

Busting the Low-Tech Myth — Army S&T Efforts Support Full-Spectrum Operations

Kellyn D. Ritter and Jaclyn Pitts

Some may think that the U.S. Army is not on the cutting edge of technology when it comes to weapons systems, vehicles, equipment, and other elements necessary in the theater of operations. However, the truth of the matter is the exact opposite — the U.S. Army is a high-tech organization devoted to developing and fielding the latest advances in technology so that Soldiers can perform their jobs more effectively. The Army is also working to appeal to the younger workforce by using modern technology and creating a faster-paced work environment, in addition to reaching out to local communities and partnering with industry on high-tech endeavors. This was the overarching message that panelists gave during a military forum at the Association of the United States Army Annual Meeting and Exposition in Washington, DC, Oct. 8, 2008.

The Excalibur is a high-tech Army precision munition that reduces collateral damage and, therefore, the logistical burden for Soldiers on the ground. Here, an Excalibur explodes out of an M777 Howitzer at Camp Taji, Iraq. (U.S. Army photo by SPC Derek Miller.)



Expanding the Acquisition Workforce

LTG N. Ross Thompson III, Military Deputy to the Assistant Secretary of the Army for Acquisition, Logistics, and Technology/Director, Acquisition Career Management, discussed how the acquisition workforce is projected to grow and change over the next few years. “We are actively working to bring in high-tech, quality Soldiers, as well as high quality Department of the Army civilians to work for the U.S. Army,” he said. “The opportunities working for the U.S. Army are very exciting whether you are wearing a green uniform or a business suit.”

Thompson also discussed the impact of Section 852 of the *National Defense Authorization Act (NDAA) of 2008, Public Law No. 110-181*, which directed the establishment of the Defense Acquisition Workforce Development Fund. This fund enables DOD to recruit and hire, develop and train, and recognize and retain its acquisition workforce.

“One of the primary ways we are going to use this fund over the next 5 years is to take money from service contracts and put it into recruiting and retaining the military workforce,” Thompson said.

Thompson also explained the value of college loan retainer programs to attract young people to the acquisition workforce. “A recruiting tool might be to offset college loans a student might have,” he said.

“There are about 38,500 people in the acquisition workforce, and we’re projected to ‘grow’ by about 5 percent over the next couple of years, to about

2012,” Thompson stated. However, from 2003 through 2005, there were not enough acquisition professionals to handle all of the Army’s contracting missions, he added. “Congress was asking the right questions on how this happened, and a lot of answers came from downsizing the acquisition workforce in the [19]90s. Since 2001, the number of contract actions and contract dollars we have been executing has grown about 600 percent in contract actions and at least double in the dollar value,” he said. “In 2007, 25 percent of every federal contract dollar was put on contract by the U.S. Army. You can’t do that with a workforce that’s flat.”

The U.S. Army is a high-tech organization devoted to developing and fielding the latest advances in technology so that Soldiers can perform their jobs more effectively.

In the military acquisition workforce, there are fewer than 1,600 people, but it is projected to grow by 135 positions over the next 5 years in military contracting and program management. “What’s new for us is the skill set of non-commissioned officers [NCOs],” Thompson explained. “In the [U.S.] Air Force, well over 50 percent, or 1,100 of about 1,900 or 2,000 Air Force military contracting professionals are NCOs. They are very well qualified, and the Army recognized that to do expeditionary contracting, we needed NCOs.”

Thompson said the emphasis is not so much on high technology but on



Army Chief Marketing Officer Edward Walters advised that, “High-tech experiential marketing is a key piece of the Army’s new integrated marketing approach.” This type of marketing is exhibited in the AEC, which uses advanced technology and cutting-edge marketing theories to encourage young people to join the Army. (U.S. Army photo by Jacqueline M. Hames.)

recruiting people to be able to do high-tech missions. All of the acquisition career fields require highly trained people, not just scientists and engineers, but also business and financial experts to put together contract instruments. “My strategic objective is to make the Army a very tough customer,” Thompson said. “We pay too much for our products and services. I want the Army’s acquisition workforce negotiating the best deal for the U.S. Army because that allows us to put the best capabilities in the hands of Soldiers.”

Streamlining Army Contracting Processes

Jeffrey P. Parsons, Executive Director, Army Contracting Command, U.S. Army Materiel Command (AMC), discussed drawing young people to the acquisition workforce through technology. He stressed the need for increasing the number of acquisition professionals and making the

contracting process as transparent as possible. "In terms of dollars, [AMC] is probably executing more than 80 percent of every contract dollar that the Army is spending these days," he said. "The preliminary numbers for FY08 indicate our command executed more than \$104 billion in contracts, a 20-percent increase over last year, which was a 20-percent increase over the year before. When you're facing that kind of workload, you have to look at different ways of handling this business, and it's not just a matter of increasing the number of people. We're trying to take some of the technology out there and bring that into our process to improve our ability to create better contracting officers."

Parsons stressed the need for technology to attract and retain young, bright people in the workforce. "We need to find a way to harness the technology that we have because these new folks coming into the workforce are not used to a structured environment.

We've got to find a way to take the tools we have today and make this more of a virtual enterprise," he said. "In a virtual contracting enterprise, the challenge is that we must have the ability for Soldiers [overseas] to be able to enter the enterprise so that they can do work, be efficient, and, at the same time, give visibility into what they are working on."

There are many different kinds of applications in the contracting business today, such as programs that write solicitations and contracts, and interface with finance and logistics systems. Most of those systems at one point were based on client servers. "We have taken all the systems and are moving them all onto the Web so that we now have the capability for Soldiers in Iraq to be able to

electronically access this enterprise, write contracts, and feed into databases that will allow them to see where contracts may already be in the system," Parsons said. "We're building a data warehouse to capture all that contract information and make it visible to anyone in our workforce."

From the workforce perspective, much can be done with this contracting data.

"We can now track all certification levels individuals may have and get an idea of how well the workforce is developed and where they have experience," Parsons stated. At the supervisor level, supervisors can tell what types of contracts their employees have been working on, so that they can move people onto new contracts in which they may not

I want the Army's acquisition workforce negotiating the best deal for the U.S. Army because that allows us to put the best capabilities in the hands of Soldiers.



The new AEC is a prime example of the Army's high-tech marketing and recruiting plan. Here, SSG Rodney Smith (right), one of more than 20 Soldiers who staff the AEC, uses the global base locator to teach visitors about the many Army installations throughout the world. (U.S. Army photo by Carrie McLeroy, U.S. Army Soldiers Media Center.)

have experience working, to further develop their skill sets.

High-Tech Army Recruiting

Edward Walters, Army Chief Marketing Officer and Principal Deputy Assistant Secretary of the Army (DASA) for Manpower and Reserve Affairs Recruiting and Retention, spoke about the Army's new method of high-tech marketing and recruiting. A core goal of the high-tech Army recruiting process is to attract men and women who wouldn't normally consider the Army as a career option. Walters advised that, "High-tech experiential marketing is a key piece of the Army's new integrated marketing approach. ... [The Army is] shifting marketing dollars away from pure sponsorship," meaning that money will be used to foster Army experiences for recruits. We "create opportunities for young men and women to experience the Army by talking to real Soldiers and really getting to experiment with Army technology," said Walters.

The new Army Experience Center (AEC) is a prime example of high-tech marketing. The AEC team applied alternative business practices to recruiting and created innovative programs that enhance understanding of the Army. The AEC pilot program's objective is to increase recruiter effectiveness through integration of Army marketing and recruiting functions and understanding of Army life through an experiential and marketing environment.

The center opened in Philadelphia, PA, on Aug. 28, 2008, and it changes the entire recruiting approach. The recruiting process used to be very

Army researchers, scientists, and engineers are developing smaller and more capable systems to aid Soldiers on the battlefield. Here, an MAV takes off near a Doña Ana, NM, mountain range July 30, 2008, during a 3-day training exercise conducted by Combined Arms Battalion Soldiers to test the experimental technologies of Army FCS. (U.S. Army photo by Stephen Baack.)



intimidating. Recruiting buildings were not visually appealing and recruits often felt confused by the entire process. The AEC is sleek, modern, and very visually appealing. Its goal is to create a nonthreatening, nonintimidating environment in which to experience the Army. The center offers much more in terms of experiencing the Army and seeing the technology and benefits the Army has to offer than sitting down at a desk for a recruiting appointment.

The AEC includes state-of-the-art gaming stations; team-based simulations and games; a modern, comfortable sitting lounge where recruits can talk

to recruiters and Soldiers; new realistic Army simulations including the Apache and Black Hawk helicopters and High-Mobility Multipurpose Wheeled Vehicles; touch-screen career simulators that explain and identify

Army careers; and global base locators that enable recruits to explore Army installations. In the center, visitors receive briefings in high-tech command and control centers where real Soldiers relay realistic virtual scenarios. For more information about the AEC, visit www.thearmyexperience.com.

Army recruiting is also done through the efforts of individual Army organizations. To keep up the tradition of high-tech excellence, the Army "needs motivated, talented people who want to make a difference, who want to challenge what we have today and move the state of the Army," said Dr. Grace M. Bochenek, U.S. Army Tank Automotive Research, Development, and Engineering Center (TARDEC) Director. This can be accomplished by attracting and retaining the best and brightest through outreach programs. TARDEC hosts robotics, engineering, and technology days with local schools where kids are exposed to robots and the future of technology. This program's participation has increased dramatically over the last 2 years and is projected to increase again in 2009. TARDEC also participates in For Inspiration and Recognition of Science and Technology (S&T), an intelligent ground

To keep up the tradition of high-tech excellence, the Army needs motivated, talented people who want to make a difference, who want to challenge what we have today and move the state of the Army.



Project Manager (PM) Close Combat Systems/PM Improvised Explosive Device (IED) Defeat has fielded more than 360 SPARKs to Soldiers in the GWOT. The SPARK provides additional stand-off capability to vehicles and crews against pressure-activated IEDs. (U.S. Army photo courtesy of TARDEC.)

vehicle robotics competition that allows for cooperation and mentoring between students and teams. This competition also continues to grow.

Dr. Thomas H. Killion, DASA for Research and Technology and Chief Scientist, agreed that the Army needs to foster the new generation of science and engineering careers through recruiting. “Tomorrow’s technology is in the minds of today’s youth,” said Killion. The Army engages youth through an Army educational outreach program that includes interactive experiences. The Army also participates and sponsors youth S&T competitions, including the Web-based eCYBERMISSION program, and tuition assistance and job placement for students involved with Army S&T.

Many may be unaware that TARDEC and the Army are actively involved in tackling national strategies, including high gas prices, fuel shortages, and energy security.

High-Level Technology

Killion provided an overview of the Army’s current and future high-tech systems and equipment. He explained there is a perception that the Army is low-tech and dangerous, and the Army is trying to change that perception because it is simply inaccurate. He advised, “The Army is a high-tech service. We provide Soldiers with technology that enables them to effectively do their job safely and efficiently.” This technology will “increase the capabilities of our forces, the protection of our Soldiers, and our ability to support the mission that the Nation asks the Army to perform.”

Killion advised that the Army is pursuing S&T to transform the imaginable into capability.

Killion listed several examples of current high-tech Army technology including:

- Precision munitions, including the Excalibur.

- Unmanned systems, including the PackBot® and Fido®.
- Unmanned Aerial Vehicles, including smaller, more capable systems, such as the Micro-Air Vehicle (MAV).
- Command and control advancements that allow commanders and Soldiers to accomplish missions using advanced communication resources.
- Power sources, such as fuel cell and battery cell technology, which enable Soldiers to have power for their high-tech systems for longer amounts of time in more isolated areas.
- Soldier protection, such as interceptor body armor, vehicle advanced armor, and modular protective systems.

Future technologies that the Army is developing include:

- Nanotechnology (designing new materials from the atom up) and biotechnology (mimicking biology).
- Immersive technology for training. The Army is using graphic and speech recognition technology for synthetic human training, which increases the variety and effectiveness of training for Soldiers.
- Autonomous and smaller systems.

The Army is increasing the autonomy of the unmanned systems to reduce the demand on the Soldier. Small systems include the Nanoflyer, which provides surveillance and weighs 2.7 grams — the same weight as a penny.

- Soldier performance. The Army is developing technology that controls systems through brain monitoring, as well as technology that gives the Soldier vast logistical and physical capabilities. An example of this is the Exoskeleton, which gives additional capabilities to the individual Soldier and reduces the burden on the Force.

Ground Vehicle Technology

Bochenek provided a grass-roots perspective of TARDEC, the ground vehicle systems center of excellence. TARDEC is driving technology and innovation into ground vehicles every day. Bochenek advised that many may be unaware that TARDEC and the

Army are actively involved in tackling national strategies, including high gas prices, fuel shortages, and energy security. These issues are directly related to the Army's ground vehicles. "DOD is the largest single consumer of all the mobility fuels in the world," said Bochenek.

TARDEC's cutting-edge high-tech investments include:

- Biodiesel fuels.
- Hydrogen fuel vehicles.
- Mobile grids that link hybrid-electric vehicles together to create a networked power source.
- Higher energy and power density batteries.

Bochenek cited the recent roll out of the hybrid-electric Non-Line-of-Sight Cannon as an example of the Army's technological success. She explained how far the Army has come to achieve feats like this: "The hybrid system that was developed in 1994 for a 15-ton combat vehicle occupied a volume of 6 cubic meters, which was way too large to put on a Future Combat Systems [FCS] platform. The work that we've done over the [past] decade ... has [led to the volume being] about at 3 cubic meters, if not less. That's powerful."

The success of TARDEC's ground vehicle program is reliant upon partnerships. TARDEC has 83 cooperative research and development agreements with industry that can exchange engineers and data and share technology.

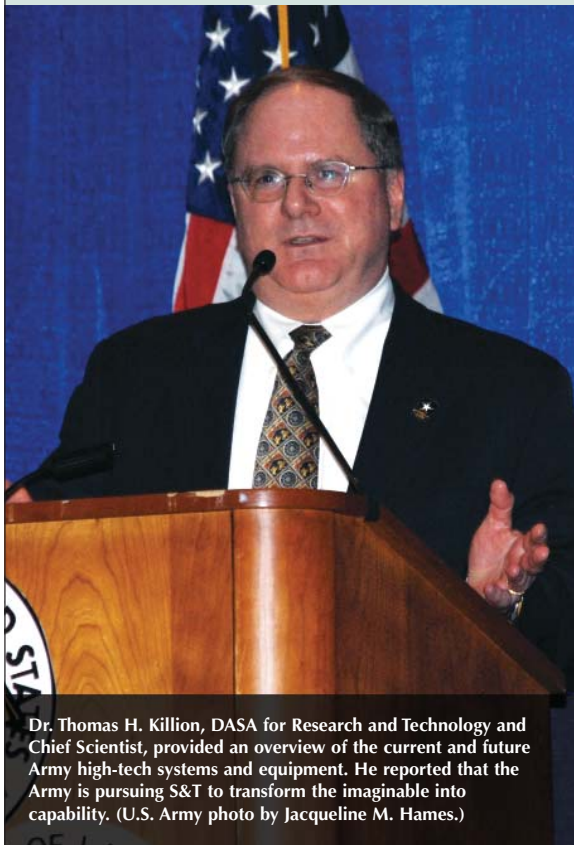
TARDEC also has synergy with the automotive industry, forming a joint collaboration with car companies' automotive research centers, including General Motors, Ford, Chrysler, Toyota, and Hyundai.

TARDEC has made immeasurable contributions to the global war on terrorism (GWOT), including the fielding of 500-plus Mine Resistant Ambush Protected Expedient Armor Vehicles and 360-plus Self-Protection Adaptive Roller Kits (SPARKs). Bochenek concluded that, "The U.S. Army and TARDEC are a hub of innovation. We work on some of the most tremendous things you could possibly want to work on. The bottom line is we deliver and we provide new capabilities to our Soldiers."

Overall, the Army is moving forward not only in technology, but also in building and developing a strong acquisition workforce to carry out contracting missions for years to come. By reaching out into the community through high school and college intern programs, as well as working with industry partners both large and small, the Army acquisition workforce is continuing to provide Soldiers with the technology they need.

KELLYN D. RITTER provides contract support to the U.S. Army Acquisition Support Center (USAASC) through BRTRC Technology Marketing Group. She has a B.A. in English from Dickinson College.

JACLYN PITTS provides contract support to the USAASC through BRTRC Technology Marketing Group. She has a B.S. in journalism from West Virginia University and is pursuing a B.S. in criminal justice from Kaplan University.



Dr. Thomas H. Killion, DASA for Research and Technology and Chief Scientist, provided an overview of the current and future Army high-tech systems and equipment. He reported that the Army is pursuing S&T to transform the imaginable into capability. (U.S. Army photo by Jacqueline M. Hames.)