FUTURE LETHALITY FOR THE DISMOUNTED WARRIOR

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Introduction

The future dismounted warrior will be equipped with new and more sophisticated equipment and will have at his disposal a variety of new lethal mechanisms that will assist him in seeking out and destroying the enemy. For example, squad leaders will have a far broader view of their immediate battlefield. Remote and local networked sensors will provide the entire squad with increased situational awareness to include the locations of threat and friendly targets. Decision aids will enable squad leaders to better plan and accomplish their missions.

Networked fire control within the squad will allow for the handoff of targets to the best shooter with the best weapon. Several members of the squad will be equipped with significantly more lethal precision airbursting munitions weapons, and the remainder of the squad will have significantly lighter weight weapons than they have today. In addition, individual soldiers will have the ability to call and direct fire from remote weapon platforms or from robot vehicles.

Current Lethality

The current lethality for a light infantry squad is represented by the M16A2 rifle for the fire team leaders and riflemen, the shorter M4 carbine for the squad leader, the M249 Squad Automatic Weapon for the automatic riflemen, and the M16/M203 grenade launcher for the grenadiers. Performance of these systems is limited to the warrior's ability to point and aim the weapons. Soldiers become quite proficient with these weapons rather quickly. However, in times of stress, when there are multiple targets exposed for short amounts of time and targets that are moving and life-threatening, weapons are often point-fired and not aim-fired. Under these conditions, a soldier's hit performance is significantly reduced. In addition, because of the nature of conflict, many threat targets go unseen and undetected.

The current fielding of thermal weapon sights and heads-up displays will provide the increased capability of engaging targets remotely without exposing oneself, as well as through obscurants and at night. The future dismounted warrior is expected to possess many additional capabilities that will make him far more lethal and survivable.

Information Technology

Dismounted warriors, along with the rest of the force, will benefit from the information age. Target-relevant information from various sources will be available at the squad level. Fused image sensors; auto trackers; multi-functional, steerable laser range finders and transmitters; acoustic recognition sensors; and combat identification sensors will be networked to supplement the individual soldier's current visual target detection with automated detection and target state sensing. Detected targets will be analyzed and cued for priority either by range, motion type, or other attributes. In addition, future dismounted warriors will be networked, providing greater flexibility and multiple alternatives to accomplish lethal missions. Distributed firing will also allow any warrior in the squad to engage a preferred target. This will also provide the ability to mass-fire against key targets.

Networked fire control will also allow indirect or non-line-of-sight target engagement. This can be either from an improved grenade launcher or from a remote platform. Firing can be in the form of range and azimuth furnished from an individual warrior's location, grid coordinates, or an actual aiming reticle provided from the distributed network. A future grenade launcher will be able to engage line-of-sight and non-line-of-sight targets to a range up to 500 meters. The future dismounted warrior will also have the ability to directly control and fire weapons on remote unmanned robotic platforms to provide a non-line-of-sight capability to a range beyond 500 meters.

Situational Awareness

The dismounted soldier must keep his eyes on the battlefield to maintain awareness of his environment. He loses this awareness whenever he is required to look at something else or perform another task such as aiming and firing his weapon. The future warrior will be able to fire the weapon without bringing it to his shoulder to aim. An off-weapon aiming device will project an aiming reticle in the soldier's natural field-of-view periphery through a head-mounted visor. This is similar to the displays seen by fighter pilots. Speed and quickness of firing result from the soldier not having to take his eyes off the target to engage. As he brings his weapon to bear, he will see the aiming reticle in his normal field of view. He simply needs to get the aimpoint on the target and pull the trigger, thus maintaining full awareness of the battlefield.

Ammunition resupply will be provided by robotic vehicles, perhaps the same vehicles that provide remote-weapon capability. Real-time ammunition consumption will be monitored with warnings provided to the soldier at low-ammunition thresholds. Leaders will receive automated reports and be able to summon automated resupply, thus reducing the soldier's load and allowing him to carry the right amount of ammunition and call for resupply prior to actual need.

Increased Lethality

Increased lethality will be possible by integrating technology into the

Figure 1.
Objective Individual Combat Weapon

individual soldier's weapon. Through the use of laser range finders, ballistic computers, and miniature electronic fuzes, the soldier will be able to precisely place and explode a fragmenting warhead at or near the target. The ability to direct-fire airbursting munitions to a target not only increases the warrior's lethality or probability of incapacitating the target, it also gives him the ability to defeat individual solder targets that are in defilade or behind obstacles and not posing an immediate threat. This capability will be provided by the Objective Individual Combat Weapon (OICW) (Figure 1), which will fire 20mm-high explosive munitions capable of airbursting to a range up to 1,000 meters. However, this significant increase in capability comes at the expense of weight and cost. These weapon systems will therefore be limited to a few individuals in the squad.

Lighter Weight

The remaining individual warriors will also be equipped with new weapons. The main new feature of these weapons is their significantly reduced weight. These weapons will be of a simple design and made of nearly 100-percent composite lightweight material. They will fire plastic-cased or caseless ammunition that is up to 50-percent lighter than today's brass-cased ammunition. The legacy M4 Carbine weighs 7.4 pounds fully loaded. The new system will weigh approximately 5 pounds and may look similar to Figure 2.

Likewise, the fully loaded M249 Squad Automatic Weapon weighs 23.3 pounds. A new, high-rate-of-fire weapon with the same number of lightweight rounds of ammunition could weigh 14 pounds. A new composite grenade launcher to replace the M203 would fire the same 20mm round of ammunition as the OICW. Without the sophisticated fire control of the OICW, the high-explosive round would function in the point-detonate mode as does the current M203 round. Six 30-round magazines currently carried by the soldier weigh 6 pounds. The same number of rounds of lightweight ammunition with equivalent performance could weigh only 4 pounds. The new lightweight round of ammunition will also be used for the bullet-launching portion of the OICW to further reduce its weight. To keep the weapon as light as possible, all aiming devices and displays will be kept off the weapon as much as possible. This also improves battlefield awareness.

Figure 2.
New, lightweight weapon

Future Warrior Squad

The future warrior squad will be equipped with an entirely new suite of weapon systems and a networked connectivity that does not exist today. The future warrior squad will carry only two rounds of ammunition as it does today. Its weapons suite will include a family of significantly lighter weapons capable of firing a lightweight round of ammunition and the highly lethal, more capable airbursting OICW with its 20mm high-explosive ammunition. For example, the squad leader could be equipped with the lightweight weapon and the grenadiers with the lightweight weapon with the new 20mm attachment. The automatic riflemen will carry a high volume of the fire version of the lightweight weapon, and the highly capable OICW would go to the team leaders and riflemen.

Conclusion

The future warrior squad may look like the current light infantry squad, but new weapon systems and individual warriors will be linked in a network not available today. Improved target detection, situational awareness, and decision aides, along with the networked, more lethal and lightweight weapons, will make the future warrior squad a lethal, highly maneuverable team without equal. However, if all the new sophisticated systems fail and batteries die, the projection of lethality when the trigger is pulled must remain.

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