

Force XXI Appliqué

Keeping the Army a few steps ahead on the battlefield

By Linda Javier



TRW Data Technologies Division's Force XXI Battle Command Brigade-and-Below Appliqué

program continues to achieve major milestones and set the pace for one of the division's most successful and ambitious programs ever – digitizing the U.S. Army's battlefield for the 21st century soldier.

By the first week of June, all V1 and V2 computers were delivered for insertion into the Appliqué installation kits. This provides the Army with functional software and hardware within 17 months of contract start that previously could have taken up to five years to deliver.

The reduced cycle time for developing such a major battlefield system garnered a prestigious 1996 TRW Chairman's Award for Innovation for the Appliqué team, led by Program Manager **Neil Siegel**. The Appliqué management team includes **Paul Dixon, François Pearlman, Dave Bixler, Phil Allen, and Bob Africano**.

Integrating information age technologies

To date, the program has delivered on schedule all 862 Appliqué installation kits for ground platforms to Fort Hood, Texas, and 14 aviation kits for Chinook and Black Hawk helicopters. This effort was managed by Africano, assistant program manager. The equipment supported approximately 450 vehicles for a platoon training exercise in July, which will be fol-

lowed by a battalion exercise in September. In March 1997, the equipment will move up to the brigade-level advanced war-fighting exercise at the National Training Center, Fort Irwin, Calif.

The Appliqué installation kits can be customized to fit more than 30 types of wheeled, tracked, and airborne platforms, and more than 1,200 computers of four types. By applying digitization to existing platforms in this program, the Army will be able to operationally evaluate the best ways to embed this type of technology in new platforms in the future.

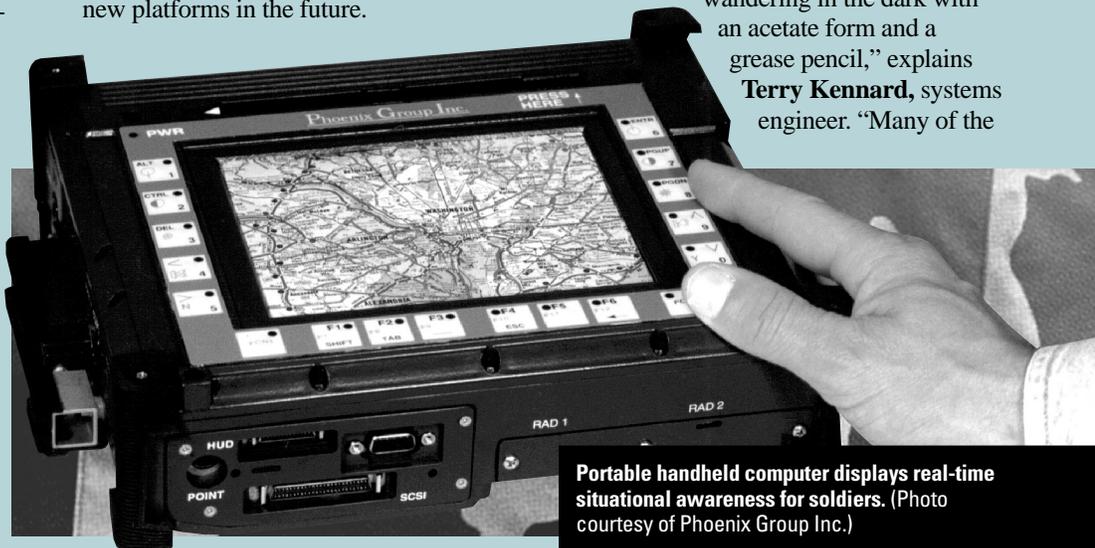
dividual soldier's helmet-mounted display. Having access to this situational awareness information in the field lifts what has been called "the fog of war."

Approximately 186 dismounted soldier systems will be provided to the 4th Infantry Division's Reconnaissance Platoon, Light Infantry Battalion, and Mechanized Infantry Battalion soldiers.

Clarity also will come from other functions, such as electronic logistics status reports. "Soldiers no longer will be

wandering in the dark with an acetate form and a grease pencil," explains

Terry Kennard, systems engineer. "Many of the



Portable handheld computer displays real-time situational awareness for soldiers. (Photo courtesy of Phoenix Group Inc.)

The system includes a high-resolution, eye-piece-sized display and a pencil-sized camera that are integrated onto a dismounted soldier's helmet, allowing combat personnel to "see" in real time exactly where they are and the location of both friendly and enemy forces. The data appears simultaneously on a computerized handheld unit for soldiers in the field, as well as on the in-

things we do in our offices with computers, soldiers will be able to do in a tank."

'First time ever'

In addition to meeting the customer's original requirements of providing real-time situational awareness and command

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The engineer who helped drive TRW into the Army business retires

By Charlene Cheuvront

Some people see closed doors and turn away. **Toni Schuman**, advanced systems manager in Data Technologies Division's (DTD's) Army business unit, figures out how to open them.

That includes hatches. In the 1950s when women were not permitted aboard naval vessels, Schuman was the only engineer to be found who knew how to diagnose a major design flaw in the propulsion system of a Navy ship. "Eventually they let me aboard to devise a solution," she recalls.

Some 30 years later, she climbed into an Army M113 armored personnel carrier and got behind the controls. "I learned how to drive and maintain them with a group of about 10 people," says Schuman, "when

the Army provided a two-week training session in support of our work on the NBC Recon contract in 1987.

"When I wanted to do something, I decided I would do it, no matter what the obstacles were," Schuman says.

In the Army business for two decades

Schuman retires on Sept. 1, following 20 years with TRW. She has supported TRW's entry into Army programs since 1977, when she joined TRW, having decided to broaden her career with a move into business development.

She came to TRW with a 19-year track record that included experience as a me-



chanical engineer in the U.S. Navy and as a programmer, system engineer, computer designer, and program manager at several companies.

"I teamed up with a retired Army colonel to pound doors," Schuman says. "At that time, TRW's reputation was well estab-

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and control, the Appliqué team has risen to the challenge of never-been-done-before tasks that put the program on the leading edge of information technology.

"For the first time ever, we are developing a tactical communications capability, which works similar to the Internet, using Appliqué and government-furnished communications devices to improve situational

awareness and decision-making for soldiers," says Dixon, deputy program manager for Appliqué.

"We are planning to put together a 1,200-node radio-based network on ground vehicles, helicopters, and soldiers," says Bixler, chief engineer, "the largest endeavor of this kind ever, commercial or defense."

"A discrete Internet protocol (IP) address will be provided for each computer consisting of a military name and an IP name," Dixon explains.

soldiers in how to use the Appliqué software, with selected TRW personnel in the classroom as subject matter experts. Within six months, more than 2,400 soldiers have completed this new equipment training.

Training is taking place at both Fort Hood and Fort Lewis, Wash., under the watchful

"It's like putting a light on in the dark."

— Linda Purser, army specialist

Training the trainer

A program of this magnitude justifiably requires a major training effort. Since the implementation of an instructor/key personnel training program in January, TRW has trained 150 soldiers as instructors. These soldiers in turn teach other

eye of **George Gallagher**, assistant program manager for training and logistics. The TRW-developed 40-hour course runs twice a day and will ultimately have been taken by 2,500 soldiers. An additional course has been provided by TRW that teaches unit maintenance and repair of the Appliqué computers. Most recently, the Army has requested that TRW also provide platform training — instruction on the actual platforms with the Appliqué running.

"It's like putting a light on in the dark," said Army Specialist Linda Purser on learning how to use the Appliqué system at Fort Hood. ■



Soldiers from the 1st Brigade, 4th Infantry Division, at Fort Hood, Texas, are tutored in the use of Appliqué software by an Army instructor (standing) trained by TRW. (Photo courtesy of U.S. Army.)