

Making Light Forces Smaller/More Dispersible Has Benefits But Makes Them More Vulnerable and Less Capable

IN CHAPTER THREE WE EXAMINED some relatively near-term upgrades to improve the capability of light forces when placed in rapid-reaction missions, working mostly with RFPI concepts and technologies within the context of ACTDs. But what would be the impact of changing concepts—for example, making light forces smaller and more dispersed? Given that the dramatic improvements in precision-guided and smart weapons can enable a greater share of battlefield firepower to be brought in from great distances (as shown in the last chapter), a smaller presence of organic weapons would theoretically be possible, which means the ground force itself can be made smaller. By making the ground force smaller and lighter, many units could be placed on a battlefield fairly quickly, even faster than a traditional light airborne unit; by also dispersing it, the force would be a much more difficult target for enemy forces. In fact, when we do the analysis, we find that *there was considerable merit in making light forces even smaller than they are now, particularly in that they can deploy with greater speed; however, there were major vulnerabilities and limitations in the kinds of missions that such forces could accomplish.* Following a brief discussion of the context for the analysis, we discuss this finding in more detail.

Setting the Context for Analysis

Here, we analyze three recent initiatives that have examined the idea of making light forces smaller and more capable. The first, based on a Defense Science Board (DSB) concept, is a small, mostly self-contained unit, such as a DRB, that is given the mission and capability of a larger unit, such as a division, by augmenting many of the DRB's current components with advanced RSTA, C2, and weapon systems and removing less relevant systems. While similar in some ways to the RFPI ACTD, this concept, rather than emphasizing organic capability, relies on joint "external" capabilities, such as remotely located RSTA and long-range fire-support system technologies.

The second initiative, based on the TRADOC light battle force concept, is like the DSB concept in that it also relies extensively on both high levels of RSTA and remote, long-range weapons, referred to here as "reachback" weapons. However, it goes further by making the unit completely dispersed, no longer occupying a specific area, and by replacing the weapon systems with immobile weapon "pods" that can house a wide range of precision-guided weapons.

The third initiative, based on the Defense Advanced Research Projects Agency (DARPA) small unit operations (SUO) concept, has three echelons: small (7- to 9-man) teams with some local fire support, a tactical command post (TACCP) able to call in fires from the short- and mid-range organic assets, and a Joint Task Force (JTF) able to direct fires from long-range standoff weapons. The force has many nonmobile, unmanned assets dispersed through the region to help it accomplish its mission, including detection and targeting sensors, communication relays, and short- and long-range missile pods, similar to those in the TRADOC concept.

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

Making Light Forces Smaller Makes Them More Deployable . . .

All three concepts are different, but they have one thing in common: They are, by definition, much smaller than the DRB they are replacing and, thus, more deployable. For example, the SUO force is substantially smaller than the 82nd DRB—less than one-fourth the size (1,600 short tons versus 7,100 short tons, including combat support), even assuming pessimistic assumptions on the number of personnel (400) and heavy expenditures of missiles and pods. In fact, the use of containerized missiles in place of vehicles may make the force more efficient to transport. The time needed to move to East Europe, for example, under the assumption of 40 percent airlift availability drops from five days (for the 82nd DRB) to less than two days.

. . . While Greater Dispersion Makes Them Somewhat More Survivable

Dispersion is also a part of all three concepts and also shows promise. In the DSB concept, for example, the light forces were dispersed so that the force expanded by 5–6 times compared to the original formation for the 82nd DRB. Despite the dispersion, interlocking, supporting fires were still possible between the battalions, and overall Blue losses to Red artillery were reduced in the indirect-fire battle. However, survivability did suffer more in the direct-fire battle because the larger perimeter resulted in less efficient overlapping fields of acquisition and fire for Blue and permitted more efficient simultaneous application of Red firepower.

However, the Smaller Light Forces Are More Vulnerable

The latter result above calls attention to one area of vulnerability for the smaller light forces. All three concepts are based on the assumption that the direct-fire battle will be minimized by the use of precision nonorganic reach-

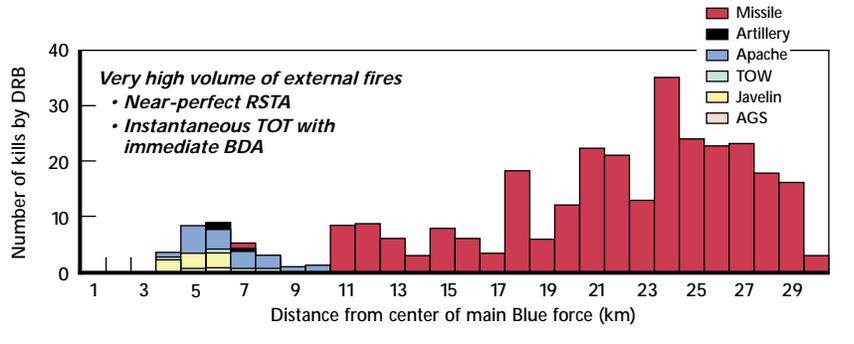


Figure 4.1—Effect of Relying on Reachback Weapon Systems in Best Case Scenario

back weapon systems and a limited number of organic indirect-fire systems. The lighter forces are lighter in part because they are less armored and protected, relying on dispersion and signature reduction for protection. However, in all the concepts simulated, there is still a direct-fire battle. For example, in the DSB concept, which relies primarily on enhanced external RSTA systems and nonorganic reachback systems, the analysis shows (Figure 4.1) that even when we assume near-perfect intelligence, an instantaneous time on target (TOT) with immediate battle damage assessment (BDA) for the large-footprint reachback weapons, and a very high volume of fires (roughly four times what was projected for the base case), a significant portion of the attacking enemy force survives to fight the direct-fire battle. Ultimately, 306 of the 695 Red systems are destroyed, with 279 of those systems destroyed by the reachback weapon systems 11 kilometers and back from the center of the main Blue force.

The TRADOC concept—with its reliance on reachback weapons and immobile indirect-fire pods—reveals a similar vulnerability. While the analysis showed the use of the two systems was quite effective in attriting the enemy force, the success comes at a cost. If the battle continues until the end—150 minutes—over a third of the battle unit can be lost to enemy fires, mostly resulting from receiving direct fire from the surviving enemy air and ground units.

Another vulnerability of all the concepts is that they rely on complicated RSTA systems to compensate for the dispersion of the forces, and these systems must operate effectively for the concepts to succeed. For example, the DRB concept relies on many steps to operate effectively—acquiring targets, passing information, assigning weapons, dispensing munitions, performing battle damage assessment, and many others. Similarly, the SUO concept requires comprehensively sensing all relevant information—enemy position, composition, and status; own locations; terrain and weather; etc.—being able to communicate and display this information quickly and accurately to all sites that need it, and then using precision standoff weapons to defeat the targets located. One

of the more vulnerable areas for the SUO force is that there are many stages of coordination required to successfully target mid- to long-range precision indirect fires. All these new capabilities will require new tactics, techniques, and procedures (TTPs), and some of them may open up opportunities for the enemy.

Beyond these two vulnerabilities, the concepts all require forces with limited maneuverability. For example, the TRADOC light battle units were limited by their lack of maneuver capability. In several instances, they were not able to reposition out of harm's way from the large attacking force. Also, they were unable to exploit the effects of the simultaneous and highly effective indirect-fire attacks, which, in theory, could have led to greater overall force synergy.

And the Smaller Light Forces Are Also More Mission-Limited

While the forces in the three concepts are vulnerable, they are also more limited in the kinds of missions they could accomplish. For example, a small dispersed force would likely have to rely more on remotely located, reachback weapons for its lethality. As a result, instead of holding terrain as a typical light airborne force may be required to do, the best this force might expect to accomplish with such weapons would be to deny the enemy use of terrain.

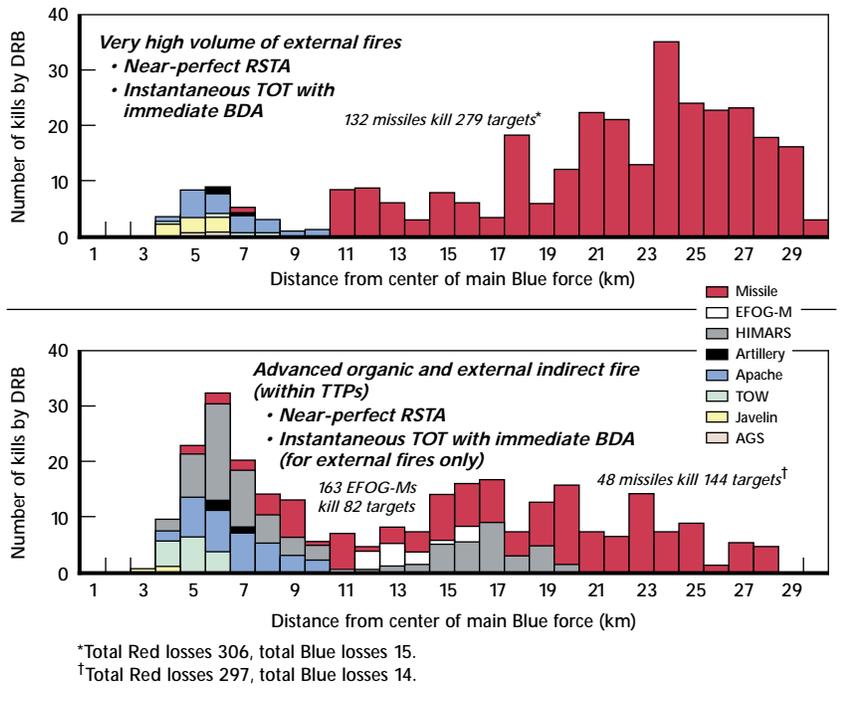


Figure 4.2—Effect of a More Balanced Mix Between Organic and External Fires

Given this, a force equipped with organic firepower appears to be essential, especially so when either an objective must be protected or an area denied to the enemy.

Although our research does suggest that the amount of organic capability can be reduced given a significant presence of effective external RSTA and fire support, the most attractive and robust solution for enhancing the capability of small forces is a mix between advanced organic systems and external systems, as shown in Figure 4.2. The top part of the figure reproduces the chart shown in Figure 4.1—the very high volume missile attack—and results in large numbers of kills at deep ranges, but the ability to attrit (and level of efficiency) drops off at closer ranges—resulting in a small residual direct-fire battle. In contrast, the more balanced attack, which uses standard TTPs, results in relatively moderate attrition at deep ranges, and many of the closer-in engagements are handled by more efficient organic indirect fires. High-value enemy artillery targets are targeted primarily by HIMARS/Damocles, while armor is primarily targeted by EFOG-M. The “shape” of the attrition is significantly different between the long-range external and combined external/organic cases, but the outcomes, in terms of direct-fire battle intensity and overall LER, are quite similar.

Unfortunately, equipping such a force with significant organic firepower effectively makes it less of a “small” force, increasing both its signature and its deployment time.