was able to open up opportunities that the smaller, more dispersed forces were unable to exploit because they could not maneuver to do so. In this chapter we examine changes in the other direction: the path 3 option, which introduced maneuver—combined operational and tactical—to light forces, thus giving them more capability than they currently have but also making them heavier than they are now. *When we conduct the analysis, we find that introducing maneuver capabilities yields significant benefits but requires significant and fundamental changes for the concept to be viable.* Following a brief discussion of the context for the analysis, we discuss this finding in more detail.

Setting the Context for Analysis

Unlike the previous concepts examined, which involved emplacing a relatively stationary ground force that relied heavily on remote fires for survivability and lethality, the concept examined here concentrates on adding combined tactical and operational maneuver by introducing a light- to medium-weight family of vehicles within a force to accomplish rapid-reaction mission objectives. Although streamlined CONUS-to-battlefield positions are assumed in the concept, two major phases were considered: (1) an air insertion of the force, and (2) the ground combat itself. Both phases must be successfully completed for overall mission success.¹ In the air-insertion phase, we examined the capability of a notional advanced airframe—an air transport with a relatively large fuselage that employed tilt-rotor technology (roughly a C-130-sized aircraft)—to insert a ground force into the enemy rear area under different assumptions and conditions. For the ground-combat phase, we examined three different operational concepts with differing levels of ground maneuver. In all cases, this involved an early-entry neutralization or disruption of a mobile, elite

¹ The air insertion phase is treated here with much more attention because a mounted force will likely require much greater “access” to the airspace than a dismounted infantry-based force assessed in the previous chapters.

enemy unit located behind enemy lines, and all concepts aggressively used long-range attack weapons, such as aircraft delivering standoff weapons like Joint Standoff Weapon (JSOW) and ballistic missiles like Navy and Army versions of the Tactical Missile System (TACMS).

However, the three concepts were quite distinct in the level of tactical maneuver and in subsequent application of force. The first concept concentrated solely on standoff attack, using B-2 and F-15 delivered JSOW and Navy and Army versions of TACMS cued by observers on the ground. These long-range weapons attempt to stop the advance of the elite enemy units. The second concept involved inserting a consolidated force (an advanced infantry battalion with two IRCs, or immediate ready companies) in addition to the standoff fires. The third concept changes the picture to one of dispersed U.S. forces inserted deep to disrupt and attrit the enemy force throughout the battlespace. This concept was developed by the Office of the Secretary of the Army for Research, Development, and Acquisition (SARDA) but is also shared by TRADOC through its Army After Next and Mobile Strike Force research. This particular application employed a small ten-team force using three of the seven types of vehicles specified in the SARDA concept—a family of tracked and wheeled vehicles of roughly 20 tons that are airliftable on C-130s.

Given the two phases, both air defense and ground force threats were modeled. The air-defense threat was a sophisticated integrated air defense network, intended to represent a “high end” opponent of the 2020 era. This included long-range, high-end systems, such as Russian SA-12s and SA-17s, emplaced throughout the depth of the battlespace. Since these are relatively mobile, tactical surface-to-air missiles (SAMs), they can accompany the advancing mechanized formation. The threat also included medium-range systems, such as SA-15s, and short-range systems, such as 2S6s, SA-18 man-portable air defense systems (MANPADS), and anti-aircraft artillery (AAA) in the network. To make the threat more formidable, the air-defense system was “partially integrated” in the simulation, as opposed to operating in stand-alone mode.

This ground force threat, consisting of the lead regiment of a division en route to the front, is intended to represent a high-quality threat of the 2020–2025 period. It includes a mix of sophisticated ground vehicles (direct and indirect fire), plus supporting attack helicopters from its parent division. The regiment also includes powerful air defenses in the form of 2S6 and SA-15 self-propelled systems. Some of these air defenses may have been attached from division level. All told, it includes 550 enemy systems.

With this context, we now turn to discussing the main finding presented above.

Of the Three Concepts, the Third One—Relying on Agile Maneuver—Is Most Effective

Figure 5.1 summarizes the effectiveness of the three ground force maneuver concepts in terms of a different set of measures of effectiveness than we have used previously. While we do represent enemy attrition (and own losses), shown on the “level of destruction” axis and in the numbers next to each concept, the dynamics of the ground battle in this analysis are such that disruption of the enemy operation—denying him the ability to move or resupply, slowing his progress, dispersing his forces, or degrading his coordination capabilities—may be as important as attrition. Shock effects (heavy losses over short time, in small areas, or of key systems) may also disrupt the advance. This measure of effectiveness is represented by the “degree of disruption” axis. As shown by the curve in Figure 5.1, some combination of these two factors should be sufficient to change enemy behavior.

As shown, concept 1—standoff attack alone—achieved a limited amount of attrition (killing a maximum of 79 of the 550 enemy systems in the lead regiment), although there were no losses, since direct exposure to the enemy was minimal. If foliage was omitted (e.g., in a separate “bald earth” run), 195 kills were obtained. However, enemy countermeasures such as the use of decoys, active protection systems, and force dispersion could reduce the kills below that achieved earlier. In all these cases, the enemy might suffer little disruption. The standoff strikes seldom hit specific, high-value vehicles, such as C2 or bridging assets, and do not have a localized “shock” effect. Rather, they attrit sporadically along the column, and the hulks would be expected to provide little obstacle to movement, particularly in this trafficable terrain. Only in the case with no cover would significant disruption be expected. These results sug-

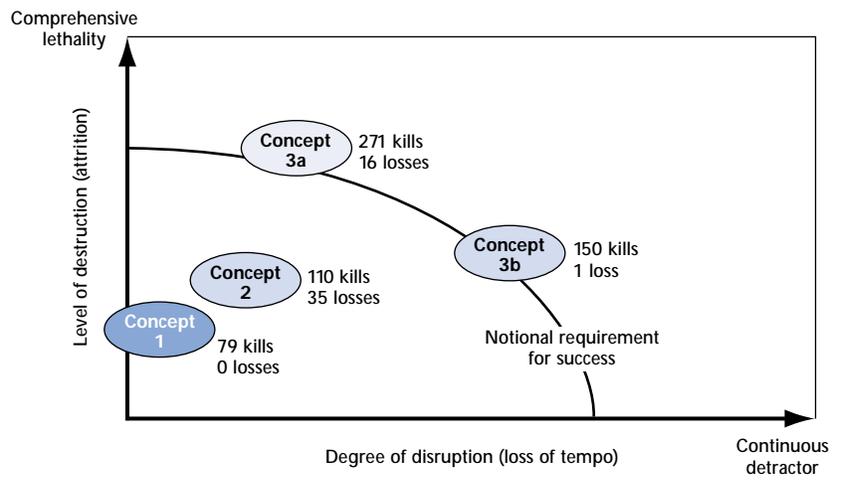


Figure 5.1—Effectiveness of Three Ground Force Maneuver Concepts

gest that firepower alone, operating in the absence of friendly maneuver units, would be limited in its ability to stop a rapidly advancing enemy force.

In concept 2—standoff munitions plus ground force maneuver—the lethality of the U.S. response increases, as does the force’s robustness, where weapons in close proximity (e.g., direct fire) can be significantly more difficult to countermeasure. Nonetheless, since this force, once in place, lacks mobility on a par with the enemy, it can be bypassed. Even if the enemy chooses to engage this force, depending on the circumstances, it can opt to either fight with its overwhelming numbers or break off a smaller unit to contain this force. The lack of tactical mobility of this U.S. force is significant.

Concept 3a—standoff munitions with agile maneuver—achieved sufficient lethality to probably stop the Red force, even if disruption were not considered. Disruption was also present because of the shock associated with the ambush,² because of the ability of the direct-fire and organic indirect-fire systems to target specific high-value targets, and because of the presence of a capable force threatening the enemy rear, which may compel the opponent to change his plans. Red countermeasures are likely to reduce the impact of this force, but the effects should be limited because there are many different targeting mechanisms in concept 3a, including long- and short-timeline systems, autonomous and man-in-the-loop control, seekers using different spectra, and direct-fire systems able to sweep the battlefield.

Concept 3b represents a variant of 3a, using standoff munitions with agile maneuver against “soft” (e.g., resupply vehicles)—as opposed to “hard” (e.g., tanks)—targets. Since the agile ground forces were competing with long-range standoff fires for the same more lucrative logistics and supply vehicles (combat support targets), overall lethality was not as high as in 3b. However, because there was considerably more focused lethality on a specific target set, where all the additional kills were directed against the soft logistics and supply vehicles, the effect of disruption would be significantly, perhaps exponentially, higher. How much higher remains to be quantified.

However, the Viability of Creating—and Deploying—Such a Force Is Unresolved

While the positive outcomes seen with agile maneuver will not represent a major surprise to the ground warfighting community at large, the *viability* of creating and deploying such a force capability still remains to be resolved. Obvious challenges that still remain for enabling the vertical envelopment concepts include the technological feasibility of creating relatively lightweight, lethal, and survivable ground vehicles, the ability to support and resupply the ground

² Once the local ambush began, a large proportion of the kills were achieved within a relatively short time, roughly five minutes.

force, and the ability to operationally deploy such a force without unacceptable losses to enemy air defenses. In terms of creating such a force, not only would it involve a complete reequipping of at least a portion of today's ground forces, it would also entail a reorganization of how such a force would need to fight, including training and doctrine changes.

As for deploying such a force, this was explicitly modeled in the analysis, which looked at the survivability of advanced air transports flying at different altitudes and speeds (e.g., low and slow, low and fast, and mid-altitude); with different levels of situational awareness (e.g., no SEAD (suppression of enemy air defenses), medium SEAD, and high SEAD); and with different levels of stealthiness (e.g., base case signature and low-observable signature). The result is a fairly daunting challenge:

- With low-altitude ingress and some situational awareness of emitter locations, the aircraft can avoid SA-12s, and some SA-15s, SA-17s, and 2S6s, but not all radio frequency SAM systems could be avoided.
- High levels of SEAD will be needed to countermeasure emitting air defense systems. Even one long-range radio frequency SAM site can inflict significant damage to the squadron.
- Stealth and large amounts of responsive SEAD are required to counter the effectiveness of AAA and MANPADs during low-altitude ingress.
- Mid-altitude ingress (above 15,000 feet) is a viable option if the long-range SAMs can be suppressed and the landing area secured from AAA and MANPADs.

While new technologies offer some promise in overcoming creation and deployment challenges, it is still too early to determine definitively how applicable many will be. As more research and experiments are conducted, better assessments on both the viability and the utility of maneuver for rapid-reaction missions can be made.