



The Division Advanced Warfighting Experiment: Intelligence and Surveillance Implications (Joint STARS, UAVs and Raptor)

The Duke of Wellington, arguably Great Britain's most famous soldier, once observed with his characteristic dryness, "I've spent most of my career wondering what was on the other side of the hill." Knowing precisely where the enemy is, in what direction he is moving, and what this suggests he is likely to do, are precious items of military information that have been eagerly sought but rarely obtained by armies throughout history — until now. Among the numerous insights gained during last November's Division Advanced Warfighting Experiment (DAWE) conducted by the Army at Fort Hood, Texas, was that we are very close to providing commanders this invaluable information in real time and continuously.

The Advanced Warfighting Experiments were designed to evaluate how emerging technologies and operational concepts could be integrated with new organizations so that the Army of the 21st century will be prepared to successfully meet future security challenges. The first AWEs conducted at task force and brigade levels were intended to answer three questions: Where am I? Where are my colleagues? And where is the enemy? In recent operations, such as Desert Shield and Desert Storm, the Army had experienced the advantages enjoyed when units accurately knew their own locations. Exponentially larger advantages would conceivably result from knowing the locations of other friendly forces and the enemy. But if such information were readily available, could it be rapidly and reliably transmitted to commanders and, if so, could commanders then expeditiously act on it? These then became the two primary questions to be answered by the DAWE, and the answer to both questions was "yes."

Future battlefields will have characteristics that starkly contrast from any seen before. Battlespace will be expanded across the three familiar spatial dimensions, into cyberspace, and to the far reaches of the electromagnetic spectrum. Combat units at all levels will be widely dispersed, operating with enormously greater autonomy until brought together to execute decisive operations, at a decisive place, at a decisive moment. Support units will have to adjust to these demands and provide their vital services with greater precision than ever before over a battlefield that will be nonlinear, largely erasing traditional concepts of front and rear areas. Units will be carefully placed on key terrain and other locations giving them positional advantage over the enemy. Depending on the tactical situation, they can mass fires, combine or further disperse, moving quickly from an offensive to a defensive posture and back again. Such fluidity and nonlinearity means that warfare in the future is likely to look considerably more like soccer and considerably less like football.

Dealing with such significantly altered concepts places an enormously greater burden on intelligence and surveillance systems to see the battlefield so that proactive steps can be taken to shape it in a way maximizing the advantages of friendly forces, and minimizing the ability of the enemy to exploit superior numbers, initial positional advantages and local familiarity. Despite these challenges, throughout the DAWE it was apparent that the Experimental Force (EXFOR) was able to exploit dramatically the advantages of enhanced situational awareness and to defeat the enemy by synchronizing its forces across the large, noncontiguous battlefield.

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The principal intelligence and surveillance systems that provided this advantage were the Joint Surveillance and Target Attack Radar System (Joint STARS), Unmanned Aerial Vehicles (UAVs), and the Raptor Intelligent Combat Outpost (ICO). When integrated into an improved command and control (C²) network that allowed for a wide dispersion of information among numerous C² nodes, the EXFOR found that it was capable of seeing enemy locations and movements, analyzing their likely intent and objectives, and taking decisive actions to accomplish their mission.

With its battle-proven ability to see hundreds of kilometers and provide wide-area surveillance of a zone twice the size of that assigned to the division, Joint STARS was able to provide accurate, near-real time information on the location and movement of enemy forces under all conditions. Comanche helicopters, UAVs or other more traditional reconnaissance assets could then be dispatched to confirm the precise nature of such targets and provide information that could be used by commanders to prioritize and attack targets at very long ranges. The key capabilities used to carry out such attacks, and to shape the battlefield in a manner ensuring the achievement of decisive results, were attack helicopters and long-range artillery systems armed with advanced, precision weapons. Apache Longbow and Comanche helicopters were coupled and precisely vectored to locations where they could attack the lead elements of enemy formations, slowing their advance and substantially reducing their numbers and combat effectiveness. The Multiple Launch Rocket System (MLRS) and Crusader howitzer — particularly when equipped with extended-range munitions coupled with smart submunitions, such as the Brilliant Antiarmor (BAT) and the Sense and Destroy Armor (SADARM) submunitions — proved to be a potent combination in shaping the battlefield to the EXFOR's advantage and capturing the promise of near-real time situational awareness and precision attack.

The DAWE demonstrated clearly that the fusion and dissemination of information about enemy locations and movements significantly enhances the ability of all commanders having access to such information to analyze situations, make timely decisions, and take timely actions to provide the domination of the maneuver dimension discussed in such publications as Joint Chiefs

of Staff's *Joint Vision 2010*. Furthermore, an increased awareness of the locations of friendly forces was also greatly enhanced. However, further improvements are necessary to facilitate the exchange of information with nondigitized units from corps support organization and the reserve components. In the future, since there will be a mix of digitized and nondigitized units as the force is modernized, procedures will have to be developed to ensure the availability of vital information to all elements of the friendly force, including possible coalition partners.

Despite the impressive performance of these new intelligence capabilities, certain observations during the DAWE served to underscore the timelessness of old lessons. New systems, no matter how impressive their technologies, need to be controlled and utilized in a manner that makes the most of their capabilities. And as always, crew and unit training will remain an indispensable prerequisite. Performing a comprehensive intelligence process that identifies and prioritizes intelligence requirements and orchestrates the collection, processing and dissemination of information must still be conducted and must still commence with an intelligence preparation of the battlefield. Since the number of intelligence requirements will likely always exceed available collection assets, determining those that are most important and assigning them to the best sensor system will remain a vital command and staff function.

The DAWE clearly demonstrated that we now have the capabilities to provide commanders with unprecedented levels of information about the enemy, as well as the locations and conditions of the friendly forces. Current systems, such as Joint STARS, and emerging systems such as Tactical UAVs, Comanche and Raptor, teamed with long-range precision strike capabilities such as that provided by the combination of the Army Tactical Missile System (ATACMS) and BAT, and the Apache Longbow, promise to provide a force that will be dominant on the battlefield for many years to come. There is much left to be learned about how best to use modernized systems as they are fielded, and to develop the significantly more sophisticated systems that will be required for the Army After Next, but what has been demonstrated during the AWE process makes it unlikely that commanders of the future will be faced with Wellington's problem of wondering what's happening on the other side of the hill.

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