

A tactical edge

Boeing is playing a crucial role equipping warfighters for combat

By Peggy Mason and photos by Richard Rau

For the combat soldier, knowing where the enemy is can be a lifesaving advantage.

Take the following combat scenario that could soon become reality because of Boeing's work on a program for the U.S. Army:

A ground sensor is placed near a road where enemy forces are expected to travel. The sensor, three or four feet (about a meter) high, is camouflaged by natural cover. A soldier checks data relayed from the sensor and detects a potential threat just out of his range of vision. Another soldier requests that an unmanned aerial vehicle be deployed to get a closer look.

Soon, the aerial vehicle is transmitting data that allow the soldiers to determine that the area in question is clear of hazards. But other soldiers continue to scan the immediate area, this time by maneuvering a small unmanned ground vehicle to check places where the enemy could be lurking—in and around buildings, alleys and vehicles.

Throughout the process, soldiers are transmitting up-to-the-minute information to their units, using a network integration kit that acts as a "secure cell phone" to link soldiers to incoming sensor and communication data and allows the soldiers to relay information.

"These capabilities empower soldiers at every level to make faster, smarter and safer decisions," said Boeing's Paul Geery, vice president and program manager for the Army's Brigade Combat Team Modernization program—a program once known as Future Combat Systems. But more has changed than just the name.

About eight years ago, Boeing and the U.S. Army developed the concept of Future Combat Systems. The Army's vision of future warfare centered around a highly linked ground force that could transmit and receive real-time information on everything from enemy troop locations to the identification of a sniper's nest. Future Combat Systems would have equipped 15 brigades, with new manned and unmanned vehicles linked by an unprecedented, fast and flexible battlefield network.

Pentagon and Army officials canceled the vehicle development component of the program about a year ago and restructured its remaining components into the Brigade Combat Team Modernization program, which will provide new capabilities to all of the Army's brigade combat teams. The restructuring better defined what the Army and Defense Department required, and it focused even more on the needs of soldiers in the field. The most crucial element of Future Combat Systems—the network—remained intact. It will provide real-time situational awareness not only to

commanders but to those who need it most—soldiers in battle.

"The cancellations were formidable, a crucible for the program," said Virginia Barnes, previously the vice president and deputy program manager for the Brigade Combat Team Modernization program. "But through it all, our mission remains the same: to get network-enabled capabilities into the hands of soldiers as soon as possible."

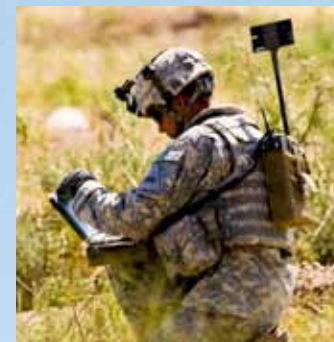
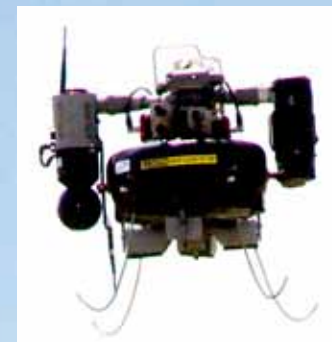
A significant milestone came in February when Boeing received a \$138 million contract for low-rate initial production. Starting in 2011, a team led by Boeing, with support from Science Applications International Corp., will equip the Army's first Infantry Brigade Combat Team with networked capabilities that include:

- Small Unmanned Ground Vehicles—robotic systems capable of reconnaissance missions in dangerous or difficult situations such as entering buildings, caves and tunnels
- Class I Unmanned Air Vehicles—small, soldier-operated UAVs that can hover for reconnaissance and surveillance while providing target acquisition
- Unattended Ground Sensors—multi-mode surveillance sensors for target detection, location and classification, with an imaging capability for identification
- Network Integration Kits—integrated computer systems with the latest communications and radio systems and battle-command software, providing the initial network connectivity needed to transfer sensor and communication data.

Program components are already being tested at Fort Bliss, Texas, and the White Sands Missile Range in New Mexico; the tests are in the third year of a four-year testing process. The Army Evaluation Task Force, including soldiers who have served in Iraq and Afghanistan, is rigorously testing the components to ensure they can withstand combat.

"Our aim is to get these capabilities to the soldiers at the tactical edge and empower them to make decisions based on information and knowledge," Geery said. "The feedback we get from the Army's Evaluation Task Force during our development ensures we stay on track." ■

margaret.a.mason@boeing.com



PHOTOS: (Above, from left) A Class 1 Unmanned Aerial Vehicle—this one the size of carry-on luggage—can scan an area and relay the video to soldiers; a soldier in the field checks incoming information that provides situational awareness of the surrounding area; after the Class 1 Unmanned Aerial Vehicle lands, a soldier can easily carry it to the unit's vehicle or secure area; a soldier at White Sands Missile Range, N.M., monitors information from Brigade Combat Team Modernization capabilities being tested.

(Below) Soldiers can maneuver the Small Unmanned Ground Vehicle (foreground) into areas that could be hazardous by using a hand-held controller similar to a video game controller.

