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A new level of realism to support
multidomain warfare

TRAIN THE WAY YOU FIGHT

PEO EIS' Chérie Smith
on doing acquisition right



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To contact the Editorial Office:
Call 703-664-5636/5633

Email:
armyalt@gmail.com

Mailing Address:
DEPARTMENT
OF THE ARMY
ARMY AL&T
9900 BELVOIR RD.
FORT BELVOIR, VA
22060-5567

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Army AL&T magazine (ISSN 0892-8657) is published quarterly by the ASA(ALT). Articles reflect the views of the authors and not necessarily official opinion of the Department of the Army. Articles of the Army may be reprinted if credit is given to Army AL&T magazine and the author.

Private subscriptions and rates are available from:
Superintendent of Documents, U.S. Government Printing
Office, Washington, DC 20402
202-512-1800

Periodicals official postage paid at
Fort Belvoir, VA, and additional post offices.

POSTMASTER:
Send address changes to:
DEPARTMENT OF THE ARMY
ARMY AL&T
9900 BELVOIR RD
FORT BELVOIR, VA 22060-5567

This medium is approved for official dissemination of material designed to keep individuals within the Army knowledgeable of current and emerging developments within their areas of expertise for the purpose of enhancing their professional development.

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JAMES C. McCONVILLE
General, United States Army
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Official:

KATHLEEN S. MILLER
Administrative Assistant
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2006304



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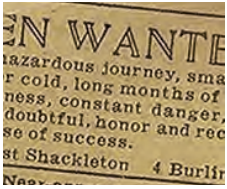
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From the Editor-in-Chief



FINDING THE BEST TEAM POSSIBLE

"Men wanted for hazardous journey. Low wages, bitter cold, long hours of complete darkness. Safe return doubtful. Honour and recognition in event of success."

—Advertisement supposedly placed by Sir Ernest Shackleton's Imperial Trans-Antarctic Expedition



@ Email Nelson McCouch III
armyalt@gmail.com

In 1914, explorer Sir Ernest Shackleton led a party to be the first to traverse the continent of Antarctica. Shackleton chose the best team possible for this unusual mission by looking for character traits he knew would be needed for success—strong, mentally tough adventure seekers. The mission was so daunting that these criteria were captured in a concise yet dramatic ad that in itself became the stuff of legend. (Shackleton may have drafted such an appeal, but no evidence exists that it ever actually ran.)

Unfortunately, what was supposed to be a monumentally successful expedition became a grim fight for survival as the ice field in the Weddell Sea slowly thickened, encasing and eventually crushing the explorers' ship *Endurance* and leaving the party of 28 men stranded on an ice floe. For the better part of two years, Shackleton guided his men in the most unforgiving environment in the world—against brutal cold, raging seas and the constant threat of starvation—to an eventual rescue. Shackleton and his crew were eventually honored and recognized, not for crossing the continent of Antarctica, but rather for extraordinary leadership, teamwork and survival.

Today, like Shackleton, Army acquisition wants women and men to take part in a journey, one that, if successful, will bring them honor and recognition—building the next generation of systems and equipment our Soldiers need to fight and win on the battlefield. But how do you get the right person for the right job with the right skills, mindset and training to rise to greatness?

A lot has changed in the 106 years since Shackleton's exploration. To get the right person today is a little more complicated than posting what we are looking for in an advertisement. In today's Army Acquisition Workforce, we are asking current and future employees what they are interested in doing. We place more value on the potential employee's buy-in to the position, to their desire to be part of the group, instead of the group deciding if the person is fit to be part of them.

Studies have shown that employees have the ability to choose, to some extent, where they work, and they tend to select companies that they identify with. Giving employees that flexibility tends to boost a company's overall performance. How to balance the needs

and culture of the individual with the needs and culture of the Army is still a work in progress, but one that will pay huge dividends when done properly.

In this issue, we address the question of how Army acquisition is getting innovative in satisfying its need to put the right skills in the right place at the right time. In "Train the Way You Fight" on Page 24, Chérie Smith, program executive officer (PEO) for Enterprise Information Systems, details her vision of talent management at the PEO level. Smith focuses on imparting the basics of acquisition and program management to employees, along with an understanding of how those principles play out in real-world settings with real-life outcomes for Soldiers. It's a balancing act, she said, of hands-on experience and classroom education.

How do you prepare for the year 2025 and beyond? Send your existing workforce to needed training now to reach your business goals for tomorrow. "Software Talent Goes to School," on Page 30, shows how the U.S. Army Communications-Electronics Command Software Engineering Center is doing just that.

And speaking of training, we have a firsthand account of what a developmental assignment can mean to a career. In "HACQ-ing' for Defense" on Page 84, Rajal Ganatra explains how she happened to land a career-broadening assignment with the Defense Innovation Unit and suddenly found herself in California and on the cutting edge of defense acquisition. And don't miss "Embracing Creative Destruction," on Page 64, by Dr. Bozena "Bonnie" Berdej. This piece is based on her study, for her doctoral dissertation, of the literature of creative destruction, emotional intelligence and communication. She shows how, during a time of change and "creative destruction," the Army needs to do a far better job of communicating.

If you hate change, these are not the times for you. But if you're up for an adventure, honor and recognition may be yours! As always, if you have comments, story ideas or a story of your own to submit, please contact us at armyalt@gmail.com. We look forward to hearing from you.

Nelson McCouch III
Editor-in-Chief



TRANSPARENCY OF TALENT

No two people in the Army workforce are alike in their knowledge, skills and behaviors; each person represents a unique piece of the talent puzzle. At the organizational level, too, the pieces fit together uniquely. Allowing Soldiers and organizations to see one another in their uniqueness is one of the primary strengths of the new Army marketplace, and it helps both parties identify the right person, right job and right time. (Image by Getty images/hocus-pocus)

MODERNIZING TALENT MANAGEMENT



The work is already underway to transition the Army Acquisition Workforce into a force for the future, but much remains to be done.

When I graduated from West Point in 1976, the Army was entrenched in the Cold War. The Soviet threat resulted in the Big Five, developed through an acquisition process derived from systems engineering and based on assumptions formulated in the 1960s and talent born of World War II experience. The acquisition process then was appropriate for its time, but in the same way we are transforming the industrial-age acquisition system into a digital-era model based on delivering capabilities, so, too, are we transforming our workforce.

For both military and civilian professionals, we are ensuring that those who develop and procure systems on behalf of our Soldiers have the best, most appropriate skills, knowledge and training. Our workforce transformation is being achieved through a process focused on talent management.

Talent management looks at the institutional Army and its needs. It looks at whole individuals and their needs and aspirations—who they are and what capabilities they bring. It looks at readiness—not just fight-tonight readiness, but readiness next week, next year, next decade. It requires doing what's right for the individual and for the Army. A modern talent management system requires data to enable agility—data to flesh out details that may be extremely useful when we build teams or in the event we need to put together a tiger team, task force or division.

Talent management requires both risk and creativity. This is just one of the reasons why the Army has taken a number of concrete steps in the right direction with respect to both civilian and uniformed members of the acquisition workforce. It represents a journey that, with the help of authorities granted by Congress, is off to a promising start. First up are efforts on behalf of military workforce members.

TALENT MARKETPLACE

Based on capabilities provided by the new Integrated Personnel and Pay System – Army (IPPS-A), the Army has stood up a market-based talent management system. IPPS-A enables the Army Talent Alignment Process (ATAP), a decentralized, regulated, market-style hiring system ensuring that officers align their knowledge, skills and behaviors with jobs around the Army based on individual preferences. Leaders of formations then discover those Soldiers and evaluate their knowledge, skills and behaviors against their own organizational needs. Officers assuming new positions this summer will have overwhelmingly found those posts via ATAP. (IPPS-A is not yet operational across the entire Army, and ATAP is currently enabled by the Army’s Assignment Interactive Module 2.0.)

The marketplace is transparent—the participating Soldier and unit can see one another. Soldiers can showcase their talents



EXPANDING THEIR UNIVERSE

Jeffrey S. White, principal deputy to the assistant secretary of the Army for acquisition, logistics and technology, speaks to a gathering of incoming participants in the Training with Industry (TWI) program, outgoing TWI graduates and Soldiers interested in the program in May 2019 at Fort Belvoir, Virginia. The Army DACM Office, which hosted the event, operates a wide variety of career-broadening and developmental opportunities, including TWI, to help the Army Acquisition Workforce gain skills, knowledge, training and education. (Photo by USAASC)

Talent management looks at the institutional Army and its needs. It looks at whole individuals and their needs and aspirations—who they are and what capabilities they bring.

for units needing those talents. All people are multidimensional, and their behaviors (what they do), skills (what they’re trained to do) and knowledge (what they know) fit together uniquely. IPPS-A is intended to securely store and make useful a more thorough characterization of who an officer actually is. This system will continue to grow and represents a fundamental change to Army culture.

When he spoke at the Association of the United States Army (AUSA) annual meeting in October, Gen. James C. McConville, the Army chief of staff (CSA), told the story of a unit in need of a one-star general to lead a recently initiated joint task force on artificial intelligence. “We went through all of our leaders, and we

found out that we had a one-star general who had a Ph.D. in computer science and artificial intelligence,” he said, adding that “he is leading that effort right now.” This is the kind of flexibility the Army needs.

PROMOTION OPT IN AND OPT OUT

Historically, a military career has been “up or out.” If you weren’t promoted “on time,” then you most likely would be separated from the Army, regardless of whether the Army happened to need your skills. Based on authority granted in the National Defense Authorization Act (NDAA) for Fiscal Year 2019, the Army is moving away from those rigid timelines for promotion to provide more flexibility in career development.

Officers who want to pursue an advanced degree—as I did—or some other opportunity to expand their career horizons will effectively be able to hit the “pause” button on the timeline without penalty to their careers. They can then engage in self-betterment through education, career-broadening assignments or other opportunities at their current grade. The new policy enables officers to opt out of promotion board consideration for a year—twice—at each grade. Being able to opt out of promotion boards, as a first step to being able to opt back into promotion boards when the time is right, gives the officer more choices in building a career.

BREVET PROMOTIONS

As many as 770 brevet promotions—temporary promotions in rank with a defined goal—will take place in the Army before the end of the fiscal year in September. When the Army lacks critical skills in one area, ATAP can help it find them in other areas. A Soldier who has critical skills can be brevet-promoted to a more senior billet in the event there’s a post on the critical positions list for which they have the needed knowledge, skills and behaviors. The Soldier can, upon starting the job, wear the rank and earn the compensation of the higher grade.

This program is a direct and speedy way for the Army to address shortages of right person, right job, right time. It enables us to be more creative in employing the unique capabilities of junior officers and rewarding those skills. All of those promotions must be approved by Congress, and last only as long as the position.

DIRECT-COMMISSIONING AUTHORITY

When people talk about modernizing the Army, they tend to think of materiel. But we need innovative people as much as we need innovative equipment. The NDAA



THE TOOLS OF THE TRADE

With ATAP, supported by Assignment Interactive Module 2.0, the Army has a decentralized, market-style hiring system that follows a standard set of procedures whereby officers can match their knowledge, skills and behaviors with jobs around the Army. Likewise, ATAP gives formations the ability to identify and evaluate Soldiers who appear to be a good fit for the unit’s needs. Underpinning this capability is IPPS-A. (Image by USAASC)

for fiscal year 2019 gave DOD authority to direct-commission officers. In September, Secretary of the Army Ryan D. McCarthy signed Army Directive 2019-27, which helps to align Army policy with the new NDAA authorities.

The Army has been direct-commissioning officers into special branches of the service, such as the Chaplain Corps, the Judge Advocate General’s Corps and

Army Medicine, for decades. Specialized capabilities like medicine or law require specialized training. Other specialized expertise in fields such as cybersecurity, artificial intelligence, machine learning and electrical engineering may not exist at the appropriate level within the Army to meet our needs. Direct commissioning gives us the potential to acquire talent the Army knows it needs but has not, until now, had the means for acquiring.



DRIVEN TO MODERNIZE

Soldiers assigned to 2nd Armored Brigade Combat Team, 1st Infantry Division, participate in chemical, biological, radiological and nuclear training in their M1 Abrams tank during the Strong Europe Tank Challenge in June 2018 at Grafenwoehr Training Area, Germany. The Abrams tank has a distinguished 40-year history of service, starting as one of the Big Five weapon systems developed to combat the Soviet threat. Now, as the Army modernizes weapon systems to deliver overmatch capability to the Soldier, it is also modernizing how it acquires those systems, and that includes the management of acquisition workforce talent. (U.S. Army photo by Matthias Fruth, Training Support Activity Europe)

Imagine CSA McConville’s example of finding someone in uniform to fill a military role when there is no one with quite the right knowledge or abilities. The right individual to lead a highly specialized area or organization may have to come from outside the Army. Based on this authority, we can find that person today and directly commission them.

This is just what the Army needs. But it’s not just the Army. The country could benefit significantly from greater permeability between military and civilian. Most civilians outside of the defense world or without significant family participation in the military don’t really understand what military service means. The Army’s “What’s Your Warrior?” campaign is intended to start the conversation with younger people who might be attracted to a military career if they understood its many

benefits. We must be creative in attracting talent and getting the skills and knowledge we need for the future.

CIVILIAN EFFORTS

The tip of the spear is where the Army is concentrating most heavily on change in talent management. It just makes sense. However, civilians make up approximately 97 percent of the acquisition workforce, and the Army is also working to improve our talent management of those not in uniform. Indeed, the U.S. Army Acquisition Support Center (USAASC) and the Army Office of the Director, Acquisition Career Management (DACM) established the Human Capital Strategic Plan in 2016.

The plan’s goals include developmental assignments to help the workforce gain skills and knowledge, training and education,



TALENT MANAGEMENT BY EXAMPLE

At the AUSA's 2019 Annual Meeting in Washington in October, CSA James C. McConville told the story of a highly specialized unit in need of a leader, to illustrate the degree of flexibility the Army needs in managing talent. (U.S. Army photo by Sgt. Dana Clarke)

funded by the Defense Acquisition Workforce Development Account, and other career development tools and leadership training. One of the most important efforts is reducing the time to fill critical positions.

Filling positions is one thing, but keeping them filled with the right talent is another critical aspect of talent management. Increased use of employee incentives can be an effective way to retain talent. We know money is only one of the reasons people work, and other rewards—peer recognition, a sense of accomplishment and being part of something meaningful—can be just as important in our day-to-day lives. People have lots of reasons for public service, and we want to provide reasons for them to continue.

As an example, for several years, the Army DACM Office has offered a limited student-loan repayment program for civilian acquisition workforce members. The DACM Office recently looked at the numbers and found that, from fiscal years 2013 through 2019, those participating in the program were nearly 50 percent less likely to leave the workforce than those not in the program.

These are just some of the initiatives we have underway as we transform from personnel management to talent management for the 21st century. The scale of the acquisition workforce is vast, and so the undertaking is guaranteed to be challenging. As most of you are aware, IPPS-A has taken years to develop. As we learn and improve from its development and fielding, the knowledge we gain will help us better manage our talent in the coming years.


Future talent management will help us achieve a kind of readiness focused on more than just filling slots with the available people. We are very much at the beginning of a transformation whereby we can effectively gather, analyze and use data to help us make the best staffing decisions possible. Assignment officers will become talent managers with the data to make better decisions. Soldiers and civilians will become even more active participants in the Army mission and will remain in their jobs longer because their careers will be more rewarding and their sense of accomplishment greater.

CONCLUSION

In Army acquisition, we have been extremely adept at building the best for our Soldiers. It's true of our acquisition of

both materiel and talent. To this adaptability, we are adding flexibility, creativity and authorities granted by Congress. As the complexity of the world increases and the advancement of technology hurtles onward, it is sensible for us to recognize that we need to work smarter, not harder, to acquire the materiel and the talent we need.

I was fortunate to serve in Iraq with two of my children, and it was only because of injury to one that I didn't serve with all three. It should be no surprise, then, that fielding the future of Army talent management is as important to me as fielding the future of materiel. As the Army's acquisition executive, I owe every Soldier the same compassion and support I want for my kids in their service to our country.

During my time as the Army's acquisition executive, we've made significant progress in dragging an industrial-age acquisition system into the digital age. We are also focused on dragging our talent management processes into the digital age. We will continue to pilot and prove out initiatives to benefit the "ultimate fighting machine," the Soldier. Our singular focus in Army acquisition is the timely delivery of overmatch capability to the Soldier. 



AIMING AT PERFECTION

A gunner and his vehicle commander test a prototype of a virtual collective trainer configured as a High Mobility Multipurpose Wheeled Vehicle during an STE user assessment in September in Orlando, Florida. (U.S. Army photo)

CCDC's ROAD MAP TO MODERNIZING THE ARMY: SYNTHETIC TRAINING ENVIRONMENT

Seventh in a series of articles on how the Combat Capabilities Development Command is supporting the Army's "six plus two" modernization priorities.

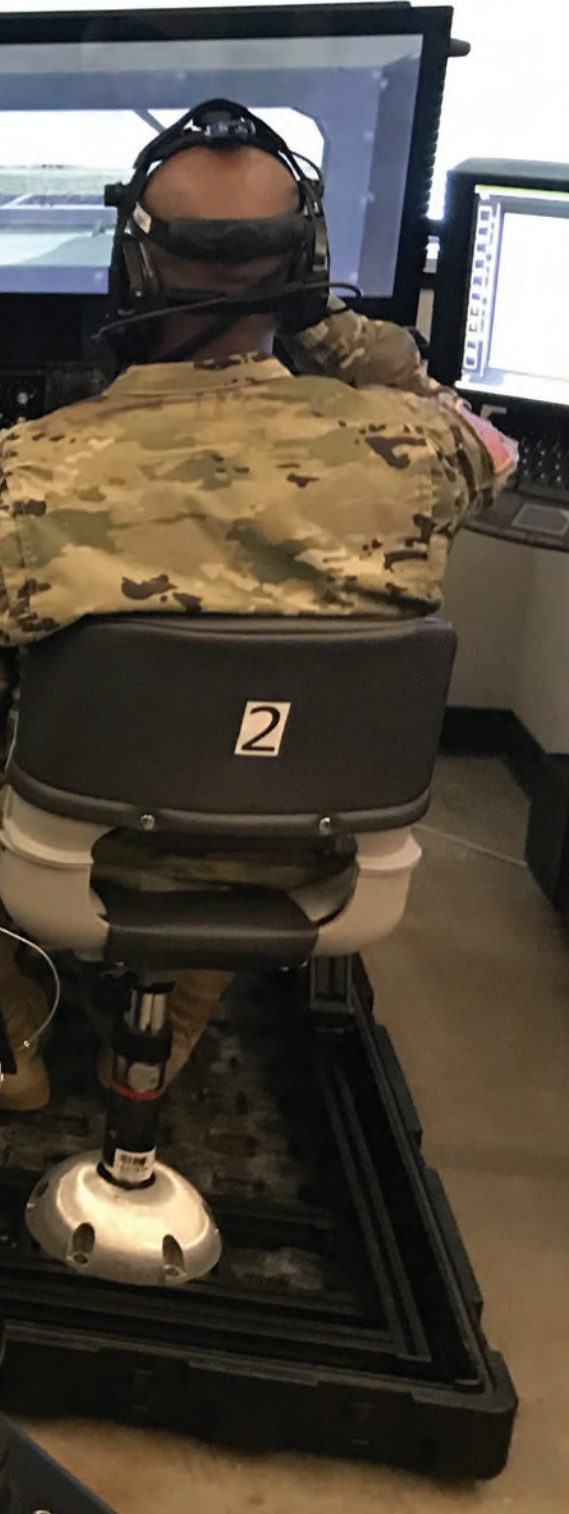
by Maj. Gen. John A. George

Maj. Gen. John A. George is the commanding general of the U.S. Army Combat Capabilities Development Command.

Training is a way of life for Soldiers. Beginning with initial basic training, Soldiers train throughout their military careers. For most of our history, training occurred in the field or in a classroom. As the Army looks to the future, it is modernizing how it trains Soldiers and units by exploring synthetic training technologies.

The Army's Synthetic Training Environment (STE) aims to combine the latest advances from the virtual reality and gaming industries to create complex operational environments for immersive unit training. STE's terrain tools will enable Soldiers to select any location on a virtual globe and train in an environment that they may encounter in combat.

Nested under the Army's Soldier lethality modernization priority, STE is a collaborative effort of the STE Cross-Functional Team, the U.S. Army Combat Capabilities Development Command Soldier Center and the Program Executive Office for Simulation, Training and Instrumentation (PEO STRI). The Soldier Center's Simulation and Training Technology Center serves as the primary science and technology organization dedicated to providing modeling, simulation and training technology in direct support to the STE Cross-Functional Team and PEO STRI. Located within blocks of one another in Orlando, Florida, all three organizations capitalize on this prime location—at the heart of the Florida high-tech corridor, where more than 170 companies specialize in simulation- and training-related research—to establish critical partnerships across industry, academia, government organizations and international partners in order to develop state-of-the-art training technology.



KEEP IT REAL

The STE, which is scheduled for initial operating capability in fourth quarter 2021, will provide a realistic operational environment for training using state-of-the-art mixed-reality technologies. One of STE's major science and technology focus areas is improving dynamic occlusion, or the capability to "portray" or "hide" computer-generated characters and objects behind real things, and to do so in real time from multiple perspectives as actors, objects and users move around in the environment. The virtual objects and the real scene must be perfectly aligned in order to maintain high levels of realism and enable objects to behave as they would under normal conditions.

The popular mobile device-based game, Pokémon Go, is an example of dynamic occlusion that many people play. Players use their mobile phone or tablet to seek virtual characters that are hidden in the real world. The characters appear as if they were hiding in and between real-world



HERE'S HOW IT WORKS

Austin Drexler, a researcher at the Institute for Creative Technologies in Los Angeles, helps the author use special interactive goggles to view One World Terrain 3D interactive simulation data in July. (Photo by Joe Lacdan, Defense Media Activity)

We are coupling artificial intelligence with learning science to develop new ways to measure, assess and provide feedback to Soldiers and leadership automatically during and after STE training events.

objects. Sometimes, however, players will see a character that appears to be on the far side of a room, but is still visible in front. This technical issue removes aspects of realism, and when used for military training will have an impact on outcomes.

Augmented reality game fans may encounter dynamic occlusion errors when the view within the game is not layered or aligned appropriately with real-world objects, making the experience feel unnatural—an annoyance to the player. In military scenarios, the problem can adversely affect the learning experience and lead to negative habits if, for example, a Soldier can't

realistically take cover or if a vehicle crew can't accurately aim and fire at an enemy.

Occlusion of live, moving objects is challenging, and doing so at long distances is even more so. Current augmented-reality head-mounted displays restrict Soldier training to small, indoor environments because of hardware limitations. For example, today a squad can execute a close-combat urban warfare training event in a room about the size of a basketball court. To work this challenge, the Simulation and Training Technology Center is evaluating several depth sensors and deep-learning algorithms to improve the alignment of the virtual and real objects

within the scenario. They have also developed a prototype depth mask using networked depth cameras that achieve greater than 80 percent occlusion accuracy at ranges beyond 30 meters.

Plans for the immediate future include the same occlusion accuracy at ranges greater than 60 meters—still not good enough for our Soldiers. The goal at the Simulation and Training Technology Center is to mature and demonstrate augmented reality algorithms and techniques that occlude dynamic objects in realistic, changing environments with extended ranges that enable the same squad or platoon to train outdoors in all conditions and at the distance of their organic weapon systems.

BREAK IT DOWN

The Simulation and Training Technology Center is developing science and technology research that will enhance the realism, effectiveness and usability of the STE. The team is heavily focused on novel automation techniques and emerging state-of-the-art technologies—areas that current vendors and industry partners deem too risky to invest in, or for which they do not have the necessary in-house expertise or military-specific domain knowledge.

STE will enable units and Soldiers to conduct realistic, multi-echelon, collective training anywhere in the world. The STE information system, the software backbone of this capability, includes One World Terrain, Training Simulation Software and the Training Management Tool. These three software capabilities will be integrated into the STE information system to manage, conduct and deliver synthetic training to the point of need via a ground vehicle, air vehicle and dismounted Soldier interfaces and simulators. The software operating system

will enable “plug and play” components, such as Reconfigurable Virtual Collective Trainers and Soldier/Squad Virtual Trainers, for unit training while also supporting the future Live Training Environment (force-on-force and force-on-target training) and Next Generation Constructive simulation capabilities (exercises for divisions and above).

The Simulation and Training Technology Center’s One World Terrain research efforts include developing and demonstrating software tools and methods to improve

the generation, processing and fidelity of synthetic terrains. This includes representing the complexities of multidomain environments and reducing or eliminating inefficiencies as the synthetic terrains are developed. An important component of achieving a dynamic 3D global terrain is using disparate data sources, which will enable Soldiers to train in a variety of settings, including forested areas, massive urban centers and dense rainforests.

Units currently require experts and a minimum of six months to manually



SEEING THROUGH WALLS

One challenge to providing a realistic and immersive virtual training experience for Soldiers is portraying computer-generated people and objects behind real things, and doing so in real time from multiple perspectives as actors and objects move around. Addressing this challenge, known as dynamic occlusion, is one focus as the Army works with industry and academic partners to build STE. (Photo by Sgt. 1st Class Laura Berry, Massachusetts National Guard)

create synthetic terrains unique to each event. In response, our One World Terrain efforts focus on new methods of using artificial intelligence to decrease the human expertise and time needed to develop, edit and validate terrains used for training, while simultaneously producing them with better accuracy and fidelity.

Training Simulation Software science and technology efforts focus on intelligent character behaviors, scalability and warfare modeling, which are crucial to providing the realism necessary to immerse Soldiers in the training environment. Current military training simulations are based primarily on semiautomated behaviors that are reasonably predictable. The virtual opponent in

STE will enable units and Soldiers to conduct realistic, multi-echelon, collective training anywhere in the world.



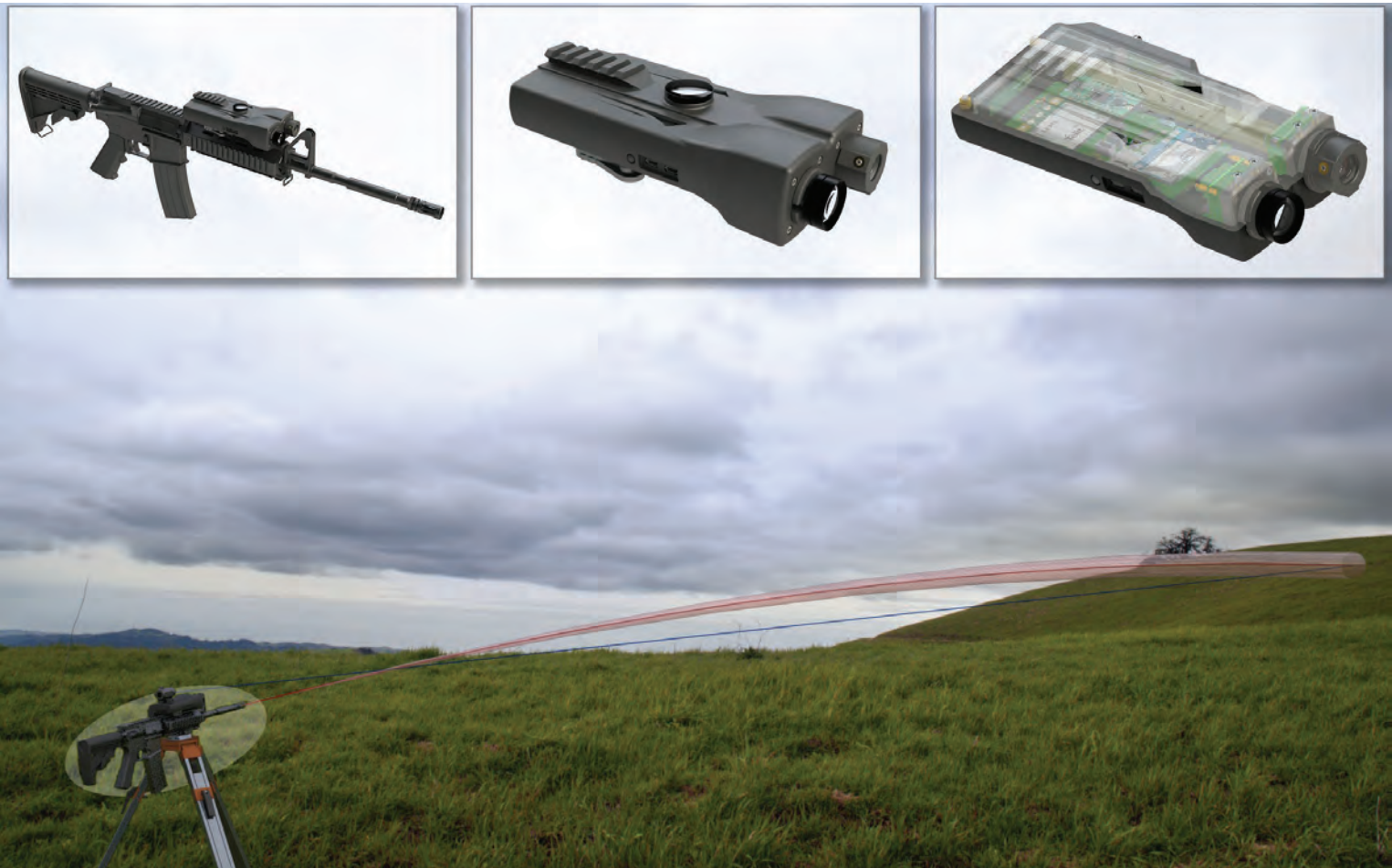
USER FEEDBACK

A Reconfigurable Virtual Collective Trainer – Ground is tested in April 2019 during the STE Cross-Functional Team’s user assessment at Fort Riley, Kansas. Soldiers from the 2nd Armored Brigade Combat Team, 1st Infantry Division, tested out different versions of the next generation of vehicle training simulators and provided their feedback to ensure that the prototypes would meet all required specifications before fielding. (Photo by Margaret Ziffer, Fort Riley Public Affairs)

STE must have a level of cognition and unpredictability that also adheres to known adversarial doctrines. To achieve this effort, we are leveraging state-of-the-art artificial intelligence to better replicate multidomain operations and realistic environments that will enable units to train how they will fight.

The Training Management Tool component of STE will focus on automated team assessments, automated feedback, after-action reviews and intelligent adaptive training for teams. Currently, experts need to be present during every key task of a training event to annotate and assess performance in real time. Details are often overlooked or missed entirely during this process. Therefore, we are coupling artificial intelligence with learning science to develop new ways to measure, assess and provide feedback to Soldiers and leadership automatically during and after STE training events. The feedback will also inform subsequent training.

Our research with the Soldier/Squad Virtual Trainers includes developing augmented reality and mixed reality technologies that enable virtual characters, systems and effects to be inserted into a live training environment. Augmented reality combined with mixed reality is most effective when it is realistic and creates a suspension of disbelief for the user. Creating a sense of suspended disbelief involves developing synthetic environments, including sensory stimulants that are indiscernible from real environments. This allows users to virtually “transport” and conduct training operations in any environment without leaving their home station. That sense of suspended disbelief is much easier to create when using virtual reality technologies that fully create the visual experience of the user without concern for the user’s real location. Augmented reality, however, is much more difficult because synthetic objects must seamlessly blend with the user’s real environment so that users cannot distinguish the real from the virtual. Merging real and virtual must be applied to both



VIRTUAL BALLISTICS

Researchers at the Simulation and Training Technology Center hope to replace the I-MILES program with an eBullet system, pictured here, that will provide ballistic realism that's nearly indistinguishable from live action. The eBullet system will correlate a 3D virtual trajectory in a digital terrain map, such as One World Terrain, for each shot fired and provide casualty feedback to the Soldier. (Image by Samantha Dwyer, Soldier Center Simulation and Training Technology Center)

static objects and dynamic interactions between objects, including real and virtual.

We are also working to improve live training by finding alternatives to the Instrumentable – Multiple Integrated Laser Engagement System, or I-MILES. Built on technologies developed in the 1970s and 1980s, I-MILES is used to support live force-on-force and force-on-target training at Army training centers worldwide. While I-MILES has been enhanced throughout the years, laser-based systems are limited in their ability to

realistically represent lethal effects during live exercises. For example, a shrub or cardboard box provides effective cover from a laser hit but would be useless in a firefight. Our team is seeking ways to more accurately depict the effects of direct and indirect fire and facilitate training on more sophisticated or longer-range weapons that can't easily be integrated into a live training exercise.

Another goal at the Simulation and Training Technology Center is to demonstrate a dual-use eBullet system that will simulate tactical engagements for blue forces (friendly) and opposing



STANDOFF

The Soldier Center Stimulation and Training Technology Center places a high priority on addressing the dynamic occlusion challenge to provide a realistic and immersive virtual training experience. Precise alignment of virtual objects and the real scene is necessary to make the training experience feel natural. (Image by Samantha Dwyer, Soldier Center Simulation and Training Technology Center)

forces weapon systems within both live and synthetic training environments. The technologies behind eBullet offer a variety of options for Soldiers. For example, an artillery round would not simply be a hit or miss. Soldiers would be able to determine how accurate the firepower was and if more strikes were needed. Plans include more advanced options with simulated electronic warfare, cyber, chemical and biological attacks.

SOLDIER TOUCH POINT AND TESTING

Soldiers are key to providing meaningful input for many of our research efforts. We use feedback from the Army Expeditionary Warrior Experiment, which is an annual training event where Soldiers give feedback on technology; the feedback is used to improve products to fit Soldiers' needs.

We also have existing relationships with customers, such as the Joint Readiness Training Center, which uses our technology during unit training rotations. Technology at the Joint Readiness Training Center is used by thousands of Soldiers who provide direct and indirect feedback.

The STE Cross-Functional Team conducts user and technical assessments that connect Soldiers with developers and engineers. The Simulation and Training Technology Center supports the STE Cross-Functional Team with these events, which will be scheduled each quarter until initial operating capability, planned for the fourth quarter of 2021. In addition to helping plan these events, our researchers work with vendors and Soldiers to observe how they interact with the systems, and facilitate technical discussions to help refine the direction of our science and technology efforts.

One of the challenges for vendors is the need to test their products on a military network. The Technology Integration Facility in Orlando enables vendors with promising technologies to conduct rigorous testing on a military test network. The facility serves as a place for the cross-functional team to test the products, provide feedback to vendors, and quickly adopt and refine capabilities that meet STE requirements.

The Team Orlando Integration Lab is co-located with the Technology Integration Facility, offering the modeling and simulation community a place to collaborate on research to advance the development of training aids, devices, simulators and simulations.

TEAMING AROUND THE WORLD

Our strong partnership with industry is threefold. The first component includes

contracts or agreements with industry to develop innovative simulation and training technology. Technology development is limited to problem sets with a military application that the commercial market otherwise would not develop. The second is the transition of technology to industry partners for commercialization, and the third is entering into exchange agreements, including cooperative research and development agreements, to enable research or development efforts with mutual benefits to both parties.

Academic partnerships include the University of Central Florida Institute for Simulation and Training, which supports STE technology development and independent technology assessment; the University of Southern California's Institute for Creative Technologies, which supports One World Terrain research; Carnegie Mellon University, which develops artificial intelligence "free-thinking threat" algorithms; and the University of Texas, which develops One World Terrain and Training Simulation Software technologies.

Key partnerships with other government organizations include close relationships with the STE Cross-Functional Team, PEO STRI and the Combined Arms Center-Training. The STE Cross-Functional Team oversees development and sets requirements and priorities for STE and related activities. PEO STRI is the materiel developer of STE and primary transition recipient of the newly developed technologies. The U.S. Army Combined Arms Center-Training identifies the mid- and long-term gaps for the Army Simulation and Training Program. Other government partnerships include cross-collaboration within CCDC's internal centers and labs, and with technical experts at the Engineer Research and Development Center,

Army Geospatial Center and National Geospatial-Intelligence Agency.

We also maintain active relationships with international partners, including data and information exchange agreements with seven nations, future project agreements with two nations, one exchange engineer or scientist and participation in international standard activities with NATO, and the Technical Cooperation Program.

CONCLUSION

Current and emerging technologies from the Army's research centers and the virtual, gaming, data storage and network industries are enabling us to provide more accessible and realistic training for Soldiers. The Army is leveraging these advances in technology, as well as the experience of the warfighter, to provide a training capability that accelerates Soldier and unit readiness to win decisively in multidomain operations.

For more information, go to www.army.mil/ccdc.

MAJ. GEN. JOHN A. GEORGE is the commanding general of CCDC. Before assuming command on Nov. 1, he served as deputy director and chief of staff of the U.S. Army Futures Command Futures and Concepts Center. He graduated from the United States Military Academy at West Point and was commissioned into the Army in 1988. He has an M.S. in social psychology from Penn State University and an M.S. in national resource strategy from the Industrial College of the Armed Forces.

**The goal is to
mature and
demonstrate
augmented reality
algorithms and
techniques that
occlude dynamic
objects in
realistic, changing
environments.**



At Work

Profile: Army Rapid Capabilities and Critical Technologies Office

One in a series, ASA(ALT) at Work, which looks into ASA(ALT) organizations, what they do and where they do it.

In a dynamic world where technology is evolving at an ever-increasing pace, the Army needs options and needs them fast. The Army Rapid Capabilities and Critical Technologies Office (RCCTO) can deliver just that. Uniquely chartered to continuously reevaluate the threat environment, pivot if needed, and find rapid solutions to the nation's highest-priority capability gaps, RCCTO delivers prototypes at a speed that can inform decisions and make an immediate difference.

Led by Lt. Gen. L. Neil Thurgood and headquartered at Redstone Arsenal, Alabama, RCCTO is chartered to develop rapid experimental prototypes and field residual combat capabilities to Soldiers. Reporting to a board of directors composed of Army senior leadership, RCCTO works closely with other Army organizations such as the U.S. Army Futures Command and the program executive offices (PEOs) to deliver critical capabilities that meet the Army's modernization priorities. Currently, the RCCTO focus is on the areas of hypersonics and directed energy, while it continues to execute existing missions and explore disruptive technologies.

"Our potential adversaries are demonstrating the rapid development, and in some cases deployment, of hypersonics and directed energy weapons," Thurgood said. "RCCTO is now executing a strategy that will deliver new prototypes in both hypersonics and directed energy to operational units. In developing these prototypes for the U.S. Army, we are changing the outcome for our nation."

WHAT SHOULD WE KNOW ABOUT THE ARMY RCCTO?

We are a uniquely chartered organization, with built-in contracting authority, reporting to the Army board of directors, led by the secretary of the Army and including the Army chief of staff, the undersecretary of the Army, the vice chief of staff of the Army, the Army acquisition executive and the commanding general of Army Futures Command.

We develop rapid experimental prototypes and deliver residual combat capabilities, aiming to avoid what is known as the "valley of death" by fusing what the science and technology community can do with what the program-of-record community can do.

While hypersonics and directed energy are our top priorities, we are also executing existing missions and exploring disruptive technologies in such areas as the Bradley electric vehicle, counter-small unmanned aerial systems, weapon system cyber resiliency and adaptable unmanned aerial systems.

HOW IS RCCTO UNIQUE, OR DIFFERENT FROM A PEO?

RCCTO is chartered to develop rapid experimental prototypes that provide residual combat capabilities. RCCTO’s unique charter allows rapid navigation, or exemption from many of the traditional processes that govern a program of record. The RCCTO rapid prototyping mission enables adaptation to changing conditions and threats—we start and finish prototypes in five years or less. Additionally, RCCTO reports to and accepts assignments through its Army board of directors.

HON. RYAN D. MCCARTHY
Secretary of the Army

Board of Directors

GEN. JAMES C. MCCONVILLE
Chief of Staff of the Army

HON. JAMES E. MCPHERSON
Undersecretary of the Army

GEN. JOSEPH M. MARTIN
Vice Chief of Staff of the Army

HON. BRUCE D. JETTE
Assistant Secretary of the Army for Acquisition, Logistics and Technology

GEN. JOHN M. MURRAY
Commanding General,
Army Futures Command

LT. GEN. L. NEIL THURGOOD
Director



What are your recent wins?

In 2019, RCCTO accelerated the development of the Army’s ground-based offensive hypersonic weapon, including award of the first contracts to prototype the system and groundbreaking on a state-of-the-art production facility in Courtland, Alabama. This will lead to the fielding of the Long Range Hypersonic Weapon prototype, which will provide residual combat capability to Soldiers by fiscal year 2023.

of these prototype combat vehicles, known as Directed Energy – Maneuver Short Range Air Defense (DE-MSHORAD), to an operational unit no later than fiscal year 2022.

In 2019, RCCTO accelerated development of the Army’s first combat-capable laser weapon system, which will provide a 50 kilowatt-class laser on a Stryker platform, including award of a competitive contract to prototype the system. RCCTO will field four

RCCTO held its second innovation day Feb. 11-12 in Austin, Texas, in partnership with Army Futures Command and the Army Applications Laboratory. These events, which resemble a commercial investor “pitch day,” are designed to accelerate the transition of emerging technology to Soldiers. The first innovation day, held in September, resulted in 42 presentations, with nine innovative concepts approved for prototyping efforts with RCCTO.



▲ LASER EVOLUTION

A 10-kilowatt (kW) laser integrated on a Stryker participates in the Maneuver Fires Integrated Experiment at Fort Sill, Oklahoma, in late October and early November. The Army is now accelerating the rapid prototyping and fielding of 50 kW-class lasers on a platoon of Strykers. (U.S. Army photo)

Biggest successes?

- The Army accelerated its hypersonics program by two years.
- Building the RCCTO team to execute a very challenging mission on compressed timelines.
- The Army accelerated its directed energy capabilities by six years.



▲ POWER PLATFORM

RCCTO plans to field four of the DE-MSHORAD prototype combat vehicles—Strykers equipped with 50 kW-class lasers for short-range air defense—to an operational unit no later than fiscal year 2022. (U.S. Army photo)

▼ PITCH PERFECT

Seven companies offered 20-minute pitches during the first half of the Army RCCTO's first innovation day in September. Army leaders, including, from left, Jay Latham, Maj. Gen. David Bassett, Maj. Gen. Peter Gallagher, Marcia Holmes and James Holland, oversaw the pitch panel in the communications category. (U.S. Army photo)



Biggest challenge?

The Army's new strategies for hypersonics and directed energy were made possible, in large part, by the solid foundation of science and technology development that occurred over the past decade in government laboratories and in commercial industry. The challenge now is to scale up existing technologies into combat-capable prototypes and quickly deliver residual combat capabilities to Soldiers in order to compete with our adversaries. For hypersonics, this includes creating a new industrial base and leading production of the Common Hypersonic Glide Body, which the Army and Navy will use. For directed energy, the challenge is leveraging proven high-energy laser technologies and increasing their power while adapting the technology for use on Army vehicles.



▲ NEXT-GENERATION OUTREACH

During the groundbreaking event in September for the hypersonic weapon facility in Courtland, Alabama, Lt. Gen. L. Neil Thurgood, who leads the Army RCCTO, visits with members of the U.S. Army Junior ROTC from Austin High School in Decatur, Alabama. (U.S. Army photo)



◀ SOLDIER FEEDBACK IS CRITICAL

Thanks to virtual reality, Soldiers are getting a rare look at components of the Army's new prototype Long Range Hypersonic Weapon and are influencing how the system is designed. (Photo courtesy of Lockheed Martin Corp.)

“ RCCTO is now executing a strategy that will deliver new prototypes in both hypersonics and directed energy to operational units. In developing these prototypes for the U.S. Army, we are changing the outcome for our nation.”

What's ahead for RCCTO?

We are moving both hypersonics and directed energy out of government labs and into prototype development. This includes completing design, integration and fielding to operational units. Although not meant to be perfect solutions, the prototypes will get fielded to Soldiers who can start to test, train and learn how to fight with these first-ever capabilities. At the same time, we are establishing an industrial base for both hypersonics and directed energy, giving Army senior leaders options on moving the capabilities into programs of record. The Army must modernize to enable the United States to win in a great power competition. Playing a key part in that modernization strategy is RCCTO.

Starting this year, the Army, with the joint services, plans to conduct hypersonic flight tests focusing on range, environmental extremes, operational considerations and contested environments.

In late 2020, two vendors will produce a 50 kilowatt-class laser subsystem, integrate it onto a Stryker platform and complete a competitive performance

down-select on a live test range against various threats. This effort will lead to the fielding of four experimental DE-MSHORAD prototype combat vehicles in fiscal year 2022.

Army senior leadership assigned RCCTO as the materiel and acquisition support for the newly formed Joint Counter-small Unmanned Aerial Systems Office. The office is now conducting acquisition planning for a joint approach to support materiel equipping decisions on the “best of breed” for countering small unmanned aerial systems.

What role do Soldiers play in the organization?

“Soldier-centered design is at the heart of prototyping,” said Thurgood. “Early and recurring interactions with Soldiers are critically important to the development of prototypes with residual combat capability, especially in critical strategic areas like hypersonics. Soldiers train with the systems, become familiar with operating them, and provide feedback on improvements so we can deliver the best possible outcome for them and our nation.”



GWENDOLYN 'GWENDI' MILLER

COMMAND/ORGANIZATION: U.S.
Army Corps of Engineers Kansas City District

TITLE: District chief of contracting

**YEARS OF SERVICE IN
WORKFORCE:** 17

DAWIA CERTIFICATIONS:
Level III in contracting

EDUCATION: B.A. in political science,
University of Central Arkansas

MISSION DELIVERY

Every spouse knows that marriage can be difficult. Army spouses have it a little harder than most, especially when it comes to career development. “It is sometimes challenging to build a career while also moving all over the country every few years to support your spouse’s commitment to the nation,” said Gwendolyn “Gwendi” Miller. “I’m extremely blessed that the U.S. Army Corps of Engineers [USACE] and the contracting profession have allowed me to do just that.”

Now district chief of contracting for the USACE Kansas City District, Miller has been with USACE for nearly 14 years. “Once you start looking for that Corps castle, you might discover that our presence is around you more than you realize,” she said. USACE’s work includes flood risk mitigation, hydropower program administration, and a hazardous, toxic and radioactive waste removal program. “The work we do makes a significant difference in quality of life and positively impacts our world,” said Miller, “and our programs require a significant amount of acquisition support to deliver the mission.”

Miller leads a team of more than 70 contracting professionals who execute military, civil, environmental and mega-programs—large, big-budget, high-visibility programs with a considerable degree of complexity and requiring close coordination with higher headquarters. In fiscal year 2019, the Contracting Division executed more than 1,500 actions valued at more than \$1.028 billion, including a new hospital at Fort Leonard Wood, Missouri, valued at approximately \$300 million; and a new headquarters for the National Geospatial-Intelligence Agency, in St. Louis, valued at roughly \$712 million. “We executed this very large and dynamic program while fighting two major flood events on the Missouri River that required fast action from contracting for emergency response efforts,” Miller said.

Miller also works on projects to improve recruitment in the region. USACE partnered with Harris-Stowe State University in St. Louis to revamp the district’s marketing and branding and to generate career interest among college students. “We found there were a lot of people who didn’t really understand what USACE does,” she said. “A lot of people think it’s all hard hats and construction sites; that image doesn’t really appeal to students at business school, nor is it accurate. In looking to fill contracting positions, what we’re really looking for is business advisers.”

Miller is part of a team that visits colleges and universities around the country to talk about USACE, the contracting profession and opportunities within the organization and the Army Acquisition Workforce. “We’re seeing some returns on our work, in the form of new internships and lots of interest in the work we do. But this is a long game, not a short one; what we’re trying to do is build our pipeline and impress on people that the Corps has opportunities to be part of an organization that has a big impact on the region and the country.”



HONORS RECEIVED

Col. Douglas B. Guttormsen, former district commander, presents Miller with a certificate of appreciation in March 2019 to mark Women’s History Month. (Photo by Rusty Wallace, USACE Kansas City District)

Miller got her start in acquisition directly out of college, starting as a “COPPER CAP” intern for the Air Force in Colorado Springs, Colorado. “After 9/11, my husband felt a calling to serve in the Army and decided to enlist. We moved to Fort Stewart, Georgia, and I was presented with an opportunity to work for the Savannah District Corps of Engineers.” As a lead contract specialist, she was quickly engaged in several large programs, including work related to base realignment and closure and global contingency efforts. “The work was fast-paced and challenging, and I knew we were making a meaningful impact on our Soldiers and their families,” she said.

Miller has since worked in four USACE districts across the country. “I was fortunate to continue my career with USACE and build my contracting knowledge while moving around with my husband while he was on active duty,” she said. “The longer I’ve stayed with the Corps, the more I discover about the huge impact we have on our Army and our nation, and that is why I continue to stay with USACE—our mission is awesome.”

Before taking on her current role, she spent six years as the military contract execution chief in the Little Rock District Corps of Engineers—“the single most transformative experience in my career,” she said. It was her first formal leadership position and, in addition to a wealth of experience, she gained a valued mentor in her chief of contracting, Sandra Easter. “Ms. Easter’s guidance and genuine interest in my development made my time there both challenging and very rewarding,” Miller said. During the assignment, the chief of the Business Oversight Branch retired and Miller was asked to take on those responsibilities—including supervising several more employees, running the district’s Government Purchase Card Program and ensuring that compliance reviews took place—in addition to her other duties. “It was daunting, to say the least,” Miller said. “But I said yes and learned as much as I could, and I think that experience made me a better candidate for the position I am in now.”

Easter is one of several mentors who have played important roles in Miller’s career. “Those relationships are another big reason I’ve stayed with USACE,” she said, noting that Denver Heath, USACE senior contracting official in Dallas, has also been an important mentor. “Without his faith in me and his encouragement through tough challenges, I wouldn’t be where I am today,” she said. “My network of trusted mentors and coaches is one of my greatest treasures.”

On the other side of the mentoring equation, Miller provides formal and informal mentoring to contracting professionals and



PRESENTING OPPORTUNITIES

Miller talks about career opportunities with the Corps of Engineers at the University of North Texas in November. (Photo by Brian Hirsch, University of North Texas)

other members of USACE interdisciplinary teams. “For junior acquisition professionals, I have a few big pieces of advice. First, take advantage of every single opportunity afforded to you—even if it doesn’t fit what you think you want out of your career. Opportunities to excel are everywhere, and while they aren’t always fun, they are almost always worthwhile. Second, always do your best and look for ways to give back to your organization,” she said. “Live the Army values and, lastly, find a cause you are passionate about outside of work and give back to your community.”

For Miller, who has three children, that cause is Girl Scouts USA. Leading a Girl Scout troop “has been one of the most rewarding experiences of my life, and nearly every experience has made me a better Army civilian,” she said. Troop leadership “has helped remind me of what it means to be a good and effective leader, and encouraging the girls to get outside of their comfort zone requires me to get outside of mine as well. As members of the Army Acquisition Workforce, we need to get outside of what is familiar and comfortable and be innovative in how we go about solving the nation’s toughest challenges.”

—SUSAN L. FOLLETT

STRENGTH IN FUNDAMENTALS

Training the workforce in the fundamentals of acquisition and program management is little different from training Soldiers in the fundamentals of battle, said Smith: "It's all about the basics." Here, a Soldier assigned to 3rd Squadron, 2nd Cavalry Regiment prepares to fire an M3 Carl Gustaf 84 mm recoilless rifle during an anti-tank training course in January in Bemowo Piskie, Poland, in support of NATO's enhanced forward presence. (U.S. Army photo by Sgt. Timothy Hamlin, HQ Multinational Division North East)



TRAIN THE WAY YOU FIGHT

PEO EIS goes back to basics, such as technical training and practical applications, for acquisition talent management.

by Ellen Summey

“**S**ight the enemy. Duck and cover. Protect your fallen comrade. Provide aid only after you stop taking fire. When we’re training Soldiers and preparing them for battle, it’s all about the basics. Repetition, repetition, repetition.” Chérie Smith routinely refers to those foundational lessons in her role as program executive officer (PEO) for Enterprise Information Systems (EIS).

“We drill our Soldiers on the fundamentals in the operational side of the Army. We build on those fundamentals, putting our troops in more and more stressful environments, allowing them to apply those basics as individuals, as well as small teams. We send them out to a combat training center, where they learn to work as part of a larger team,” she said.

“We should apply this approach to training our acquisition professionals. Limit critical classroom time on things like earned value management and the ‘Gold Card,’ which many program managers will never use. Remove classes on special interest topics like team personality traits and offer them outside of the core curriculum.”

Since Smith assumed the role of PEO in 2018, she and her leadership team have worked to bring those training fundamentals into focus. “We observed that our new folks were coming in directly from training and still didn’t understand how to apply the things they had learned,” Smith explained. “We try to take it to the next level. We use experts from Defense Acquisition University and from our own organization to show them how to apply acquisition principles in the real-world management of their respective programs.”

“We’re going back to basics,” she said. “Like [Army Chief of Staff] Gen. [James C.] McConville says, ‘Winning matters.’ We need to be as focused on the outcome as we have been on the

process. If our old training process isn't producing the desired outcome, then we need to change our approach. More and more training is being done online, and we lose the benefit of the interaction we had in the past—the ability to hear how others managed a problem and what worked and what didn't."

THE ONLY CONSTANT IS CHANGE

The acquisition world is experiencing seismic shifts, as the Army and DOD focus on rapid fielding, modernization and finding ways to keep pace with technology. Beyond systemic changes and Army policies, Smith believes the workforce needs to have the technical skills to make that happen.

"Our folks need the right balance of hands-on experience and classroom education," Smith said. "Lt. Gen. Paul Ostrowski [principal military deputy to the assistant secretary of the Army for acquisition, logistics and technology] was able to push through some of those curriculum changes at Naval Postgraduate School [NPS], and I think that's the smartest thing they could have done."

"If you can show metrics and you can give data, people may not like it, but they can't argue data."



WELCOME TO PEO EIS

Smith, center, and Brendan Burke, center right, deputy PEO, hosted a full-day newcomers orientation on Sept. 15. Smith and her leadership team have taken steps to strengthen the transition for newly hired employees from training for their jobs to doing the job, by reinforcing the fundamentals of acquisition and program management. (U.S. Army photo by Scott Weaver, PEO EIS)

In 2019, NPS awarded its first-ever master of science degrees in systems engineering management to a class of 30 Army acquisition officers. The new curriculum focuses on advanced technical skills and allows participants to apply their education in hands-on projects during their training. "We desperately need that technical training and practical application," Smith said, "rather than being so focused on simply obtaining a certification or passing a test."

"Put the focus back on the total systems engineering process," Smith said. "Defining and identifying the problem is only the first step. Understanding what to do once you identify the problem is challenging when you understand the differences in software systems versus weapon systems.

We're trying to groom people to take command at that next level, and I think teaching them how to manage technology is much more valuable. They have to know enough technology to be able to manage it."

Smith feels that progression through school should be more thoughtful, with a focus on ensuring the right balance of actual experience in a program office managing cost, schedule and performance. "At NPS, you're reintroducing them to management of technology and updating their skill sets. I've heard from students there who feel it's really been stretching them, because they hadn't used their math or engineering skills in years," Smith said.

BUILDING COHESION

Communication and cohesion can be challenging for any group, much less an organization as large and complex as PEO EIS. With 37 program offices and 71 acquisition programs focused on communications, logistics, medical, finance, personnel, training and procurement systems for all 10 combatant commands, “complex” is an understatement. “We have a very large and diverse portfolio,” Smith said, “but that is not an excuse for poor communication or siloed programs. It means we have to prioritize clarity and be intentional about our messaging and team building.”

To build that sense of cohesion, Smith and her team have focused on developing organizational identity, clarifying priorities and enhancing information sharing. Recently, they decided to try a new approach. “It just so happened that we had several O-6 deputy positions open at the same time, through natural attrition and the timing of career moves. We seized that opportunity to create synergy among the incoming deputies,” she explained. PEO EIS leaders are deliberate about the way they train, develop and integrate those roles, and the deputies help define and implement the EIS training program. “They proactively lead the talent management and training initiatives of the EIS workforce. They are given not just the responsibility, but real authority to make that happen.”

Smith said the result is improved communication and unity among members of the cohort, with a focus on information sharing and lessons learned. “That communication is key, in my mind,” Smith said. “We need to take advantage of the knowledge that already resides in our organization.”

In addition, the PEO EIS leadership team has taken a new approach to the Senior Rater Potential Evaluation. They use the tool to identify top technical experts in each relevant field (cyber, data, cloud computing, etc.), and tie that to relevant training opportunities to refresh their skills.

“If you’re at the top of your field in anything, whether it’s technology, program management or finance, then you’re probably the last person anybody wants to see go away to training for 30 days,” explained Deputy PEO Brendan Burke. But Burke feels strongly that the organization has to make it possible for those top technical team members to attend more robust training, for the betterment of the workforce. “Letting them go to training should hurt, but we have to be willing to accept the pain of losing a good person for a while, because it’s the right thing to do in the long run.”

NOT ALL SUNSHINE AND RAINBOWS

Anyone who has worked in talent management knows it is more than just promotion and team building. “Talent management is hard work,” Burke said. “Managing the lower-performing members of the team isn’t something that’s fun to talk about, though. Promotions make up about 90 percent of the typical conversation about talent management. And that is important, but that’s only part—and it’s the easy part, at that. The hard part is holding people accountable and identifying who to move.”

Smith agreed that talent management is sometimes difficult, and she feels that supervisors need to provide clear examples and metrics, to take as much emotion out of the discussion as possible. “If you can show metrics and you can give data, people may not like it, but they can’t argue data.” You can’t get stuck in the role



STRAIGHT FROM THE SOURCE

Smith talks about leadership changes at the O-5 and O-6 levels during a PEO EIS town hall July 23, 2019. Among the organization’s distinctive features is a “squad” of deputy program executive officers. Together they form a sort of leadership cohort, with the close communication and unity that that suggests. (U.S. Army photo by Laura Edwards, PEO EIS)

of wanting to be the friend, Smith said. “You have the responsibility to make them better—to help them grow. Grow or go.”

“Grow or go” is a very concise but accurate summary of Smith’s no-nonsense approach to aligning talent with the demands of the organization. “When working with someone who is not performing where they should be, or where we know they can be, you have options,” Smith said. “One of those options may be to move that person into a new role, which may stimulate and challenge them, and allow them to blossom. But you have to move them for the right reason. Some individuals just need a change and a new opportunity, while others may be experiencing more challenges or may be unwilling to move.”

Whatever the case, Smith is clear that the change has to be linked to data. “Track their progress even after they move, to evaluate whether it benefited both the organization and the person.” This approach echoes the directive of the Army People Strategy, that leaders “provide Soldiers and Civilians with positions that unleash their passions and talents, maximizing performance and productivity in both the operating and generating forces.”

“ We’re trying to groom people to take command at that next level, and I think teaching them how to manage technology is much more valuable.”

“Underperforming individuals can really damage morale, because their teammates will pick up the slack,” Smith said. “Those teammates are doing more work and watching someone else get paid for it.” To take care of the team, Smith feels it’s vital to also manage members who simply aren’t performing. “That’s part of that supervisor differential, in my mind. That’s part of what you get paid to do as a supervisor. We must be willing to say, ‘You’re not producing to the level you’re being paid for, or to the level of your potential.’ Provide the opportunity for the person to perform, hold them responsible, and provide frequent feedback.”

THE MAGIC WAND QUESTION

There is no simple solution to the Army’s talent management challenges, but Smith has some ideas about where to start. “If I

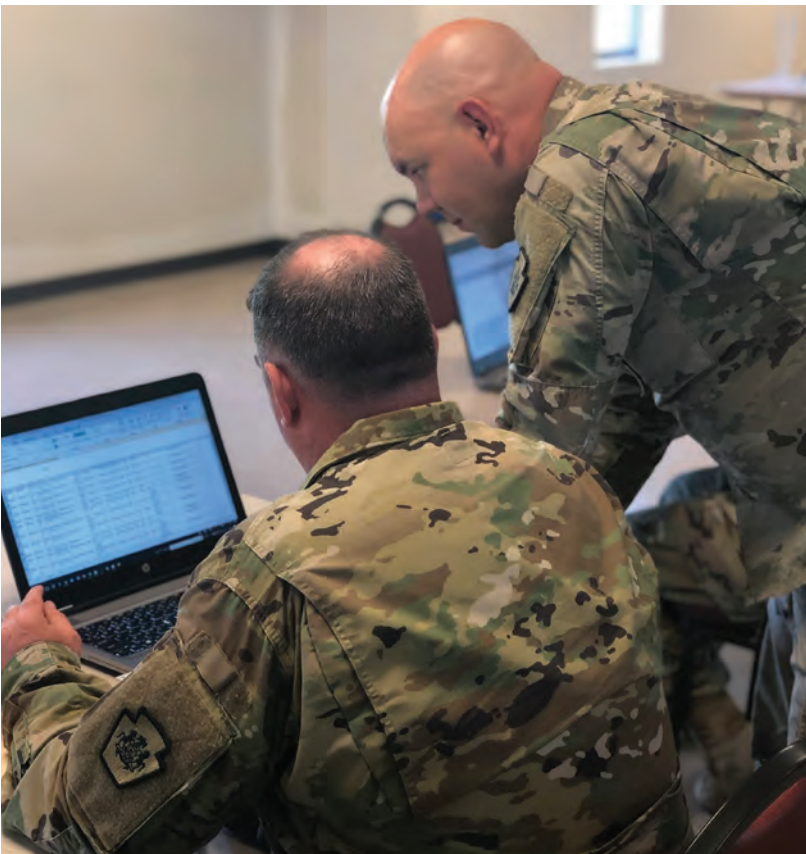
could wave a magic wand and solve this whole issue, I’d create a new standard for progression,” Smith said, “and a level of training and experience that would be required, almost like prerequisites.” The Army’s current time-in-grade requirements and educational guidelines do not adequately consider real-world experience, in Smith’s estimation.

“Instead of focusing on time in grade, I’d rather look at practical accomplishments,” she said. “Once you’ve demonstrated competence in managing risk and applying corrective actions with follow-up metrics on a program of a certain size, then you can go to the next level. We should be intentionally integrating more real-world application with the traditional training. We need to consider things like what milestone the program is in, what type of



ON BOARD AND IN THE KNOW

Brendan Burke, right, deputy PEO for EIS, leads a conversation about onboarding with a group of new employees on Nov. 12. Clear communication and team building are essential tools for PEO EIS in creating common understanding among its 37 program offices and 71 acquisition programs, said Smith. (U.S. Army photo by Laura Edwards, PEO EIS)



PEOPLE PROGRAM

The Pennsylvania Army National Guard hosts the first of a series of state-to-state IPPS-A training sessions at Fort Indiantown Gap, Pennsylvania, in May 2019. The rollout of IPPS-A, which PEO EIS is in charge of acquiring, reflects the priority the Army places on supporting its people. (Photo by Harper Hurwitz, IPPS-A Strategic Communications)

program it is (e.g., weapon, software, services) and what role the individual had on the program.”

Smith feels she was very fortunate in this regard, since she came into the original Acquisition Corps with program management experience already under her belt. “I had been doing program management probably 15 years before,” she said. “When they stood up the Acquisition Corps, I already knew how to manage a schedule, I knew how to lay out a work breakdown structure. I had done it the wrong way enough times to know that you have to have a little wiggle room for the unknowns that you will find. There are always going to be a couple of things you just never thought would happen, and you’re going to have to adjust. The experience of finding risks or identifying problems and having an

opportunity to see what worked and what didn’t work in different circumstances was the best teacher.”

It’s that kind of experience that Smith wants to see incorporated into the training requirements for new Acquisition Corps members. “That’s the kind of fundamental skill that should be taught and that’s not being taught at all those basic courses now,” she said. “If you live it a few times, you have context. It just makes sense to you.”

CONCLUSION

In many ways, Smith’s approach echoes the Army People Strategy, which was released in October. Talent management has been a challenge not only for PEO EIS, but for the Army in general, and senior leaders recognize the need for an overhaul. The new strategy puts an emphasis on matching people to the right positions and ensuring that experience and expertise are prioritized, which Smith believes will benefit her workforce in software and network program management.

In particular, the strategy seeks to “increase the rigor associated with the training and education of Army professionals, aligning credentialing and certification more closely with demonstrated and measurable expertise rather than time in grade, service or position.” For Smith, this change is a promising sign of things to come. “The Army is focused on modernization, and we see that in the new People Strategy, and the emphasis on the Integrated Personnel and Pay System – Army [IPPS-A] and the Accessions Information Environment [AIE].”

PEO EIS is leading the acquisition efforts for both IPPS-A and AIE, in conjunction with functional partners across the Army. McConville has said these two projects reflect the Army’s recognition that its people are its greatest asset. “No matter how much technology we develop, Soldiers will always remain the centerpiece of our Army,” he said. “We equip people, we don’t man equipment, and that philosophy will not change.”

For more information, contact PEO EIS at usarmy.peoeis@mail.mil.

ELLEN SUMMEY provides contract support to PEO EIS at Fort Belvoir, Virginia, for Bixal Solutions Inc. She holds an M.A. in human relations from the University of Oklahoma and a B.A. in mass communication from Louisiana State University. She has more than a decade of communication experience in both the government and commercial sectors.

CRITICAL PATCH UPDATE

The Software Engineering Center designed and implemented a new approach to provide its employees with the skills they will need to meet the organization's needs in 2025 and beyond. (Image by Chainarong Prasertthai/Getty Images)

SOFTWARE TALENT GOES TO SCHOOL

Facing extraordinary new technology demands, the Army's premier software maintenance organization is retraining its workforce on the skills it needs, in house.

by Jacob Kriss

As any engineer will tell you, software is not “fire and forget.” With more and more advanced Army equipment running on software, cyber-hardening and updating platforms against emerging physical and digital threats is critical to protect Soldiers’ lives and ensure mission success. For the command, control, communications, computers, cyber, intelligence, surveillance and reconnaissance (C5ISR) community, this job of sustaining software falls to the U.S. Army Communications-Electronics Command Software Engineering Center.

However, within the last several years, the center realized it had a significant challenge. It employed more than 700 people tasked with maintaining dozens of Army C5ISR systems. But by 2025, it was scheduled to begin sustaining 25 additional systems. Many of these platforms required new skill sets the center didn’t have in sufficient quantity, and it needed a better process for the rapid, large-scale introduction of new technologies. At the same time, as the Army returns to near-peer competition against cyber-savvy adversaries, the center faced additional pressures to deliver software updates to Soldiers faster than ever before.

“The reality was, we had to find a way to retrain our existing workforce to get ahead of the scale of these incoming systems and the evolving software maintenance environment,” said Jennifer Zbozny, Software Engineering Center director. “It wasn’t a problem we could just hire our way out of, because that would be hugely expensive and would leave behind so many of our existing employees.”



LEARNING AT SPEED

The Software Engineering Center’s retraining effort fosters a culture of continuous learning and gives employees a chance to grow with the demanding pace of the technology field. Here, Garrett Shoemaker, the center’s deputy associate director, leads a class on software readiness at Aberdeen Proving Ground, Maryland. (Photo by Gary Nasuta, U.S. Army Communications-Electronics Command Software Engineering Center)

Rising to the challenge, the center began a revolutionary program to retrain its employees with the skills they will need to meet the center’s needs in 2025 and beyond.

BUILDING THE STRATEGY

In early 2019, the center began creating its new workforce strategy after meeting with private industry partners to learn how they were helping their software maintenance workforce adapt to similar challenges. The strategy had two main components: direct classroom instruction and a secondary on-the-job component for students to apply what they learned. It also was designed to reduce costs by limiting reliance on contractor support

while increasing the quality of software deliverables.

“Our first task was to clearly identify and define the key roles and skills we would need more of in order to support these new systems,” said Human Capital Strategist Kim Bowers. These skill sets centered on software development, database administration and cybersecurity, specific to the platforms and languages in which students would need to become proficient.

Next, the center set up targeted training cohorts. At its Army Shared Services Center, which supports enterprise resource planning systems that house Army data, it established a cohort focused on the

SAP HANA business data platform. In the Intelligence, Electronic Warfare and Sensors Directorate, it stood up a cohort to learn the VHDL language, which is used to model digital systems in circuits that power advanced hardware. It also created programming cohorts targeting the Microsoft SQL database management system—the JavaScript framework to create responsive, interactive elements for web pages—and the .NET Framework and C# language, which is written in the .NET environment and is used to produce Windows desktop applications. In addition, the center is planning a future cohort on cybersecurity.

“The strategy involved engaging directly with supervisors to assess employees’ skills and determine who was best suited to receive the additional training,” Zbozny said. “It was all about finding the right employees who had already proved themselves in their existing competencies and getting them into the right role for the future.”

INTO THE CLASSROOM

By summer 2019, the VHDL cohort began full-time classroom instruction, with additional cohort training launching in the fall and on an ongoing basis. Depending on the cohort, classroom instruction can generally last from three to nine months. To create coursework customized to its mission and needs, the center partnered with technical training vendors, such as the University of Maryland, Baltimore County Training Centers and Defense Acquisition Support Services LLC.

In total, 97 employees have participated or are scheduled to do so, and that number will grow as the center conducts more annual trainings. The cohorts are a mix of employees whose supervisors selected them to participate, as well as those who volunteered in order to learn new skills.

Participants tend to be in the middle stages of their careers. For its entry-level employees, the center maintains a complementary job rotation and training program designed to foster mission buy-in and retention.

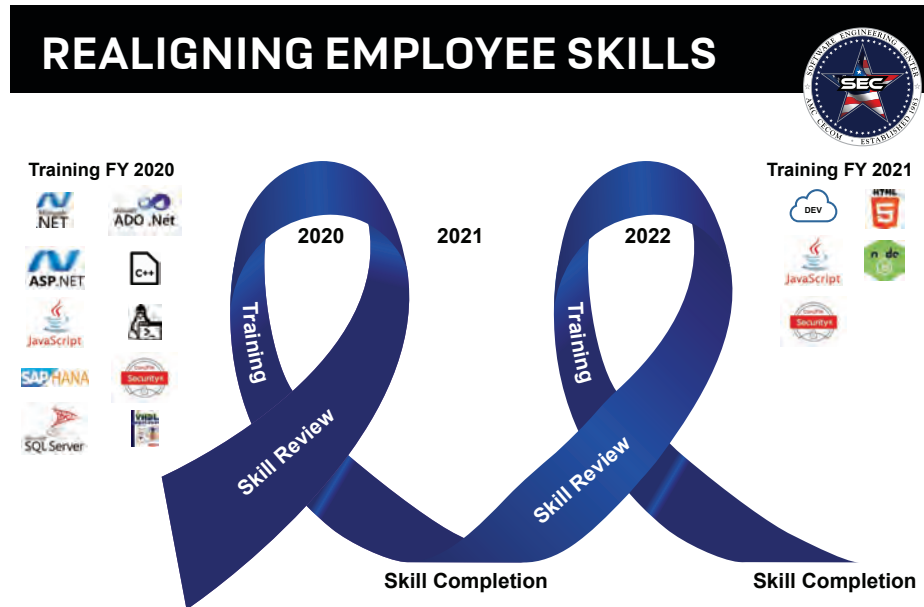
In some cases, employees are simply cross-training, rather than being entirely retrained, so they can apply their skills in a wider variety of mission sets. Bowers noted that in addition to the demands of new systems, the center’s increasing use of automated software testing to improve code quality and reduce errors was driving the need to retrain employees. “Many of our employees specialized in manually testing software, but that need will diminish over time,” she said.

ON THE JOB

When students complete the classroom training, they move on to the “hands-on” practitioner component of the program, which is expected to last roughly 60 to 120 days. Depending on a student’s progress, he or she may receive additional classroom training or over-the-shoulder instruction with an assigned expert. Most people learn by doing, and the hands-on component of the program is designed to support retention by empowering employees to see the fruits of their labors firsthand.

Within the program, every student is also assigned a learning objectives readiness assessment that tracks their progress, Bowers said. Such assessments ensure that students are prepared for the rigors of what comes next. Supervisors also work closely with the experts to place employees into permanent positions in which they are most likely to be challenged, grow and thrive.

“It’s not just about the training, it’s about the follow-through,” Bowers said. “We’re giving them the long-term support they



TRAINING CYCLE

The Software Engineering Center is retraining its employees in the skills they will need to maintain dozens of systems that the center is scheduled to begin supporting in the next several years. (Graphic by Gary Nasuta, U.S. Army Communications-Electronics Command Software Engineering Center)

need to be successful. It’s about doing things with intention and driving home what they learned.”

CONCLUSION

While the retraining program is still in its early stages of implementation, employee feedback and program uptake thus far have been promising, Zbozny said. As the center’s mission set becomes more complex and diverse, it will evaluate whether new skills gaps are emerging and adjust the program to meet those changes.

Zbozny noted the program aligns perfectly with the No. 1 priority of Gen. James C. McConville, Army chief of staff: people. When other Army organizations find themselves lacking in needed skill sets for new technologies, she advises them to look inward and consider investing in the potential of their existing workforce.

“The ultimate goal is to create a culture of continuous learning, curiosity and experimentation in which employees find real satisfaction and room to grow,” she said. “On the 21st-century battlefield, our Soldiers will only be as effective as the professionals at home who are empowering them with software readiness. This program is a vote of confidence in our people.”

For more information, go to the Software Engineering Center website at <https://cecom.army.mil/sec>.

JACOB KRISS is a public affairs specialist with the U.S. Army Communications-Electronics Command. He holds an M.S. in public relations from Syracuse University and a B.A. in English from the State University of New York College at Geneseo.



CARL S. POLCYN

COMMAND/ORGANIZATION:

Product Lead for Ground Mobility Vehicle, Joint Program Office for Joint Light Tactical Vehicles, Program Executive Office for Combat Support and Combat Service Support

TITLE: Logistics management specialist

YEARS OF SERVICE IN WORKFORCE: 9

DAWIA CERTIFICATIONS:

Level III in logistics; Level I in program management

EDUCATION: B.S. in business administration, Ferris State University; Advanced Acquisition Certification, Naval Postgraduate School

THE IMPORTANCE OF DIFFICULT CONVERSATIONS

“**T**he hardest thing in the world is to change the minds of people who keep saying, ‘But we’ve always done it this way.’” So said pioneering computer scientist Grace Murray Hopper—and Carl Polcyn, logistics management specialist for the Program Executive Office for Combat Support and Combat Service Support.

“One of the biggest challenges I face in my work is helping others realize that improving the existing processes is a necessary part of government business,” said Polcyn, who is part of the Product Lead for Ground Mobility Vehicle within the Joint Project Office for Joint Light Tactical Vehicles. “With the need to accomplish more with fewer resources, it is important that we process-map, remove waste from processes, plan, budget, schedule, benchmark, etc. Leveraging the continuous process improvement and Lean Six Sigma concepts is one way we can achieve a self-sustainable agency and meet our customers’ needs at the same time.”

Polcyn became a member of the Army Acquisition Workforce in 2011, starting in the Program Management Office for the Family of Medium Tactical Vehicles and supporting a rapid fielding in Afghanistan. He came to acquisition from a career in restaurant management and, surprising as it might seem, found that there’s a fair amount of crossover between the two. “Both positions involve urgency to get the customer—or Soldier—what they need. And while it’s very rewarding to see satisfied customers, it’s also a complex process, communicating with customers and teammates in a fast-paced environment.”

Polcyn supports the Army Ground Mobility Vehicle (GMV) fleet, which is fielded under urgent materiel release. The nine-passenger tactical vehicle provides speed, mobility and transport capabilities for airborne infantry brigade combat teams, cavalry regiments and military intelligence units. The Army awarded its first order in May 2018 and fielded the first Army system to a company-sized element in the 82nd Airborne Division in September 2018. Ground Mobility Vehicles will allow Soldiers greater mobility across an operational area, and enable early entry forces to envelop, infiltrate and penetrate in or across multiple domains.

“The project management team is currently administering other-transaction authority contracts for performance and reliability testing as part of a Better Buying Power initiative to reduce cost through market competition,” Polcyn explained. “My role is to provide my expertise in event planning, government-furnished equipment integration, fleet management and logistics testing, to assist the team with the successful execution of its contracts.”

He’s excited to be part of developing a sustainment system for a new platform. “There’s so much that goes into that strategy—budget forecasting, metrics on fleet performance, Army business practices for obtaining those metrics—and lots of questions to answer. Our job is to identify the data to help support the decisions for the strategy, and I’m glad to be able to play a part in that.”

It’s a relatively new role for Polcyn, and one that he was able to move into as a result of what he learned through the Inspiring and Developing Excellence in Leaders (IDEAL) program that he completed in September. “I recently met with Ron Parks, my supervisor and chief of the Logistics Branch, and John Ziegler

III, product support manager, to discuss my career path. Leveraging some of the communication tools from the IDEAL training, I explained I was interested in more responsibility and challenges—to leverage my experience to better support the Soldier and the organization. The GMV Program workload is increasing, requiring additional personnel to manage tasks and events, and the supervisors were able to coordinate my transfer to the GMV team.”

In addition to improving his communication skills through IDEAL, Polcyn noted that he learned emotional intelligence: how to monitor his own emotions as well as the emotions of others, to the benefit of the team or organization. “Another valuable learning point was improving my influence in my organization by increasing my face-to-face time with team members in my organization,” he said. “And, having learned how my values and work ethic can trigger an emotional response, now I can express that as a passion to support the Soldier—without creating a conflict. It’s easier to express what I really want.”

He has taken steps to pass along what he learned. “During a weekly team meeting, I shared my experience and promoted the IDEAL training. Lt. Col. Johnathon Nelson, product director for Joint Light Tactical Vehicle Systems Integration, requested that I schedule a lunch-and-learn session to generate a group discussion about one of the concepts I learned.”

The overall purpose was to improve the effectiveness of his team, he explained. “As a team, we talked about what leadership and organizational trust meant to us, as well as our strengths—caring for each other—and weaknesses—needing more clear understanding of roles and responsibilities. My goal was to help team members recognize leadership characteristics and to

“One of the biggest challenges I face in my work is helping others realize that improving the existing processes is a necessary part of government business.”

improve the effectiveness of communication when we disagree by sharing the facts, experiences and path forward on an issue.”

He added, “Often, when we disagree, we choose not to understand each other, letting a conversation turn into an argument or, worse, not speaking up when important information could be shared. A dialogue helps us understand each other’s point of view and creates an organizational environment where sharing information is encouraged; that will help us better manage a product for the Soldier.”

Polcyn was quick to thank several people who helped make the event a success. “Kristine Faria, acquisition education and training manager with the Army Director for Acquisition Career Management Office, was very helpful with training materials. Lt. Col. Nelson and Capt. Andrew Folse offered assistance to fund the event; and Ron Parks helped with reviewing content and providing valuable feedback about time management.”

—SUSAN L. FOLLETT

SCRUB-A-DUB DATA

Data cleansing efforts at AMCOM look to ensure cradle-to-grave data accuracy to enable Army readiness.

by Jacqueline M. Hames

Each part of the acquisition process is connected to the next—some parts connected in more ways than one—in a continuous cycle; a cycle that is dependent on data. And much like a small pebble thrown into a pond, a small error in data will create far-reaching ripples. The U.S. Army Aviation and Missile Command (AMCOM) Logistics Center is working to prevent those ripples along the aviation and missile supply chain through data cleansing.

Soldiers are consumers of everything AMCOM produces, said Fred Pieper, deputy director of the AMCOM Logistics Center (ALC). When he was in uniform as an Army warrant officer, he didn't understand or appreciate that—all he knew was that he got the parts, tools or manuals that he needed when he needed them. But quite a bit of data and manpower goes into guaranteeing the right thing at the right time.

“When a Soldier accesses the supply system, all they can know is sitting at their terminal or whatever access point they are using,” he said. “That’s it. That’s the entire truth as far as they know it—so we owe it to them to ensure what they can see on their screen or their portal is as accurate as we can make it.”

ALC is responsible for sustaining fielded aviation systems and ensuring that those systems are fit and usable and work as advertised, Pieper said. Its workforce of about 1,700 civilians and 3,500 contractors based around the globe sustains the tools, instructions, parts and maintenance for systems whenever and wherever Soldiers need them. The center is synchronized with the Program Executive Office (PEO) for

Aviation and PEO Missiles and Space, and works closely with several other PEOs. Even with a robust workforce and close working relationship with other offices, the center is constantly looking for ways to develop. To that end, ALC has multiple, ongoing efforts to improve the quality of data to enable multiple business processes: the data quality assessment tool (DQAT), the forward-looking tool and the compatibility tool.

“We have to get better at what we’re doing because the demand on our product, which is support to the field, is ever increasing,” Pieper said. “One of the things we wanted to focus on was our decision-making ability, our ability to analyze and plan, and we’ve determined that we’re not going to get any better at that until we improve both the confidence in our data and the quality of our data,” he said.

The data that ALC receives from industry enters the Army inventory via the supply system at AMCOM, Pieper explained. That’s the beginning of the data collection process for the supply side of the house, which feeds directly into the Acquisition Data Domain. The domain is a framework for holistic and effective data management that will provide Army acquisition leaders comprehensive information on all aspects of the Army’s modernization programs through three tiers: data entry, data management and data-driven decisions.

Pieper recently attended a meeting that included Dr. Bruce D. Jette, assistant secretary of the Army for acquisition, logistics and technology. “We talked for a long time about decision-making at his level; [he] relies on the guys in the trenches,



AIMING AT ACCURACY

Data cleansing efforts at AMCOM will ultimately ensure aviation and missile data accuracy, enabling Soldier readiness. Carlos Gonzalez-Perez, a logistics management specialist at ALC, helped develop DQAT—a data cleansing tool that officially went live in December 2019. (Photo by Regina Baltrusch, AMCOM Public Affairs)

making sure the data they enter for the very first time is correct, because all the other decisions and moves and readiness ... depend on it.” Pieper said. “We have an appreciation for what it is Dr. Jette needs.”

THE DATA QUALITY ASSESSMENT TOOL

Provisioning—for those not familiar with supply lingo—is the process of determining and acquiring the variety and quantity of support items necessary to operate and maintain a system or item for a certain period of time, according to “Army Regulation 700-18, Provisioning of U.S. Army Equipment.” Provisioning data is the data received from the original equipment manufacturers on the items they provided.

Before the development of DQAT, provisioners—people who manage the provisioning data—used to review data by eye, Carlos Gonzalez-Perez explained. Gonzalez-Perez, a logistics management specialist at ALC, developed DQAT with a coding language called Statistical Analysis System, or SAS. He taught himself this entirely new programming language on nights and weekends to expand the parameters of the tool. The SAS language allows data to be read from common databases or spreadsheets and generates results in the form of graphs, tables, PDF documents, the HTML web programming language and rich text format.

“It [the data] could easily average about 30,000 lines of information or more, and the problem with that was, by contract, the Army has to provide feedback in 30 or 45 days to the OEM



WARNING SIGNS

The DQAT report categorizes the data into critical, noncritical and warning flags that show the data’s risk level. Issues that get critical flags will stop the provisioning process and require immediate attention. “You won’t be able to move forward until those issues have been resolved,” Gonzalez-Perez said. (Photo by Regina Baltrusch, AMCOM Public Affairs)

[original equipment manufacturer] about accepting or rejecting the data,” Gonzalez-Perez said. Reviewing data manually in that amount of time could cause fatigue in the provisioners, which might cause them to miss inconsistencies in the data. And if the government does not respond within the designated contractual timeline, it now owns the data—errors and all.

Normally, it would take a provisioner approximately 15 minutes to review one record. One aviation platform has 57,590 records, meaning that it would take nearly 7 ½ years to complete one review of the whole file, at a personnel cost of an estimated \$1.06 million in salary. But DQAT automates the entire review process, taking it from a 45-day marathon to a two-minute, error-free process costing less than \$10. (See Figure 1.)

FILLING AN EMPLOYEE GAP

ALC’s workforce is more than 50 percent retirement-eligible, said Fred Pieper, deputy director. To maintain an expert staff, it’s important to him to pass on knowledge to the next wave of employees. ALC is taking a proactive approach to filling that employee gap with the ALC Intern Program.

Debbie Daniel, director of materiel management at the center, manages the program. The program recruits for GS-5 positions—with GS-11 promotion potential—through job announcements online, direct-hire authorities on college campuses or a mix thereof, depending on the authorities available, she said.

The interns receive about nine months of training on soft skills, such as acclimation to Army culture, boardroom etiquette and protocol, and how to brief an audience. “Our plan is to give them a very good foundation in LMP [Logistics Modernization Program] and what is required for them to be successful. Then we will recruit them into our open positions across the directorates within ALC,” Daniel said. Recruiting at the GS-5 level allows the directors more time to give the interns a strong baseline of knowledge and experience before they graduate the program.

Knowledge management is something that the Army has wrestled with, Daniel noted, and she hopes the intern program will help remediate the knowledge gap between the retiring workforce and the future new hires at AMCOM.

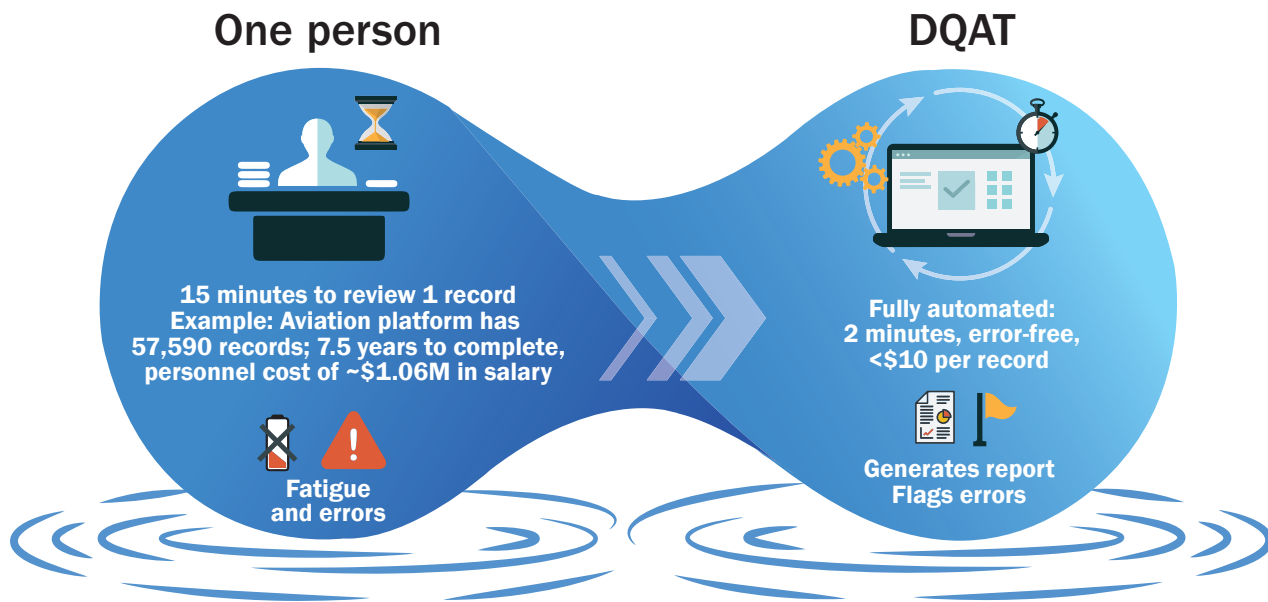
“We’ve got to build a bench—we’ve got to go back to the basics to make sure everyone knows how to run this business, because they are not going to have us graybeards to lean on much longer,” Pieper said.

BUILT-IN ‘ERROR FLAGS’

The data cleansing process is thorough, despite being only two minutes long. Gonzalez-Perez, with guidance from provisioning experts, developed the tool in increments. Initial work began in 2016, with the first functionality launched in 2017. DQAT officially went live in December 2019. DQAT checks provisioning data against business rules built by experts in AMCOM, in accordance with industry standards and DOD regulations, Gonzalez-Perez said. Once the data is analyzed, DQAT provides a report that categorizes the data into critical, noncritical and warning flags that show the data’s risk level. The tool generates a report for the provisioners specifying where the errors are, a description of the error and the reason it has occurred, in addition to the amount of errors per provisioning element.

Critical flags indicate issues that will stop the provisioning process and require immediate attention. “You won’t be able to

FIGURE 1



DATA CLEANLINESS IS READINESS

DQAT is one of three data-cleansing tools that ALC is using to ensure mission readiness for the Soldier. (Image by U.S. Army Acquisition Support Center)

move forward until those issues have been resolved,” Gonzalez-Perez said. Noncritical flags indicate issues that slow the provisioning process—you can work on other things while waiting for a resolution. Warnings indicate follow-on actions or reminders that don’t need immediate action, but will eventually need to be addressed to complete the provisioning process.

Gonzalez-Perez said it is imperative to have correct data first, before anything else can happen in the supply chain. “If we push wrong data into the enterprise resource planning system, which is LMP [Logistics Modernization Program] in this case,” he said, “that information supports supply chain, finance, Soldiers’ manuals, and also the repair programs at the depots. So just because we just pushed one element, one component into the system

which was wrong ... it could make the difference in providing the wrong part or component to the Soldiers in the field.”

DQAT is helping the provisioners drill down into the data and ensure that they “can’t do the wrong thing,” Pieper said. “Good management is making it hard to do the wrong thing and making it easy to do the right thing. And that’s really what this whole data cleansing is all about: Let’s go back and analyze all the ways we can make mistakes, and let’s engineer them out of the process so we can get the most accurate data that we can.”

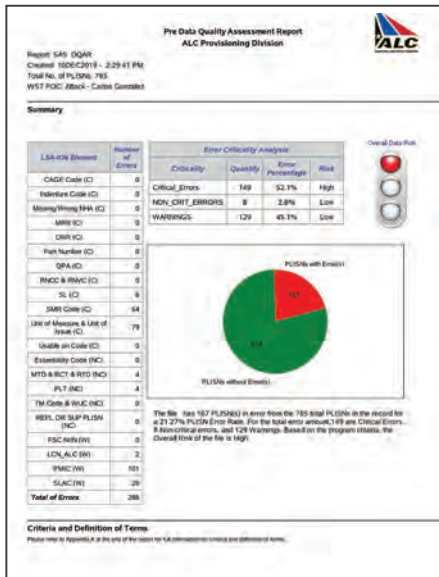
Ultimately, DQAT provides cost savings for every piece of provisioning data it corrects, Gonzalez-Perez said. It also helps increase productivity, accelerating correction timelines and freeing up manpower for other tasks. Arguably the

most important aspect is that correct and accurate provisioning data supports other business areas at AMCOM and helps Army leadership make data-driven decisions.

COMPATIBILITY AND THE FUTURE

Between the aviation and missile systems, the center manages about 29,000 items—which can range in size from an aviation engine or a rotor blade to a circuit board. Keeping an accurate count of the different items in the supply chain is essential for Soldier readiness.

“Any hiccup in your supply chain has a bullwhip effect, and it is the end user that feels it more than anybody,” said Debbie Daniel, director of ALC’s Materiel Management Directorate. “It could be completing repairs at Corpus Christi



QUICK INFORMATION

DQAT tells provisioners what kind of errors a data set has, how many exist and what the overall risk of the file is, all in under two minutes. This is a sample page from one such report. (Image courtesy of Carlos Gonzalez-Perez, AMCOM Logistics Center)

“Let’s go back and analyze all the ways we can make mistakes, and let’s engineer them out of the process.”

Army Depot, it could be fielding to units at CENTCOM [U.S. Central Command], but these data cleansing efforts make sure that we are spot on with where our stock is located, where we distribute from, that our programs at our depots [have] the right requirements. And so it all funnels down to being able to provide those parts and support at the time of need.”

Another initiative within the Materiel Management Directorate that ensures data accuracy is the compatibility tool. This tool reviews 20 key data elements, which govern how the supply chain is executed for each part, for regulatory compatibility. “Over 55,000 data element changes were made by teams working collaboratively across the directorates within ALC because the compatibility tool allowed the directorates to better see themselves,” Daniel said. Since April 2019, the combined accuracy of the 20 key elements has risen from 50.59 to 74.26 percent across all aviation and missile platforms because of those changes. Having accurate data allows the Logistics Modernization Program to run more efficiently and increases the accuracy of its recommendations, allowing parts to be procured, maintained, distributed and issued to Soldiers at the time and point of need.

As with most Army efforts, planning is critical to mission success, and ALC is planning the way ahead. “We have this tool that we’re building,” Daniel said. “It’s called a forward-looking tool that takes about 14 indicators. This tool, specifically, is concerned with what we call materiel management data.” The intent is that it will learn to recognize future issues with materiel management data as the 14 indicators are connected, and that artificial intelligence (AI) will be applied to the tool to give results in real time for those indicators.

Daniel doesn’t want to wait on a manual pull and analysis of copious amounts of data when artificial intelligence would be able to flag errors almost instantaneously. “I want AI to help us project problems, potential problems, and we resolve them before we ever get to that problem state,” Daniel said. Several manufacturers are also working to incorporate AI into their supply chain management. “So, for the first time, can we connect our supply chains? Possibly. From end to end. Now, that’s far-ranging, but that’s what I hope is in our future by doing this,” she added.

CONCLUSION

Without a suite of tools aimed at the common goal of data cleansing, ALC would not have been able to achieve those 55,000 corrections in just a few short months. DQAT, the forward-looking tool and the compatibility tool are critical to ensuring the accuracy of current data at the center. The tools are an important step in becoming proactive about data quality and the downstream effects it has on Soldiers in the field.

Pieper emphasized that the bottom line of the data cleansing effort, and all future efforts, is mission readiness for the Soldier. Downrange, Soldiers can only take a certain amount of equipment and supplies with them. “If they couldn’t take it with them, they are counting on us to get it to them,” he said. “When they need it is when they need it.”

For more information, go to <https://www.amcom.army.mil>.

JACQUELINE M. HAMES is an editor with Army AL&T magazine. She holds a B.A. in creative writing from Christopher Newport University. She has more than 12 years of experience writing and editing news and feature articles for publication.

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COORDINATING WITH ALLIES

The network management prototype tool suite will provide a broad network picture that simplifies network management so Soldiers will be able to respond quickly to changes in the network. The author, center right, discusses the tool suite with members of his team and Maj. Simon Watch, right, 11th Theater Tactical Signal Brigade Australian exchange network operations officer, in December. (U.S. Army photo by Amy Walker, PM TN/PEO C3T Public Affairs)

A CLEARER NETWORK PICTURE

New prototype software unifies and simplifies network management ahead of coalition exercises.

by Maj. Nicholas Milano

The Army will put its new unified network management prototype tool suite through its paces during several modernization events this year, including the Joint Warfighting Assessment 20 and the follow-on Defender 20 multinational exercises in Europe in April and May, as part of a rapid acquisition and development effort.

“I want to be proactive, not reactive, about giving commanders the best quality network possible,” said Col. Brian North, commander of the 11th Theater Tactical Signal Brigade, which will use the prototype during the multinational exercises. “With these new network management tools, we are trying to fuse information together as much as possible to speed decision-making—so we can take action to counter a problem, before a user is ever affected.”

The current problem is that signal Soldiers have many different legacy stovepiped tools, loaded on 23 different laptops, which each provide a piece of the network picture, such as bandwidth use, latency and node status, North said. Soldiers have to look at all of the separate slices of information and try to quickly piece them together to identify any issues that may arise, such as loss of signals, network congestion, or if a node is down and why.

The new prototype software, known as the Network Operations Management System, will integrate all of this information into one place, providing a broad network picture

that simplifies network management, so that during the exercises Soldiers will be able to quickly see, understand, report and take action on changes in the network.

Joint Warfighting Assessment 20 is one of six exercises linked and integrated with the U.S. Army Europe-led Defender 20 series of exercises. It focuses on refining concepts, capabilities and formations through Soldier and leader feedback. Defender-Europe 20 is the largest deployment of U.S.-based forces to Europe for an exercise in the last 25 years, with more than 35,000 U.S., allied and partnership service members participating and roughly 20,000 Soldiers and 20,000 pieces of equipment deploying from the United States. The event will increase strategic readiness and interoperability by exercising the U.S. military's ability to rapidly move a large combat force of Soldiers and equipment from the continental United States to Europe and, alongside allies and partners, quickly respond to a potential crisis.

“What we plan to have in Defender 20 that we have not had in a very long time is a network of such large scale, which is multinational and mobile,” North said. “We will need a good network operations tool to manage that entire series of exercises—from the [air] jump to the [land] crossings—and all of the tactical nodes and the strategic connectivity required to tie it all together.”

The new prototype software makes it easier for Soldiers from the tactical edge up through corps to plan, configure, monitor and manage their tactical network assets. These more capable—yet simplified and consolidated—tools increase visibility across the Army's extensive network, automate tasks and reporting, and make it easier for communications officers (S-6s and G-6s) to manage the network,

ensuring that Soldiers stay connected and well-informed.

The network management software prototype is managed by the Army's Project Manager for Tactical Network (PM TN) within the Program Executive Office for Command, Control and Communications – Tactical (PEO C3T). Through automation and virtualization, it converges network operations software and hardware—which currently requires up to 23 separate laptops that each houses different network management tools—into one software application, consolidating all of the network management tools into one place. Although the Army's numerous cybersecurity tools are not part of this network management tool suite, the ability for Soldiers to clearly see and understand exceptions or changes in the network helps them to alert cybersecurity operations, take action and thwart potential adversarial intrusions or attacks on the network.

The new software toolkit will have a common look, feel and functionality across all of the different network nodes, as well as the unclassified, classified and coalition networks, making it easier for Soldiers to retain and build their network management expertise across systems.

“We've been trying to improve on getting our battalion and brigade headquarters to look at the network more holistically, at whether it's operating in the way that it is intended, whether we are making the best use of the increasingly narrow satellite resources that we have available, looking at where the threats are to the network,” said Maj. Simon Watch, 11th Theater Tactical Signal Brigade Australian network operations exchange officer. “We are going to use the new tools to identify where we can improve the network, where we can optimize it, and aim to identify threats to the

“ Now, by having the PM and industry sitting there next to us in Defender, the PM is going to be able to walk out of the exercise, go back and make a 10-times better tool from that one opportunity to test-run it, from seeing how Soldiers are going to break it, or use it in ways not intended, and then developing a product that meets Soldiers needs far better and faster than it was able to before.”



EVERYBODY'S A CRITIC (GOOD!)

PM TN engineers brief new prototype network management software enhancements to Capt. Zac Depp, 10th Mountain Division network engineer, at a network integration facility at Aberdeen Proving Ground, Maryland, in December. The unit has been providing Soldier feedback to enhance the development of the software. (U.S. Army photo by Justin Eimers, PEO C3T Public Affairs)

network sooner, so that we can make sure that the maneuver commanders have a stable and secure network where they can exercise command and control over their assigned forces.”

GETTING THE PROTOTYPE INTO SOLDIERS' HANDS

As part of its acquisition reform, the Army has been implementing new ways to speed acquisition processes to deliver capabilities

more rapidly and retain technological overmatch against near-peer adversaries. PM TN leveraged its Unified Network Operations middle-tier acquisition authority, which was granted by the Army acquisition executive in March 2019, with PEO C3T named as the decision authority and the office of primary responsibility. This authority enables PM TN to rapidly prototype proven commercial off-the-shelf software to support existing operational needs without needing formal requirements documentation,

and to gain Soldier feedback to continue enhancing capabilities and inform Army fielding decisions. In essence, it enables PM TN to “buy, try and then decide” on potential new solutions ahead of large fielding efforts.

The goal of the Army’s Unified Network Operations middle-tier acquisition efforts is to provide simple, reliable, flexible and trustworthy network management tools for both the upper tactical internet (computer network) and lower tactical internet (radio networks). It is helping the Army deliver a more integrated, standardized and simplified network operations architecture. PM TN is conducting several other prototyping efforts under this middle-tier acquisition authority that are

serving as risk-reduction events for capabilities with the potential to become Army programs of record to be fielded across the Army.

To support the network management prototype development, PM TN has been using a successful developmental operations (DevOps) process, which puts developers alongside Soldiers in operational units to gain Soldier feedback that will be used to inform design improvements and future fielding decisions.

As part of the DevOps process, PM TN and industry have been working closely together to conduct Soldier touch point visits at multiple division, brigade and battalion S-6 and G-6 shops, including

The goal of the Army’s Unified Network Operations middle-tier acquisition efforts is to provide simple, reliable, flexible and trustworthy network management tools.



SOFTWARE SMOOTHS THE WAY

The Network Operations Management System makes it easier for Soldiers to plan, configure, manage, monitor, control, secure and defend their tactical network assets. (U.S. Army graphic by PM TN)

the 11th Theater Tactical Signal Brigade, 82nd Airborne Division and the 10th Mountain Division. These events provide a venue to collaborate on product design improvements. During the initial visit, the project office and vendor provide a demonstration; then the unit provides its preliminary feedback, both positive and negative, along with its capability wish list.

This relationship does not end with the initial Soldier touch point, but continues throughout the development process. PM TN has a flexible contract in place that allows it to keep enhancing the tool suite, making requested changes or adding features to meet Soldier needs. Soldier feedback is continuously relayed into Agile software development sprint cycles. The software is refined again as part of the next quarterly release cycle.

PM TN also integrated the new network management software prototype into its Emulation Test Bed at Aberdeen Proving Ground, Maryland. The test bed simulates

a live network with more than 60 nodes and a network operations center, so the team can integrate, test and demonstrate new capability enhancements resulting from the constant Soldier feedback. Soldiers can come to the facility and evaluate the newest software iterations before the software goes back to the pilot units, enabling the engineers to tweak the evolving capability yet again.

The PM and the signal community are also exercising the prototype software as part of several larger pilot programs being conducted to gain Soldier feedback to inform design, functionality and fielding decisions for other Army network modernization efforts. These include an ongoing pilot being supported by the 1st Brigade Combat Team, 3rd Infantry Division to inform capability decisions on the eventual equipment refresh of the Army's legacy Tactical Network Transport at-the-Halt system. The new network management software prototype will also be integrated into the Tactical Network Transport on-the-Move technical insertions that PM TN will deliver this summer.

"We want to give signal Soldiers the best tools to manage their network as quick as we can," said Lt. Col. Sung In, product manager for Tactical Cyber and Network Operations within PM TN. "It is impossible to design a tool that is going to make everyone happy 100 percent of the time, but the DevOps process is enabling us to get an 80 percent solution into the hands of Soldiers, and we can continue to enhance that solution as we move forward."

SIDE BY SIDE AT DEFENDER 20

In preparation for the Joint Warfighting Assessment 20 and Defender 20 exercises, PM TN, industry and supporting units are working together to ensure a strong foundation for success,

including weekly synchronization meetings to iron out issues before deployment to Europe. During the actual exercises, the project office and vendor engineers will be on site alongside the units, so they can provide solutions immediately to any problems or capability requests that arise, enabling Soldiers to evaluate them on site.

"In the past, there has been a disconnect among the Army's written requirements, what the project manager fulfilled and what the operator really needs," North said. "Now, by having the PM and industry sitting there next to us in Defender, the PM is going to be able to walk out of the exercise, go back and make a 10-times better tool from that one opportunity to test-run it, from seeing how Soldiers are going to break it, or use it in ways not intended, and then developing a product that meets Soldiers' needs far better and faster than it was able to before."

For more information, go to the PEO C3T website at <http://peoc3t.army.mil/c3t/> or contact the PEO C3T Public Affairs Office at 443-395-6489 or usarmy.APG.peo-c3t.mbx.pao-peoc3t@mail.mil.

MAJ. NICHOLAS MILANO, a basic branch engineer officer, serves as the assistant product manager for the Product Manager for Tactical Cyber and Network Operations and the project lead for the Network Operations Management System. He has an M.A. in management from American Military University and a B.A. in computer studies from the University of Maryland. He has been in the acquisition workforce for two years, is a member of the Army Acquisition Corps and is Level II certified in program management.

We will need a good network operations tool to manage that entire series of exercises—from the jump to the crossings—and all of the tactical nodes and the strategic connectivity required to tie it all together.

ACCELERATOR KICKOFF

The xTech Accelerator kicks off in October in Washington during the AUSA Annual Meeting. (Photos by FedTech)



TECHSEARCH
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MENTOR, ACCELERATE, REPEAT

The xTechSearch competition and the xTech Accelerator program enable the Army to access cutting-edge technology and foster the success of innovative small businesses as it grows its industrial base.

by Kristin McNelis

For small businesses, one of the biggest challenges can be getting noticed. That's doubly true if the small business with a military-applicable technology has never done business with the government. The Army is working to change that and increase its access to innovative technology while expanding its industrial base.

The third cohort of the Army's Expeditionary Technology Search (xTechSearch) went to Huntsville, Alabama, in March to the Association of the United States Army (AUSA) Global Force Symposium and Exhibition, host of the Phase IV finals of the competition. The 12 small companies (see sidebar on Page 53) were set to provide to Army experts proof-of-concept demonstrations and plans to transition their technologies to the Army.

For small, nontraditional companies looking to do business with the government, nothing could be so valuable as a successfully executed contract with the government. But getting there can be difficult. For that, the xTechSearch program launched the xTech Accelerator in October to provide an invaluable access to mentoring by Army and industry experts who can help make the transition from hopeful to successful.

According to the program's website, "The xTech Accelerator program is designed to help xTechSearch winners be successful via education, mentoring, networking, and community building."

A BRIDGE TO THE FUTURE FORCE

Sponsored by the assistant secretary of the Army for acquisition, logistics and technology (ASA(ALT)), xTechSearch is a prize competition for small businesses, drawing in companies and technologies that the Army otherwise might not have access to. But it's more than just that. (See related article, "More Than a Competition," Army AL&T magazine, Winter 2020.)

In a sense, xTechSearch is a bridge between small businesses developing groundbreaking technologies and the Army. The competition enables the Army to discover innovative technologies and, through modest prize money, help their development. The program helps the companies shape their inventions not only to military needs, but also to potential civilian needs. XTechSearch stands out from other competitions by investing in these companies and working with them to make connections that will help transition novel technologies to the warfighter.

“We have continued to evolve and improve the competition based on feedback from the small businesses,” Jeffrey Singleton, director of technology for ASA(ALT), said at the AUSA Annual Meeting in October. “We are looking to continue to improve and are launching new initiatives to keep you engaged with the Army and provide the Army opportunities to continue to work with small business innovators.”

ACCELERATING FUTURE TECH

One of those new initiatives is the xTech Accelerator, which was offered to the 12 semifinalists of xTechSearch 3.0 after winning Phase III in October.

Operated by FedTech, the ultimate goal of the xTech Accelerator is to develop xTechSearch participants as quickly as possible so that they can transition technologies to the warfighter. The xTech Accelerator also includes guidance on product development for dual-use technologies, and connections to private technology development programs.

FedTech is a company developer, helping technology entrepreneurs with their business strategies and providing them with customized training, mentoring and action plans to support the missions of federal agencies. XTechSearch partnered with FedTech to bring a unique opportunity to the competitors and provide them with the ability to continue developing their technologies for both Army and commercial needs.

With a combination of resources and tools, the program assisted finalists after their Phase III semifinalist pitches at the AUSA Annual Meeting in October, to help get them ready for the final phase of the xTechSearch competition—the proof-of-concept demonstrations. Participants in the program learn how to hone their pitch,

challenge their assumptions and identify potential customers within the Army. The program connects them with potential investors from both the government and private sectors to accelerate their development. “Beyond the networking and

“ We provide all companies that apply to xTechSearch with extensive and valuable feedback on their technology and the rare opportunity to engage directly with the Army stakeholders.”

connection points, the feedback throughout the xTechSearch accelerator program has helped us modify our product features to better align with Army needs,” said Jim Costabile, CEO of Syncopated Engineering, a small business finalist that moved to Phase IV, meaning the company would present its proof-of-concept demonstration at the xTechSearch finals in March.

MEANINGFUL CONNECTIONS

FedTech matches a diverse team of mentors with each competing company to help it along the way. The mentorship team is set up to offer different perspectives: One mentor from the Army can provide the Army perspective and show how the technology can be tailored to solve a real challenge and benefit the Soldier. Another mentor is a business expert, such as a

defense contractor or seasoned executive. A third mentor focuses on the venture side of things.

Each mentor team is tailored for each mentee company in the accelerator based on its product maturity, potential customers and business needs. It can be a very valuable tool, but it’s up to the companies to leverage those mentors and take advantage of their experience. “The xTech Accelerator mentorship program is an excellent mechanism to mentor nontraditional industry innovators, providing the opportunity to build relationships with potential development partners, while they learn how to work with the Army,” said Diane Ullman, senior medical acquisition adviser for the U.S. Army Medical Research and Development Command.

One key benefit the Army mentors can provide is help to connect participants to the right people. “I was pleased that, as a mentor, I was able to link up the company I was mentoring with the Army organization that performs the testing that they needed. As a result, we are working on a test-support agreement that will, in the end, help the Army get capabilities to the Soldiers in the field faster,” said Col. Steven Hart of the 75th Innovation Command. That command, an Army Reserve unit with Soldiers who work in technology and business sectors across the U.S., plays a key role in the xTech Accelerator mentorship program. The command’s unique combination of military and commercial expertise and its regional innovation ecosystem connections provide the Army with forward-thinking technology scouts and strong mentors to help companies network in their region.

MULTILAYERED MENTORING

As part of the effort to transition technology to the Soldier, xTechSearch is encouraging and facilitating small



GROUP EFFORT

xTechSearch 3.0 finalists participate in an immersion day in Boston supported by FedTech and the xTechSearch program manager, Zeke Topolosky, far right in the back row.

businesses to engage with the Army, and is providing them the tools needed to get a contract or establish strategic partnerships.

“These are companies strongly motivated to work with the Army and support our Soldiers,” said Zeke Topolosky, xTechSearch program manager and an engineer at the U.S. Army Combat Capabilities Development Command’s Army Research Laboratory (CCDC – ARL). “We provide all companies that apply to xTechSearch with extensive and valuable feedback on their technology and the rare opportunity to engage directly with the Army stakeholders needed to support potential transition opportunities. Through the xTech Accelerator and mentoring programs, the finalists engage in a productive customer-discovery process with Army stakeholders, and develop meaningful relationships with early potential Army customers or development partners. “We’re trying to get the companies to take the initiative to look beyond xTechSearch and present a plan that will show the judges a successful transition from xTechSearch into a contract with the Army, or to develop another strategic partnership to accelerate their technology development. The first three rounds of the competition established that these companies have

solutions to critical Army problems, and we want to help deliver these solutions into the Soldiers’ hands faster,” Topolosky said.

COLLABORATION THROUGH BUSINESS DEVELOPMENT

Learning about the Army acquisition process and customer discovery within the Army were webinar topics—just one of the educational opportunities offered within the program. Participants also have access to FedTech’s online learning portal, Schoology, where they can watch recorded webinars and talks, track goals and objectives for their business, and engage with FedTech’s network of mentors. The webinars, the Schoology platform and a moderated xTechSearch community Slack channel enable virtual participation for most of the accelerator, an attractive feature for small businesses that have difficulty traveling and taking time away from their work.

IMMERSING IN THE ARMY ECOSYSTEM

Supplementing the virtual programming, the xTech Accelerator offered two immersion events to encourage dual-use

capabilities—helping companies understand how to do business with the Army while also pursuing commercialization opportunities. The immersion events include mentors as well as experts from government, industry and venture communities who offer advice to the companies and provide best practices from their respective areas of expertise. This dual-use approach provides the companies with a greater potential for success and exposes them to more potential partners from among Army and commercial investors. “There’s a good chance other people might invest, besides the military, directly in your efforts; might partner with you; might provide you a way to take your technology and put it into a larger system,” Dr. Bruce D. Jette, Army acquisition executive, explained to xTechSearch participants at AUSA in October.

The first immersion event—in Austin, Texas, in January—focused on the defense innovation ecosystem and brought together government agencies like the U.S. Army Futures Command, AFWERX—the Air Force’s innovation group—NASA and the FBI, along with more conventional prime contractors like Raytheon, Lockheed Martin and Boeing, to help empower the startups by sharing their experiences, coaching through pitches, and doing their own pitches. Each company that participated in the event had conversations with prime contractors’ small business engagement divisions. “We’ve worked with many accelerators, but the quality of contact here brought together by FedTech and xTechSearch is something else,” said Alec Shkolnik, CEO of LiquidPiston, a Connecticut-based company that specializes in power solutions.

A second event, in Boston in February, focused on the venture innovation ecosystem and included venture capitalists, vertical focused co-working spaces

like GreenTown Labs and The Engine, and corporate venture capital firms such as Philips HealthWorks, Verizon and Bayer. The Boston event focused on accelerating the companies’ abilities to devise and act on a strategy to build their businesses and grow in areas other than defense. Each company that participated in this event gave their technology pitch to a room full of investors, and another round of pitches to a group of innovation leads from large corporations.

Many of the investors scheduled private meetings with the companies the day after the pitches, and the innovation leads gave each company advice on how to hone their pitch, understand the market opportunities and refine business plans. This trip proved to be a strong mentoring experience for the companies, giving them confidence as they prepared for their live demonstrations at the xTechSearch finals. “Having seen these companies’ first pitch back in July 2019, it is amazing to see how polished they are today in front of these audiences,” said Topolosky, who attended the Boston event in February. “They’ve really honed their pitches to focus on specific Army use cases, but also show the growth potential of their technologies for the Army and in the commercial market.

“I don’t envy the xTechSearch Phase IV judges in Huntsville next month,” he said. “They’ll have an extremely tough time deciding between these companies.”

CONCLUSION

Through technology scouting programs such as xTechSearch, the Army continues to identify technologies with the potential to revolutionize Army capabilities in the future. While the Army has specific collaboration and funding mechanisms such as ARL Open Campus, Small Business Innovation Research projects and later-stage acquisition processes, the xTech

Accelerator can fill in the gaps in developing the small businesses behind the identified technologies.

The xTechSearch competition can only have one grand prize winner, but “that doesn’t mean there are half-winners and half-losers. It means, this is about work, and you have to take advantage of the opportunities put in front of you,” Jette told participants at AUSA in October. The xTechSearch program is investing in all the finalist companies by offering the xTech Accelerator program and providing them with opportunities to make connections and to improve their technology, business models and pitches so that they can be successful in their future endeavors even if they don’t win the grand prize at xTechSearch.

The road from “technology” to “deployable technology-based solution ready for Army acquisition” can be challenging. The accelerator ensures that the identified technologies make it to the finish line and can have a meaningful impact on the Army.

For more information about xTechSearch and to see the various opportunities available, go to www.xTechSearch.army.mil or follow them on Facebook, Twitter, LinkedIn and YouTube @xTechSearch.

KRISTIN MCNELIS is an associate with Booz Allen Hamilton providing support to xTechSearch at CCDC – ARL. She holds a B.A. in communication from the University of Maryland.

xTechSearch 3.0

Finalists demonstrate innovative technologies



by Dr. Tomoko Sano

Twelve small businesses competing in the third iteration of the U.S. Army's Expeditionary Technology Search (xTechSearch) concluded their competition at the Association of the United States Army (AUSA) 2020 Global Force Symposium and Exhibition in Huntsville, Alabama, on March 19. XTechSearch is a four-phased small business contest sponsored by Dr. Bruce D. Jette, assistant secretary of the Army for acquisition, logistics and technology (ASA(ALT)). Jette launched the competition to revolutionize the way the Army attracts small businesses to its science and technology ecosystem. This is the third cohort since xTechSearch began in 2018.

The 12 finalists each started their xTechSearch journey in May 2019 as one of 140 submitting a white paper in the first phase of the competition. During Phase I, a panel of Army judges reviewed the white papers and selected 48 small businesses to compete in Phase II and earn a cash prize of \$5,000 each.

In Phase II, the small businesses each pitched their innovative ideas to a group of judges aligned to their technology's focus area. The judges participating in Phase II included Army experts from the research and development, acquisition and user communities

who provided technical, application and acquisition insight with feedback and suggestions to each of the small businesses.

Moving on to Phase III and being awarded the \$10,000 cash prize for winning Phase II, 24 small businesses pitched their technologies to a panel of senior technical staff from the Office of the ASA(ALT) at the Innovators' Corner during the AUSA 2019 Annual Meeting in Washington in October. The top 12 finalists were selected and awarded \$120,000 to develop their technologies and return for the Phase IV competition with a live proof-of-concept demonstration.

The xTechSearch competition has been well received by both small business competitors and judges. "From feedback during the pitch process, we've changed some of the features on our product to align better with the application," said one of the xTechSearch finalists, Jim Costabile, CEO and founder of Synco-pated Engineering. "And the new connections made have been incredible."

A frequent Phase II judge, Dr. Jaret Riddick, director of the Vehicle Technology Directorate at the U.S. Army Combat Capabilities Development Command

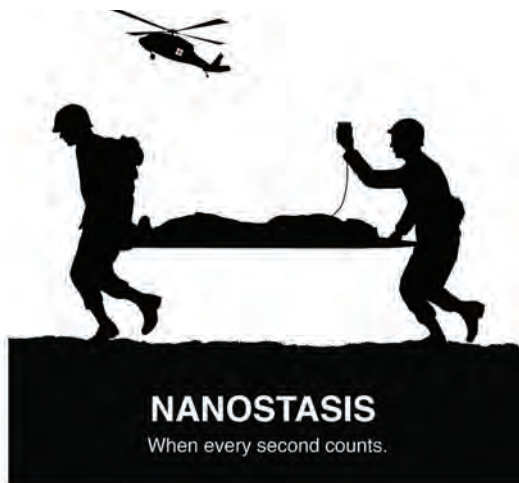
Army Research Laboratory (CCDC – ARL), also commended the competition, adding, “The xTechSearch competition fits the goal of senior Army leadership to create collaborations to form an Army research ecosystem. Events like these help to establish a network of nontraditional partners and small businesses that can be a part of the big picture in providing disruptive capability for the future warfighter.”

The finalists come from all over the country, representing 10 states. They offer innovations ranging from medical technologies that stop internal bleeding to lighter, more efficient engines. These technologies could be a great benefit to the Army and warfighters as well as to the commercial sector, and xTechSearch is helping them accelerate development toward those goals.

XTECHSEARCH 3.0 FINALISTS

ANTI-ROTATIONAL TECHNOLOGIES INC.

from Georgia, was founded by an active-duty U.S. Army aeromedical evacuation officer. It developed an unobtrusive, reaction-wheel stabilization system for helicopter hoists to prevent hoisted loads, including combat casualty evacuations, from spinning as the result of rotor downwash.

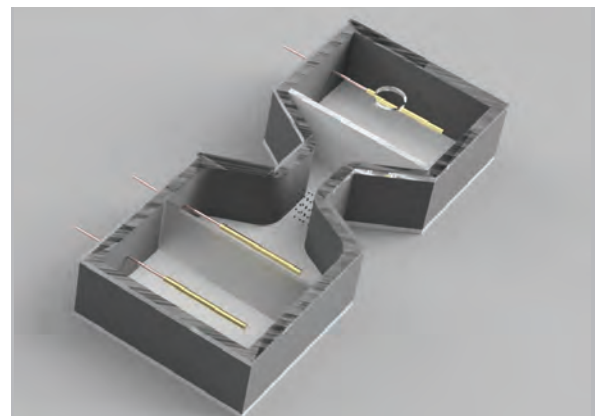


CAYUGA BIOTECH INC.

from Bridgewater, New Jersey, developed an injectable drug that accelerates clotting to reduce blood loss. As 90 percent of combat fatalities occur before arrival at a hospital, this drug, which is stable and can be delivered in the same packaging as that currently used by combat medics, could literally be a lifesaver.

ELECTRONUCLEICS INC.

from California, is a startup from UCLA that developed a rapid and portable pathogen detection system. This inexpensive and highly sensitive system does not require amplification or reagents. It consists of an electrochemical nucleic acid-based assay that detects pathogens in body fluids.



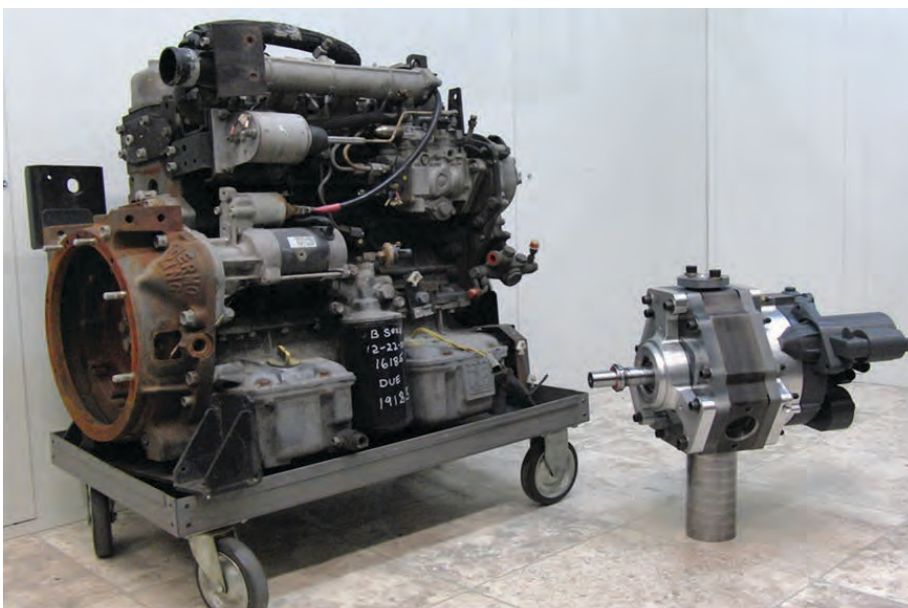
GHOSTWAVE INC.

is a radar company launched out of Ohio State University. GhostWave developed a radar system that incorporates a random noise generator to produce and transmit the radio frequency signals, resulting in a stealthy radar system that resists jamming and has a low probability of detection and interception.



KNIGHT TECHNICAL SOLUTIONS LLC

is based out of Huntsville, Alabama, and was founded by veterans. The company developed a fixed-displacement turbine engine that uses a twin-screw compressor joined to a twin-screw expander with a rotary valve. This design allows for a scalable, multifuel, high-compression, power-dense and energy-efficient engine.



The "Old Way"
35 HP Piston Diesel



The "New Way"
40 HP LPI Diesel

LIQUIDPISTON INC.

based in Bloomfield, Connecticut, is a family business that specializes in power solutions. Its compact rotary-engine platform delivers 30 percent greater fuel efficiency than typical piston diesel engines, and 200 to 300 percent greater efficiency than small turbines. High power density is produced in a small form-factor but with low noise and very low vibration, a perfect fit for unmanned aircraft system applications and portable power generators.



MERCILESS MOTORS

of New York is a startup from New York University. Merciless Motors is developing an improved electric motor that is 50 percent lighter, 33 percent smaller and up to 10 percent more efficient than similarly powered electric motors. This is all achieved without permanent magnets, which reduces the cost.

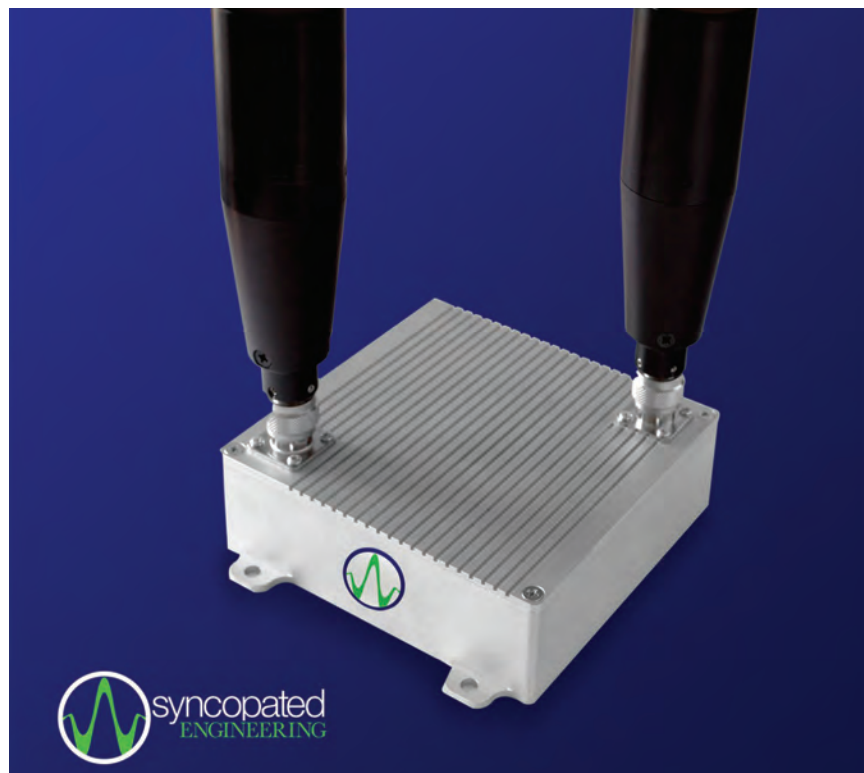


SIGINT SYSTEMS LLC

based in Davidsonville, Maryland, is a cross-discipline engineering company that develops innovative signal intelligence solutions. Their compact Jaguar-X system has a footprint of 6 inches by 6 inches and performs signal collection at high and very high frequencies. It is also capable of direction finding.

SYNCOPATED ENGINEERING INC.

from Ellicott City, Maryland, is a provider of wireless communication, signal processing and machine-learning solutions. Syncopated Engineering developed CIELO, a cognitive radio product that emulates multiple “radio personalities” with the Mockingbird radio frequency decoy that deceives and confuses adversaries.



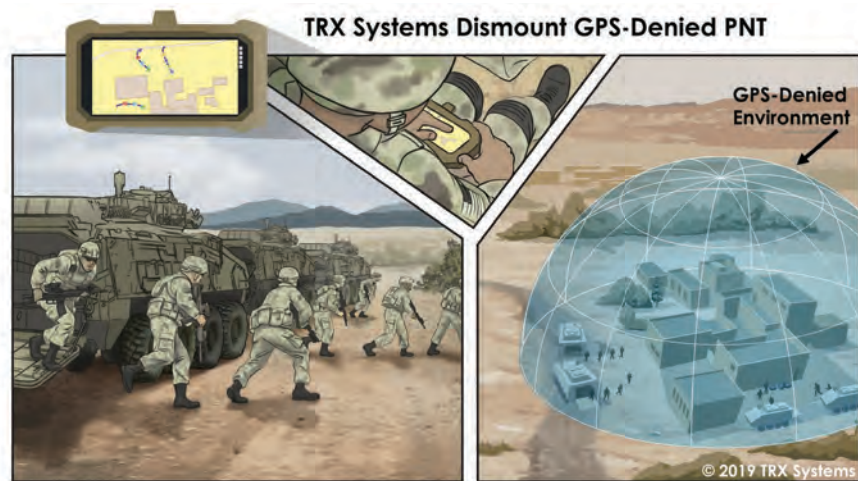


TEXPOWER INC.

located in Austin, Texas, is a spinoff from the University of Texas at Austin. Its lithium-ion battery technology does not rely on cobalt, which has a limited supply chain. TexPower's lithium-ion battery uses a different cathode material that produces 10 percent higher energies at 25 percent lower material costs without requiring any changes to the other battery components or sourcing materials outside of the United States.

TRX SYSTEMS INC.

from Greenbelt, Maryland, delivers GPS-denied location and mapping technology. Its product, NEON, is an assured position, navigation and timing device with low size, weight and power that can provide three-dimensional continuous positioning indoors and underground.



XO-NANO

based in Orem, Utah, has developed the world's first foam sensor by adding conductive particles to liquid foam. This technology is used to measure force, such as ground reaction force, when the foam is inserted as insoles in shoes. In this application, the technology will provide magnitude, location and impact frequency data to diagnose and prevent injuries to the lower extremities.

DR. TOMOKO SANO is special projects lead in the Office of Strategy Management at CCDC ARL. She holds a Ph.D., an M.S. and a B.S. in materials science and engineering from Carnegie Mellon University. She is also currently a visiting scholar at the Johns Hopkins University's Hopkins Extreme Materials Institute.



MAZE OF DEFINITIONS

Knowing the definitions of terms in the FAR is essential. In April 2019, the GSA published a pre-solicitation notice requesting industry's interest to provide warehouse space. Two firms protested the notice to the GAO—and it dismissed both protests because the pre-solicitation notice was not an announcement of a government contract action. (Getty Images/hocus-focus)

ON CONTRACTING

THE NOTICE I NEVER KNEW

| When is a notice not a notice of a proposed contracting action?

by Dennis P. Longo

The second article in the On Contracting series based on the Competition in Army Contracting course, which the author developed for the Office of the Deputy Assistant Secretary of the Army for Procurement.

Anyone who has ever tried to do business with DOD knows that it's complicated. Even people who know what's going on can get confused now and then.

A few years ago, I didn't realize I was confused until after the Defense Federal Acquisition Regulation Supplement (DFARS) was amended to require the contracting officer to post a request for information or sources sought—two notices published by the government that are intended to gather information about industry capabilities before issuing a request for proposals. When limiting competition to consider only one responsible source, the results of the notice—according to the DFARS—must be included in the sole-source approval document unless a waiver is granted.

Let me clarify: It wasn't the DFARS language that confused me. I was confused because my understanding of the concepts of a notice, synopsis, request for information, sources sought and notice of proposed contract action was abruptly challenged. A notice is a notice, right?

I knew that the Federal Acquisition Regulation (FAR), in Part 5, contains policies for publishing contracting opportunities to increase competition, to broaden industry participation and to assist small businesses in obtaining government contracts and subcontracts.

However, Part 5 also uses notice, contract action, synopsis, announcement and pre-solicitation notice as undefined terms—at least not clearly defined for me. Throw in the DFARS amendment requiring a request for information or sources sought, and my head began to ache—and what does this have to do with limiting competition to only one source? I reached for some aspirin.

So walk through this with me ...

WHAT IS A NOTICE?

A notice is a method of publishing information to industry and may be made at different stages of the acquisition. A notice may announce availability of a government solicitation, an award of a contract, or dates, times and locations for meetings with industry to discuss procurement needs. To that point, the FAR encourages what it calls early exchanges of information that may take the form of pre-solicitation notices, business fairs, pre-bid or pre-proposal conferences, and the availability of draft solicitations or draft specifications for review. Easy enough, I thought.

WHAT IS A SYNOPSIS?

The FAR refers to a notice of a proposed contract action as a “synopsis.” A synopsis announces the availability of a government solicitation or a contract award. It is a summary or outline of a solicitation or a contract action that must be published on a government website that is accessible by the public. See FAR 5.201.

What information must be provided in a synopsis?

A stipulation in FAR Part 5 requires specific information about the contract action that must be included in the synopsis, when industry is invited to respond to the synopsis and when those responses must be submitted to the government.

The FAR requires that each synopsis address 18 required elements. These elements are in the regulations because the government has particular interests when publishing a synopsis—when limiting competition, the government wants to make sure that its interests are well represented.

Sixteenth in that list of required elements among those at FAR 5.207(a) is the description of the supplies or services that the government intends to purchase.

The description of supplies or services being sought must be written clearly and concisely—free from ambiguity (clear) and expressed using only a few words but in a way that is easy to understand (concise); not unnecessarily restrictive of competition; and allowing a prospective offeror to make an informed decision as to whether to request a copy of the solicitation, according to FAR 5.207(c).

If a synopsis does not contain an accurate description of the supplies or services being sought, it unnecessarily restricts

competition and fails to achieve our procurement objectives.

Here’s where competition comes into play.

If, for example, my synopsis doesn’t accurately describe the services required to overhaul a helicopter engine, or a synopsis identifies only two of 15 spare parts required for a tank’s ventilation system, in both examples industry can’t accurately describe its capabilities to satisfy the requirement. Consequently, the government denies all responsible sources an opportunity to compete for the contract award.

While it may appear that my failure to list all of the parts or accurately describe services that the government wants doesn’t



LOOK HERE!

The FAR is a daunting document, and sometimes it takes a little extra help to decipher its nuances. So let us guide you. The first thing you should know: A notice is a method of publishing information to industry. (Photo by Sgt. LaShawna Custom, 32nd Army Air and Missile Defense Command)

make a big difference, it may adversely affect some new potential bidder who might—if they knew what we were looking for—be able to offer the government a much better deal, propose new technology or recommend greater performance.

WHAT IS PRE-SOLICITATION?

A pre-solicitation notice is a method the government uses to provide industry with information or to receive information. When the government needs information from industry for market research purposes or wants to inform industry of a government business fair, it may issue a pre-solicitation notice.

The government may publish a pre-solicitation notice, for example, to inform industry of its small business events or conferences, to request comments on a draft solicitation, or to receive information about commercial practices before drafting a solicitation. A pre-solicitation notice is not a notice of a proposed contract action.

In April 2019, for example, the U.S. General Services Administration (GSA) published a pre-solicitation notice requesting industry's interest to provide warehouse space. Two firms protested the notice to the U.S. Government Accountability Office (GAO), complaining that the description of the requirement restricted competition, and that the time in which the GSA required responses to the notice was too short.

The GAO dismissed both protests because the notice was not an announcement of a government contract action. (See GAO's decision B-417414 and B-417414.2.)

A PRE-SOLICITATION NOTICE DOES NOT ANNOUNCE A CONTRACT ACTION

A request for information and a sources-sought notice are two examples of pre-solicitation notices. I wasn't sure if it was the result of the aspirin taking effect, but my confusion was beginning to fade.

What is a request for information?

A request for information (RFI) simply requests information from industry. It may, for example, request information as to how commercial trash removal services assess charges for trash pickup, e.g., on a monthly basis or by weight. A request for information is not a notice of a proposed contract action in that it does not describe an agency's actual requirement, nor is it a notice of the government's intent to award a contract. Industry responses to the request for information are treated as information only and must not be used solely to select a firm for award of a contract.

Sources-sought notices assist the government when it conducts market research and in finding interest from capable industry sources. They also assist the contracting officer in determining if a commercial item is available to satisfy a government purchase requirement.

In 2013, for example, the Peace Corps issued a request for information that included a draft description of features it desired for an email service. The Peace Corps received two responses to the request for information and, after evaluating both responses, modified one of its contracts to add the product that was provided by one of the firms responding to the request for information. The other response to the RFI was submitted by a firm named Onix Networking Corp. that later protested the contract modification to the GAO.

The GAO found in this case that because the Peace Corps had not issued a solicitation that described its procurement requirement, there was no basis to conclude that Onix was incapable of meeting the Peace Corps' requirements and the subsequent contract modification was improper. (See GAO's decision B-411841.)

What is a sources-sought?

Whereas a request for information may seek to obtain commercial practices or pricing, a sources-sought may seek industry capabilities relative to a future requirement.

According to FAR 5.205, a sources-sought may be issued to enable potential sources to learn of research and development programs and to provide an opportunity to submit their capability information.

A sources-sought notice may be published, for example, to determine if a local small business market could deliver 50,000 gallons of diesel fuel within two days' notice in case of an emergency.



WRING IT OUT

Squeezing the meaning out of the definitions in the DFARS may be difficult, but understanding the lingo will facilitate procurement objectives, support procurement planning and enhance market research toward fulfilling mission objectives. (Getty Images/Yagi Studio)

Evaluation of the responses to that notice may assist a contracting officer in determining if future procurements should be set aside solely for small businesses having that capability.

In April 2018, the GAO adjudicated a protest under similar circumstances where the contracting officer, after receiving responses to a sources-sought notice, set aside procurement of 50,000 gallons of diesel fuel to small disadvantaged, veteran-owned small business firms. The protester, AeroSage LLC, complained that the sources-sought notice was a solicitation and that the contracting officer in this case didn't consider its response. The GAO dismissed the protest, explaining that the sources-sought notice was not a solicitation that anticipated the award of a contract. (See GAO's decision B-415893.)

Sources-sought notices assist the government when it conducts market research and in finding interest from capable industry sources. They also assist the contracting officer in determining if

a commercial item is available to satisfy a government purchase requirement.

As with the request for information, a sources-sought notice does not announce a government contract action.

Both the request for information and the sources-sought notice are pre-solicitation notices that are published before issuing a formal solicitation. Award of a sole-source contract must not be based solely on evaluation of the responses to either of these pre-solicitation notices. Otherwise, we run the risk of conducting a de facto source selection based on responses to a pre-solicitation notice.

For example, in 2006, the Air Force posted a pre-solicitation notice for repair of air sealing ring segments for the F-100 engine. The contracting officer approved a justification and approval (J&A) to repair ring segments for the F-100 engine on a sole-source

To that point, the FAR encourages what it calls early exchanges of information that may take the form of pre-solicitation notices, business fairs, pre-bid or pre-proposal conferences, and the availability of draft solicitations or draft specifications for review.

basis after issuing a pre-solicitation notice, but before expressions of interest from the notice were received. The GAO sustained the protest by Barnes Aerospace Group (B-298864.2), explaining that “agencies undercut their credibility when they prepare and execute sole-source J&As on the basis that there is only one responsible source available, before the time they have received expressions of interest and capability from potential offerors. The entire purpose of issuing notices seeking expressions of interest and capability is to avoid the need for such sole-source procurements, if possible.”

The government assumes a risk by proceeding with an action to limit competition without considering expressions of interest and capability from potential offerors. First, we risk depriving our programs of industry innovation; second, we risk losing the benefits of a competitive market.

We also assume a risk when we consider issuing notice of a contract action as frivolous or a formality.

For example, in 2018, the U.S. Department of Labor published a notice of its intent to award a sole-source contract and invited companies to submit a capability statement.

However, one day after publishing the notice, the contracting officer signed the J&A and awarded the sole-source contract.

Career Systems Development Corp. protested (B-416021.2) the sole-source contract. It stated that the Department of Labor (DOL) had failed to consider the company’s capability statement that was submitted in response to the DOL’s notice. The DOL claimed, however, that the notice inviting firms to submit capability statements was a “mere formality” and that consideration of the protester’s capability statement was “actually irrelevant.”

GAO disagreed, explaining that the agency’s responsibility to consider the protester’s capability statement is not a “mere formality” and determined that DOL’s actions were contrary to regulation, rendering the J&A and the resulting sole-source contract deficient.

CONCLUSION

DFARS requires the contracting officer to publish a request for information or sources sought when using the “one responsible source” exception to full and open competition. Accurate use of pre-solicitation notices—as well as a walk through the valley of the acquisition regulations to understand the nature of a synopsis, request for information, sources-sought and notice of proposed contract action—facilitates our procurement objectives, supports advance procurement planning and enhances market research toward fulfilling our mission objectives.

For more information on notice of a proposed contract action and its impact on competition in contracting, go to the Procurement.Army.Mil Training Library at the Deputy Assistant Secretary of the Army for Procurement website at <https://spcs3.kc.army.mil/asaalt/procurement/SitePages/NewTraining.aspx>.

DENNIS P. LONGO is advocate for competition, task and delivery order ombudsman, and senior procurement analyst at the U.S. Army Contracting Command at Aberdeen Proving Ground, Maryland. A member of the Army Acquisition Corps, he holds a bachelor’s degree from the University of Baltimore, and is Level III certified in contracting. His assignments include acquisition specialist at the Program Manager for Chemical Demilitarization within the U.S. Army Chemical Materials Activity and procurement analyst at the U.S. Army Legal Services Agency. He served in the Army from 1971 to 1973 at the Southern European Task Force, Italy, and was deployed to Iraq as a civilian in 2003. He authored the Defense Acquisition University Continuous Learning DOD Purchase Card Tutorial in 2003, and has been teaching courses on competition in contracting since 2004. The first of the author’s On Contracting articles, “How to Convince the Army to Get What You Need,” appeared in the Winter 2020 edition of Army AL&T.

WHY ARE YOU FOLLOWING THAT LEADER?

Emotional intelligence is a key component of leader effectiveness. Applying it to their communication skills helps leaders build good relationships with employees. (Getty Images)



EMBRACING CREATIVE DESTRUCTION

A prescription for how the Army's leaders can demonstrate emotional intelligence and communicate change better during a time of creative destruction, based on the author's doctoral research and dissertation.

by Dr. Bozena "Bonnie" Berdej

The Army is going through creative destruction. To respond to future threats, the Army has to change and continue reorganizing. Because of these pressing needs, leaders stand up new organizations to engage creativity and innovation. Policies change frequently to ensure efficiency. Leaders have to work around budget and schedule constraints while keeping their workforce agile and committed.

Creative destruction is necessary. It does not have to be entirely bad, but it comes with risks. Leaders have to clearly communicate their intentions and encourage feedback. Otherwise, creative destruction could cost many millions of dollars in low morale, turnover and low organizational effectiveness, based on my study of the literature surrounding the correlation of creative destruction, leader emotional intelligence, communication and organizational effectiveness.

Let me explain.

Creative destruction is the idea that, to evolve, an organization must shed products and practices that don't work or have become outdated in favor of newer and more innovative ideas that enable it to become more agile and responsive to the customer.

Organizational effectiveness is a combination of five elements: leadership, decision-making, people, culture and commitment. Creative destruction and organizational



DEVELOPING THE FUTURE

The Army needs leader development programs to meet the demands of the new modernization requirements while keeping the acquisition workforce motivated and thinking outside of the box. One such program—Inspiring and Developing Excellence in Acquisition Leaders (IDEAL)—develops skills that facilitate effective communication. Mumbi Thande-Kamiru, center, from the U.S. Army Test and Evaluation Command at Aberdeen Proving Ground, Maryland, asks a question during a January 2020 IDEAL session. (Photo by Ann Vaughan, U.S. Army Acquisition Support Center (USAASC))

The notion that experience makes a leader could not be further from the truth.

effectiveness dovetail when leaders and employees learn soft skills—emotional intelligence, and its subset, communication. Emotional intelligence is the ability to master one’s emotions and work with the emotions of others to achieve desired outcomes through building effective relationships and communicating.

The Army operates in a multidimensional environment driven by needs, events and calendars. The Army Staff College refers to this as a need-, event- and calendar-driven multidimensional operational environment. In particular, the three systems driving the Army’s decision-making are

the Joint Capabilities Integration and Development System; the planning, programming, budgeting and execution cycle; and the Defense Acquisition System. All three combined are responsible for materiel and capability development, and multiyear planning for resources, manpower and programs.

It is common practice to change policies and guidance several times per year while leaving the acquisition workforce to interpret the intent behind the changes. For example, in January 2020, DOD Instruction (DODI) 5000.02T and DODI 5000.02 were issued in efforts to

simplify the existing guidance and to establish a distinction between DOD Directive 5000.01, which describes the system, and DODI 5000.02, which describes the system's operation. To effectively implement these and many other changes, leadership needs to operate in a leader-follower collaborative setting because decision-making is no longer a singular process driven by the command-and-control approach to leadership. In this operational environment, leaders need to seek feedback from the functional working levels before they make decisions promoting innovation or other forms of change.

While creative destruction happens within the Army and often affects the workforce negatively, there are also things done well. When the U.S. Army Futures Command was stood up, Lt. Gen. Paul A. Ostrowski, principal military deputy to the assistant secretary of the Army for acquisition, logistics and technology, announced that the future Army will stand on three pillars:

- Futures and concepts.
- Combat development.
- Combat systems.

Ostrowski took the time to travel and meet with the acquisition workforce to communicate his vision. Change is hard, he said in one interview, and “the key is to understand and be able to move forward in a multidomain fight against a peer or near-peer competitor.”

He continued by emphasizing that the Army needs to empower others to make decisions and take risks. During the standup of the Army Futures Command, leaders effectively delegated authorities to program executive offices (PEOs) and program managers (PMs), enabling them to focus on capability development rather than on getting to a milestone.

This communication and empowerment initiative worked well. It was clearly communicated and executed. What I believe needs to happen next is for PEO and PM leaders to empower their workforce to make decisions and take risks.

When leaders do not empower others to make decisions and take risks, they develop unreasonable goals, reduce team effectiveness and eliminate brainpower. This is because we think outside of the box and meaningfully contribute our knowledge when we know that someone believes in us. For example, readers may remember the 1968 study that identified the Pygmalion effect, which demonstrated that positive expectations influence performance.

Similarly, the 1920s Hawthorne experiment showed that paying attention to others improved productivity.

My review of evidence also indicates that decisions made without employees' contributions can have devastating effects on organizations. Jerald M. Liss, in his 2013 study “Creative Destruction and Globalization: The Rise of Massive Standardized Education Platforms,” argued that creative destruction managed in this way eliminates specialized knowledge responsible for creativity and innovation while focusing on efficiency, and it erodes employee morale or trust in the leadership. For example, had Army leaders listened to their experts in the Bradley Fighting Vehicle program of the 1960s, they could have avoided the staggering cost of redesigns and modifications. Several dedicated leaders left, removing their specialized knowledge from the program. The Bradley was in production for 17 years, costing billions of dollars.

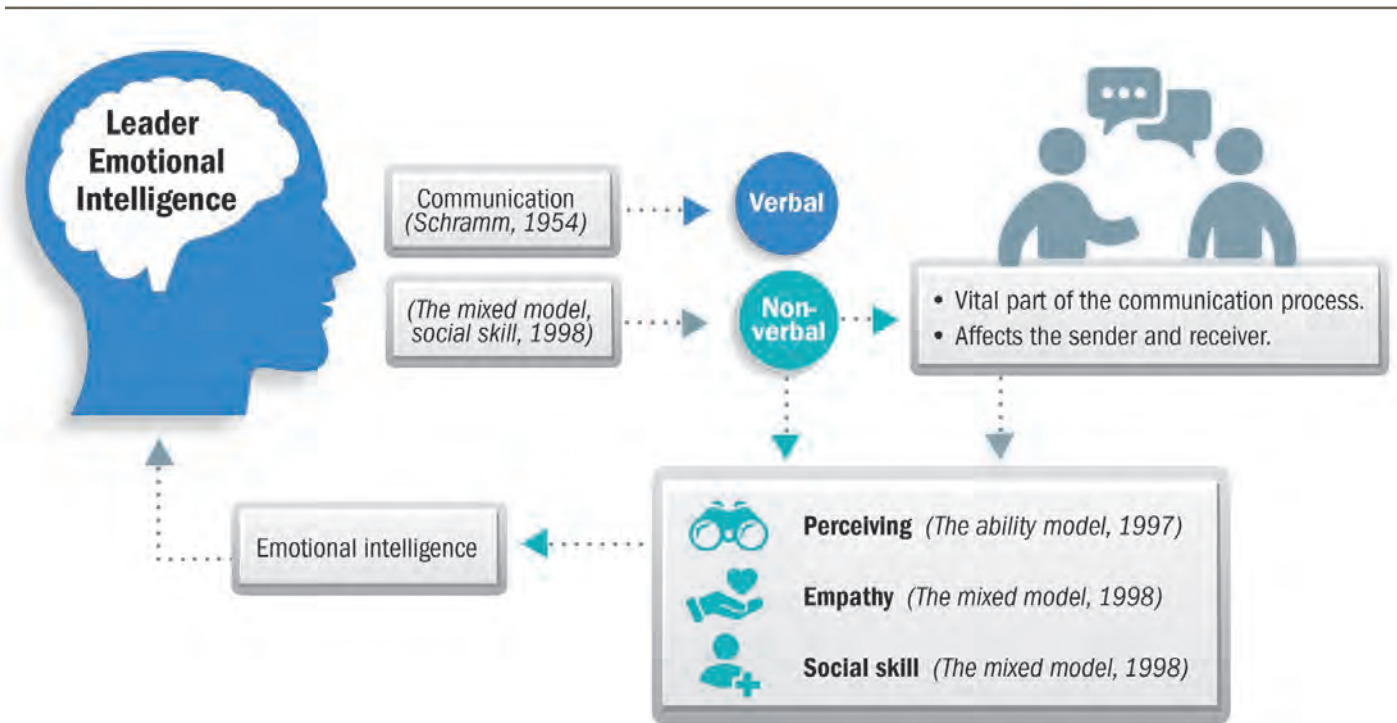
Even more importantly, as I learned during the 2½ years of research for my dissertation, leaders play a critical role in eliminating such devastating effects of creative destruction on organizational effectiveness. For example, leaders who do not seek feedback almost always negatively impact all five elements that comprise organizational effectiveness (leadership, decision-making, people, culture and commitment). Employees look to their leaders for wise and transparent decisions, which demonstrate that leaders are vested in the well-being of their organizations as well as their employees. They expect them to share and listen to what is really happening in their organization. Additionally, practicing effective two-way communication assists leaders in demonstrating good stewardship of taxpayer money. As Frederick Herzberg stated in his 1974 study, “Motivation-Hygiene Profiles,” organizations are only as healthy as their employees.

COMMUNICATING TO BUILD THE FUTURE ARMY

Richard Foster and Sarah Kaplan, in their 2001 book “Creative Destruction,” claim that when communication is lacking, employees change how they perceive their leaders. They don't view the leaders as worthy of following. Instead, employees see them as task-oriented managers who, by some unexplained chance, became leaders.

As the 2018 Army Strategy states, the Army is responsible for deploying, fighting and winning our nation's wars. Being responsible for something or someone requires knowledge. Leaders need to understand their employees and their values to appropriately assess how they can make their organizations better. My review of the literature on emotional intelligence and communication can

FIGURE 1



AREAS OF INTERACTION

Emotional intelligence allows for feedback and establishes clear communication channels—structures that must be in place as the Army undergoes significant changes with the unfolding of its modernization efforts. (Graphic by USAASC and the author)

KEY TERMS

Creative destruction—A process through which something new brings about the demise of whatever existed before it.

Emotional intelligence—The ability to identify and manage one’s own emotions, as well as the emotions of others.

Organizational effectiveness—The concept of how well an organization achieves the outcomes it intends to produce.

shed some light on this issue. For example, can an organization be effective without communication?

To better understand, let’s talk about communication systems for a moment. In 1948, Claude Shannon and Warren Weaver proposed the mathematical theory of communication. Their mathematical linear communication model included only phones and tested several communication channels, which were responsible for distorting the original message. The findings showed that there are hidden messages with vital information that never get to the recipient unless they are decoded—e.g., a decoder for this study could be a cellphone turning

data into readable messages. Although the study model was called the “mother of all communication” models, it did not provide clear answers regarding how to decode hidden messages. It was in 1954 that Wilbur Schramm, in his book “The Process and Effects of Mass Communications,” demonstrated that, in order to decode hidden messages, there must be a human factor involved. He claimed that emotions are key elements required to discover hidden messages in a conversation. Today, Schramm’s theory is the most commonly used communication theory, showing the impossibility of communicating without involving people. Both leaders and followers are responsible for effective communication. Moreover, you

can't effectively communicate without understanding emotions, which leads us to emotional intelligence.

The clarity of the verbal messages is just as important. It is required to understand the purpose and goals of the message, and to keep the workforce motivated. In my experience, when people do not understand why change needs to happen, they resist it. Schramm's theory also demonstrated that communication is a critical part of emotional intelligence. (See Figure 1.)

Communication problems don't apply to leaders only. There are organizations within Army acquisition in which leaders call employees "leaders" regardless of official positions. Inherent in this idea is that everyone is expected to act like a leader.

Army Futures Command headquarters personnel have to embrace cultural change and adopt a more corporate train of thought. As Sgt. Maj. Michael Crosby, Army Futures Command principal enlisted adviser to the commander and staff, said, "Don't get in the box, don't even use a box—get rid of the box." The Army's modernization goals push many outside their comfort zone. So the responsibility to communicate falls on both formal and informal leaders. During the development of the Bradley program, leaders broke upward and downward communication, causing confusion and resistance. Is there a similar trend happening now in your organization? If there is, what do you do about it?

ADJUSTING PERSONALITIES TO CHANGE ARMY CULTURE

As noted, the Army is in the business of protecting, defending and winning. We work hard, day in and day out, to successfully complete our mission. The environment we are in is complex. Changes happen almost too fast to keep up. To embrace the culture of the future, we need to ensure that we avoid the Bradley mishaps by communicating what is significant upward and downward. Reviewing the literature on emotional intelligence, I found that emotional intelligence has to coexist with communication. Emotional intelligence ensures that all leaders, formal and informal, take an active role in the well-being of their organizations through effective relationship-building and based on clear communication. More importantly, if the Army is to effectively modernize, leaders must want to improve their own thinking before they can improve their organizations.

Emotional intelligence points to self-awareness as an important element of the self-improvement process. A leader must first become aware of who he is, then reflect on it, and finally apply this knowledge to make the necessary changes. In a 2019 interview,

Hiring officials should select leaders on the basis of their ability to work effectively with others, and never based solely on their experience. Choosing leaders based primarily on experience or internal politics can result in the loss of valuable assets as well as organizational stability.

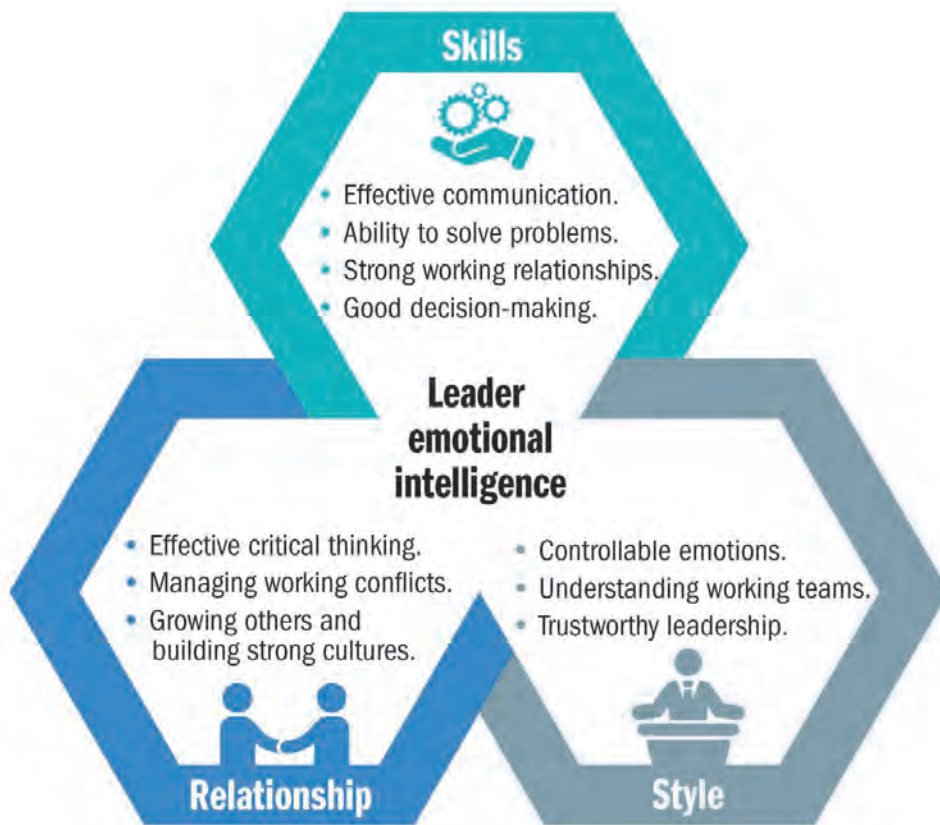
Crosby mentioned that he does not "go to someone who has been in uniform for 20 or 30 years because they think the same." The Army Futures Command is the biggest organizational revolution since 1973, and so must our thinking be to catch up.

So, is emotional intelligence a key component of organizational effectiveness? No, but it is the key component of leader effectiveness. (See Figure 2, Page 70.) In his book "What Makes a Leader," Daniel Goleman found that almost every effective leader has some level of emotional intelligence. This explains why emotional intelligence is significant when addressing change, which is often necessary but never easy.

Change requires communication skills and empathetic behaviors. Think about change in your family. How would you communicate difficult news? Would you just blurt it out, or would you look for ways to reduce tension or pain? Once, a leader who was not my direct supervisor informed me in a quite emotionless way that I was reassigned to a different project. This had a strong impact on trust: It changed my perception of the leaders in my organization, making me see what my leaders were lacking.

The 2020 Army People Strategy states that people are the Army's No. 1 priority. If that's true, why do people often feel like they are the last priority in their organizations? Leaders talk about open

FIGURE 2



THE TRIFECTA

The components of emotional intelligence fall into three categories: skills, style and relationship. Navigating change requires skills in all three areas and can be the difference between an engaged, motivated workforce and an alienated, underperforming one. (Graphic by USAASC and the author)

When communication is lacking, employees don't view the leaders as worthy of following.

communication channels and open-door policies, but what is the open-door policy? Where is the door? Do you trust your leaders enough to communicate a problem? Do you feel like your leaders have already made a decision before you even knocked on their door?

HOW TO MOVE FORWARD

How do we tackle these interrelated problems? For starters, I believe that leaders should talk to their followers and understand what is important to them. Then, rotate their employees internally to roles where they can grow. This way, they can align their organization's objectives with their employees' objectives. Put your table of distribution and allowances aside and think "employees." As a result, people will feel motivated to go above and beyond for their organizations. This is because instead of being stuck in one position, they get the opportunity to prove their skills in other positions within a different branch or division in their organizations.

Also, by doing so, leaders show that they rely more on discovering their existing assets because they try to minimize the disruptive component of creative destruction. For example, when the Army Futures Command stood up cross-functional teams, leaders suddenly reorganized priorities. What was a top priority before became secondary now. There was chaos. Urgent efforts were no longer urgent, and people started to question trust. The hard work of many seemed no longer important. Organizations had to compete for additional funding to support often unreasonable and unachievable goals.

For these reasons, leaders should evaluate whether change is really necessary. It is possible that someone intentionally promotes the development of a new technology to encroach on a competing company's mission or to give the

appearance of innovation. This approach often falsely necessitates hiring outside sources while eliminating internal assets, thus increasing cost. Emotionally intelligent leaders likely will put their people first when new requirements come in and be sure to recognize their hard work.

When Army Futures Command was established, leaders did not always reassign projects effectively and often did so without attention to the real effects these changes had on people. Some leaders did not communicate the benefits of the changes. Suddenly, what was very important was no longer that important. While it was understandable—priorities change—in some cases, a lot of work and money had already gone into efforts that no longer mattered. In discussing these issues with people I work with, it seems that while experience is important, it cannot be the decisive factor when selecting new leaders. The notion that experience makes a leader could not be further from the truth. I have seen formal leaders who were great in managing tasks but poor at influencing others, and informal leaders who affected change but did not get a promotion because they did not have the requisite experience. Just as our thinking needs to change, our hiring process also needs to work “outside of the box” if we are to embrace the new culture.

Hiring officials should select leaders on the basis of their ability to work effectively with others, and never based solely on their experience. Choosing leaders based primarily on experience or internal politics can result in the loss of valuable assets and organizational stability. If we ought to change the way we think, as Crosby envisioned the innovative Army teams able to meet the requirements of the 2019 Army Modernization Strategy, we need to hire “outside the box” and move away from traditional standards dictating who fits and does not fit leadership roles.

If I wanted to summarize my research in one sentence, it would be, “Be responsible for others.” Whatever we do, there is always someone watching us and learning from us. Whether we are the Army’s leaders, acquisition professionals or simply someone in a cubicle, we have to take responsibility for others. It is not easy to place someone in front of yourself. However, isn’t that exactly what we do in the Army? Don’t we all work toward the common goal and do the best for the Soldier? Occasionally we may forget how meaningful our jobs are. So, attempting to meet the complex Army modernization requirements, which require fresh and innovative thinking, and keeping the acquisition workforce motivated enough to contribute its ideas, I want to ask you: What kind of a leader are you? Are you making a difference in your organization or are you just managing tasks?

CONCLUSION

Excessive change will continue as the Army continues to modernize. How effectively leaders address change, and guide their organizations through it, depends on leaders’ emotional intelligence. Emotional intelligence allows for feedback and establishes clear communication channels, which improves organizational effectiveness. The five elements of organizational effectiveness require everyone to take responsibility for themselves and others.

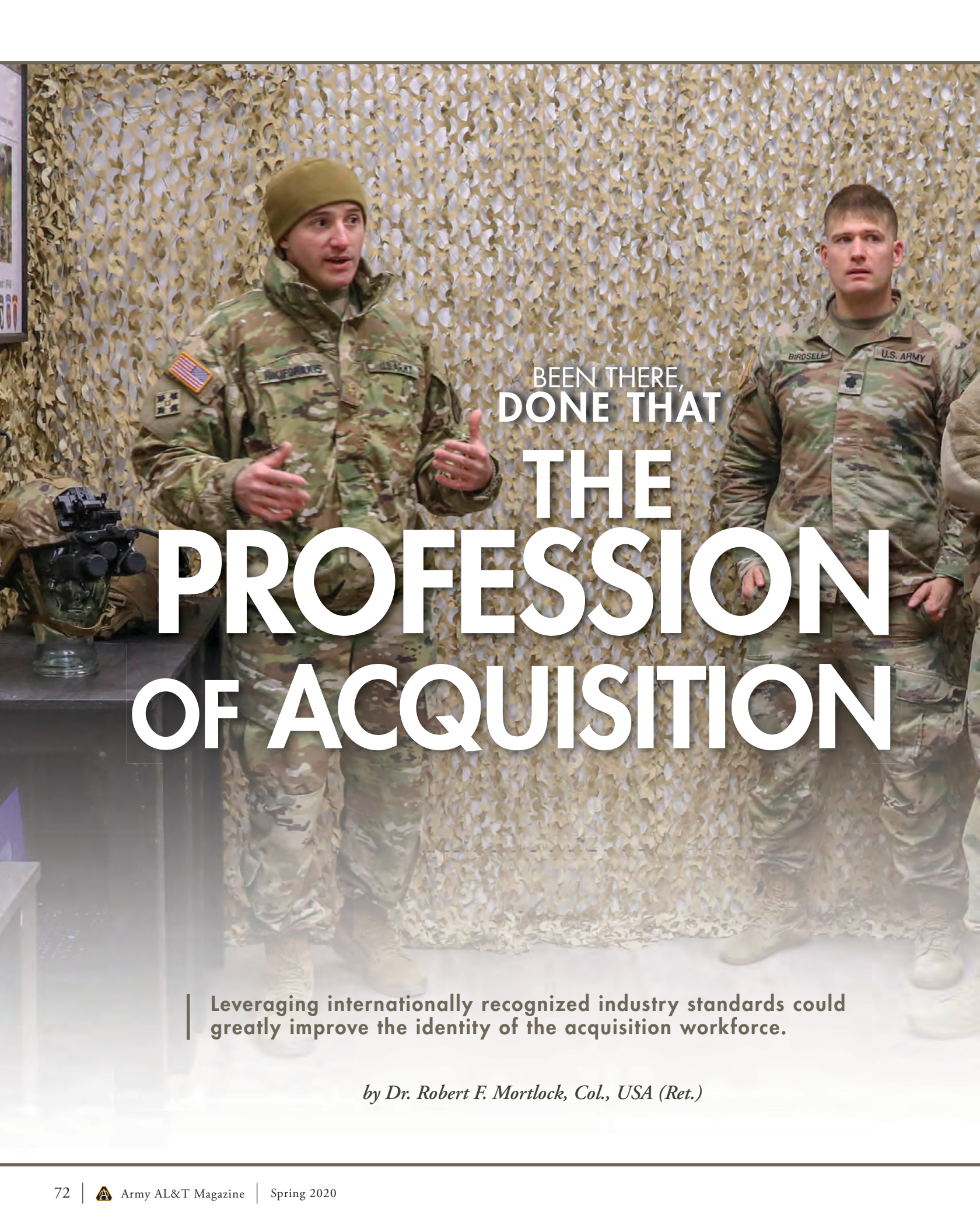
I suggest that leaders consider emotional intelligence training to improve the use of creative destruction and optimize its effects on organizational effectiveness. Managers may want to focus more on influencing others to think outside of the box through motivation and inspiration.

Most importantly, to improve organizational effectiveness, leaders should assess the existing leadership positions and make sure that organizational leaders remain properly aligned and focused.

For more information, contact the author at bozena.berdej.civ@mail.mil.

NOTE: This article is based on the author’s approved doctoral research. Her dissertation, “Leader emotional intelligence as a response to creative destruction and its effects on organizational effectiveness,” closely reflects her people-centered leadership values. The author strongly believes that one cannot become an effective leader without having the desire to grow others. Therefore, the concept of emotional intelligence is, in her view, a critical element in effective leadership. Her extensive research delivers evidence that empathy and social skills are two indispensable facets of emotional intelligence required for building effective organizations.

DR. BOZENA “BONNIE” BERDEJ serves as the senior business management specialist supporting the acquisition team at the Joint Program Executive Office for Armaments and Ammunition at Picatinny Arsenal, New Jersey. She began her government career there in 2009 as a procurement analyst in the Project Management Office for Close Combat Systems, advancing to become the senior business management specialist in the Project Management Office for Conventional Ammunition Systems before assuming her current responsibilities. She holds a doctoral degree in management from University of Maryland University College. A member of the Army Acquisition Corps since 2012, she is Level III certified in program management and in security cooperation, and is Level I certified in business – financial management. She holds a Six Sigma Black Belt certification.



BEEN THERE,
DONE THAT

THE PROFESSION OF ACQUISITION

Leveraging internationally recognized industry standards could greatly improve the identity of the acquisition workforce.

by Dr. Robert F. Mortlock, Col., USA (Ret.)



SOUND ADVICE

Maj. John Nikiforakis, assistant product manager for the Program Executive Office (PEO) for Soldier's Enhanced Night Vision Goggle – Binocular, briefs 1st Infantry Division senior leaders in December at Fort Riley, Kansas. Adoption of PMI certifications would amplify the expertise of acquisition professionals in strategic planning and decision-making. (U.S. Army photo by Timothy M. Ahearn, PEO Soldier)

What's a profession, and not just a job? Most agree that medical doctors, lawyers, teachers, engineers and military officers are members of a profession. Most definitions of profession include work requiring a high level of education, specialized training or knowledge and particular skills, in order to provide a valued service to society in that field. Professions also have established technical and ethical standards that members adhere to; those standards are regularly updated through governing bodies. Some argue that society would cease to exist (or more realistically, cease to function normally) without these professions.

Elements of a profession include accredited education, the acquisition of specialized skills, certification, licensure, continuous professional development, a certified governing society and a code of ethics. For example, military officers are members of the profession of arms—warriors, held to high standards of conduct as they protect and defend the society they serve.

One of the most important results of the 1990 Defense Acquisition Workforce Improvement Act (DAWIA), besides the establishment of Defense Acquisition University (DAU), was to lay the foundation for professional career fields within defense acquisition. Over the three decades since, the professionalism of the acquisition workforce has solidified and continues to improve. DOD and the services have continued to make significant investments prioritizing the education and training of acquisition workforce members.

Today, the acquisition workforce across DOD totals more than 150,000 dedicated government civilians and uniformed personnel. The establishment of the Defense Acquisition Workforce

Development Fund in 2008 to help improve and sustain the quality of the workforce demonstrates a commitment by Congress and DOD to the education and training of acquisition professionals.

Despite this progress, acquisition (specifically program management) is not considered a profession in the eyes of most outside the acquisition workforce, as is evident in senior leaders' lack of trust and respect for acquisition professionals. Often to the detriment of long-term acquisition effectiveness, senior leaders fail to recognize the importance of advice from acquisition professionals and to capitalize on the expertise of acquisition professionals

in strategic planning and decision-making. It may just take more time—more than three decades after DAWIA, in fact—to fully establish a defense acquisition profession of the same stature as the medical, legal or teaching profession.

In the meantime, I propose a major upgrade in the standards of conduct for the acquisition profession, in line with one of the key principles of recognition as a profession in society. This article focuses

specifically on the certification requirements for the program management career field—both civilian and military, as with DAWIA.

PRIVATE-SECTOR STATUS




The military does not establish separate professional certification requirements for its medical doctors and lawyers. Just like their counterparts practicing medicine in the civilian world, medical doctors within the military have to be board-certified. Similarly, military lawyers must pass a state bar exam to practice law. Program managers (PMs) within DOD, however, are not required to earn professional certifications in project, product, program or portfolio management.

DAU does provide outstanding training courses in program management, most of which are rooted in fundamental project management concepts. But DOD is not leveraging project management fundamentals the way industry does by requiring PMs to earn private-sector professional certifications. The credibility of the acquisition profession would benefit if DOD integrated these certifications into its training and education of the acquisition workforce.

In 2019, the Project Management Institute (PMI) turned 50. It is globally recognized as the world's leading association for project, program and portfolio management professionals. PMI establishes standards and offers certifications in each of those three areas, based on knowledge and competency. The certifications are, in ascending order, project management professional (PMP), program management professional (PgMP) and portfolio management professional (PfMP). (See Figure 1.) Over 960,000 individuals have earned the PMP certification, just over 2,700 have earned the PgMP, and a little over 760 hold the PfMP.

**Leading
change is
never easy.**

FIGURE 1

	EDUCATION REQUIREMENTS	MANAGEMENT EXPERIENCE	ACQUIRING CERTIFICATION
 <p>PROJECT MANAGEMENT PROFESSIONAL (PMP)</p>	A secondary or undergraduate degree and specialized 35-hour project management education course.	A minimum of three years with an undergraduate degree (up to five years with a secondary degree), with 4,500 to 7,500 hours spent directing projects.	<p>A four-hour test with 200 multiple-choice questions.</p> <p><i>SUGGESTION:</i> Should be part of DAWIA Level I certification for project management.</p>
 <p>PROGRAM MANAGEMENT PROFESSIONAL (PgMP)</p>	A secondary or undergraduate degree.	A minimum of four years of project management experience, and four years of program management experience with an undergraduate degree (up to seven years' experience with a secondary degree), having directed programs involving at least two projects.	<p>A four-hour exam featuring 170 multiple-choice questions.</p> <p><i>SUGGESTION:</i> Should be part of DAWIA Level II certification for project management.</p>
 <p>PORTFOLIO MANAGEMENT PROFESSIONAL (PfMP)</p>	A secondary or undergraduate degree.	Professional business experience (a minimum of eight years) and portfolio management experience (four to seven years).	<p>A four-hour exam featuring 170 multiple-choice questions.</p> <p><i>SUGGESTION:</i> Should be part of DAWIA Level III certification for project management.</p>

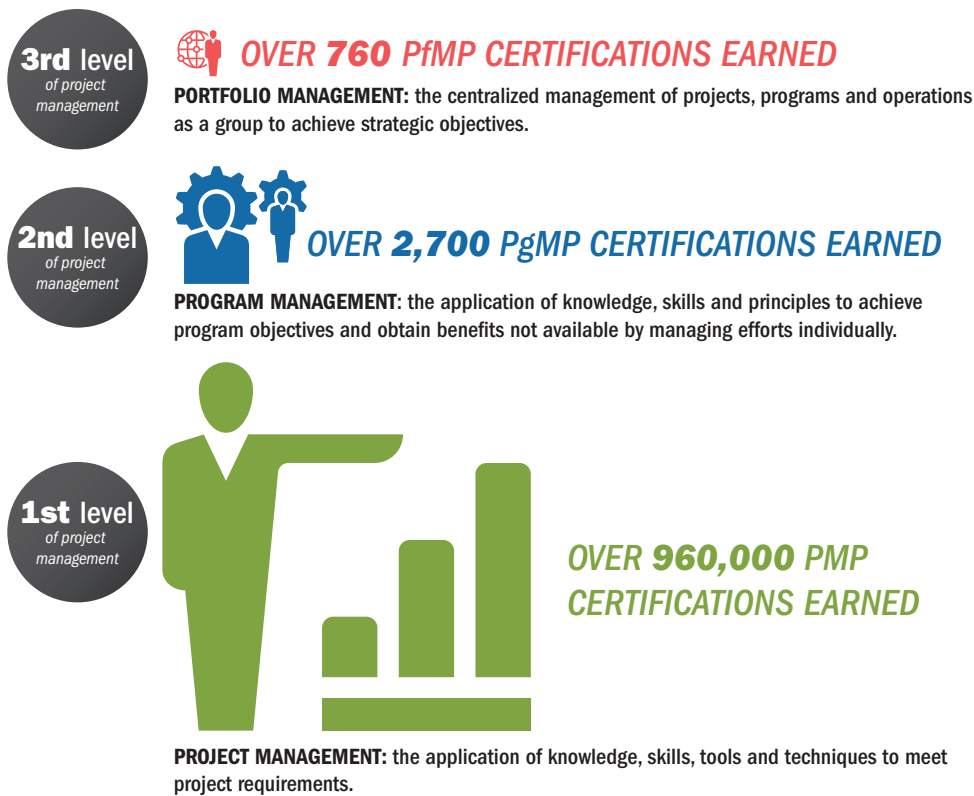
ADAPT AND ADVANCE

Integrating Project Management Institute certifications into DAWIA requirements would enhance the credibility of DOD acquisition professionals. (Graphic by U.S. Army Acquisition Support Center (USAASC))

Integrating these internationally recognized designations into the existing DAWIA certification levels for the program management career field would enhance the professionalism of the acquisition workforce. PMI finds that besides the prestige factor and the associated benefits of more effective management of projects, programs and portfolios, these certifications result in increased opportunities, responsibilities and pay.

It's important to understand how project, project management, program management and portfolio management are defined in the Project Management Body of Knowledge, the Standard for Program Management and the Standard for Portfolio Management established by PMI and endorsed by the American National Standards Institute. (See Figure 2, Page 76.)

FIGURE 2



LEVELING THE BARS

Junior acquisition workforce members earning the PM Level I credential have one year of experience with cost, schedule and performance responsibilities. They are generally working at the project level and would benefit from learning and applying project management fundamentals and earning the PMP credential. Intermediate members of the PM career field, who have at least two years of experience managing cost, schedule and performance in the PM field, would benefit from learning and applying the fundamentals of program management and earning the PgMP credential. And finally, the more seasoned members of the PM career field, who must have at least four years of experience to be PM Level III certified and usually are transitioning into portfolio management, would benefit from learning and applying the fundamentals of portfolio management and earning the PfMP credential.

The PMP, PgMP and PfMP certifications align not only with the three levels of DAWIA certifications but also with the typical DOD acquisition management hierarchy. Each of the services has program executive offices (PEOs), which already represent portfolios—groups of projects, programs or operations that are centrally managed. It’s important not only for the PEO to have the PfMP certification but also for members of the PEO staff. Furthermore, PEOs usually comprise multiple program management offices (PMOs), each led by a program manager supported by the PMO staff. The PM and PMO staff would benefit from earning the PgMP certification. Finally, the PMO typically also has subordinate product offices led by a product manager and supported by project officers. The product managers and project officers would benefit from earning the PMP certification.

GLOBAL STANDARD

The Project Management Institute, recognized as the world’s leading association for project, program and portfolio management professionals, establishes standards and offers certifications in those three areas. (Graphic by USAASC)

A *project* is a temporary endeavor to create a unique product, service or results, and *project management* is the application of knowledge, skills, tools and techniques to meet project requirements. At a higher level is *program management*—the application of knowledge, skills and principles to achieve program objectives and obtain benefits not available by managing efforts individually. At the highest level is *portfolio management*—the centralized management of projects, programs and operations as a group to achieve strategic objectives.

Currently, the PM career field within the acquisition profession has training, education and experience requirements for Levels I, II and III. I propose that PM Level I include earning the PMP credential, PM Level II the PgMP credential, and PM Level III the PfMP credential. The tiers of increased scope, responsibility and experience associated with project, program and portfolio management already align with DAWIA PM Levels I, II and III.

CONCLUSION

Leading change is never easy. The integration of PMP, PgMP and PfMP credentials into DAWIA PM certification levels may meet with resistance from current senior leaders and some acquisition professionals because of a preference for the status quo. A paradigm shift is necessary with regard to the DOD acquisition community to realize that commercial industry values and rewards these professional certifications in the mastery of management fundamentals. Likewise, senior leaders have the power to make the changes proposed here to increase the professionalism of the acquisition workforce.

The goal of acquisition is to deliver warfighter capabilities effectively and efficiently. Increasing the standards for the workforce to include private-sector professional certifications would create a cadre of acquisition warriors that the warfighter and senior DOD leaders can depend on to maintain our technological advantages on modern battlefields. Capable program management speeds the delivery of required capability to the warfighter through leadership and with competent, effective acquisition, business and technical management—resulting in increased combat effectiveness on the battlefield.

Currently, leaders do not value the input of acquisition professionals mostly because they don't recognize acquisition as a profession. The adoption of PMP, PgMP and PfMP credentials into DAWIA certification requirements would help build trust between acquisition professionals and senior leaders and warfighters. Then maybe DOD senior leaders outside the acquisition workforce will recognize the important contributions that acquisition professionals make to deliver capabilities to the warfighter.

DR. ROBERT F. MORTLOCK, COL., USA (RET.), managed defense systems development and acquisition efforts for the last 15 of his 27 years in the U.S. Army. He's now a professor of the practice, teaching defense acquisition and program management in the Graduate School of Defense Management at the Naval Postgraduate School in Monterey, California. He holds a Ph.D. in chemical engineering from the University of California, Berkeley, an MBA from Webster University, an M.S. in national resource strategy from the Industrial College of the Armed Forces and a B.S. in chemical engineering from Lehigh University. He holds DAWIA Level III certifications in program management, test and evaluation, and engineering, as well as the Project Management Professional and Program Management Professional credentials.

UNITED STATES ARMY
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A one-stop shop for all of your acquisition career needs.

The Army DACM Office supports the career goals of the Army Acquisition Workforce. Looking for more information on career development and educational opportunities? Go to asc.army.mil and click on the icon that represents you—officer, NCO or civilian.

CIVILIAN
OFFICER
NCO



MODERNIZING THE WORKFORCE

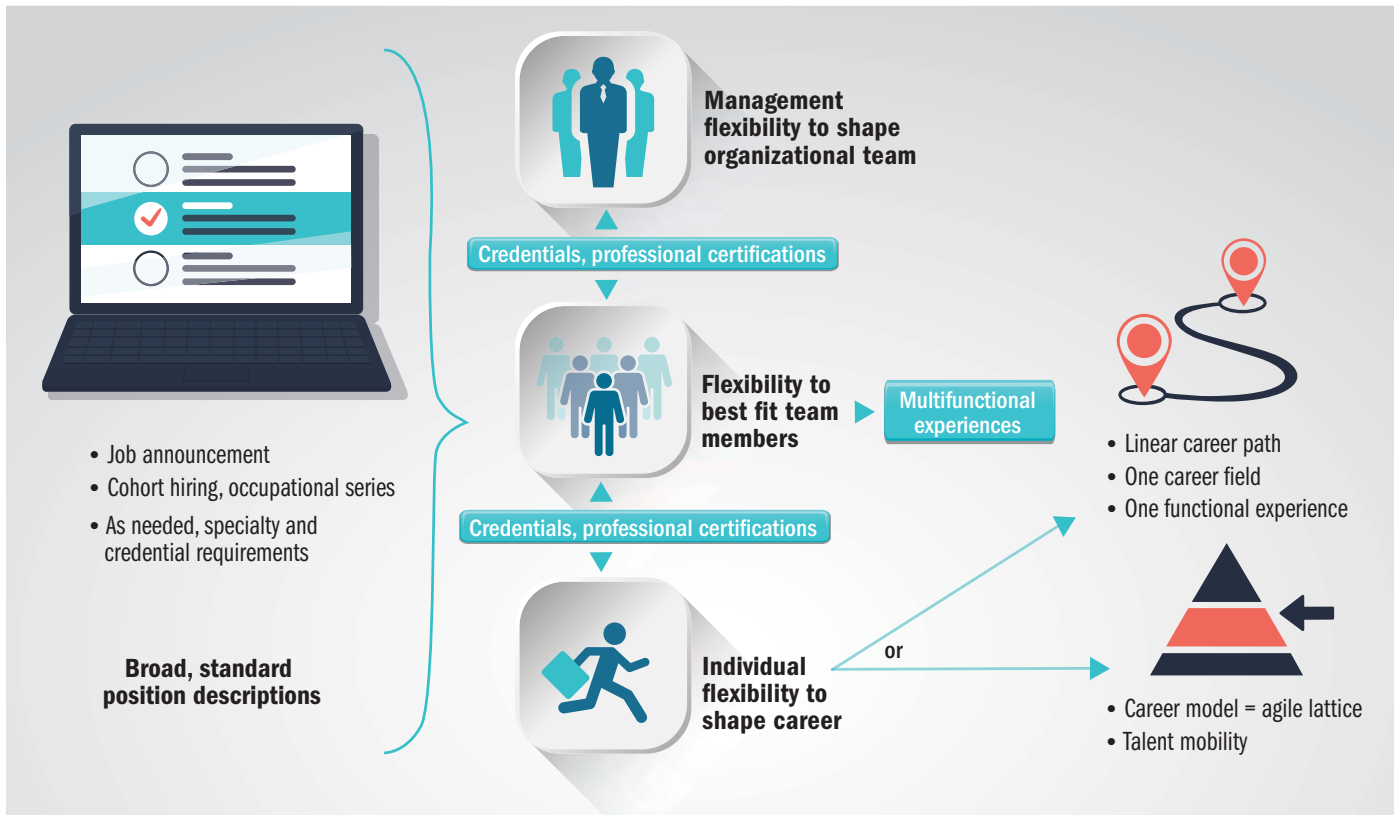
Modernizing the Army means modernizing acquisition.

Significant change is coming to the defense acquisition workforce as we shift from an industrial-age to a more digital-age focus. Change is most difficult when people do not understand what they stand to gain from it.

The precise shape of the change to come has not yet been decided. The goal is a modernized framework for the Army Acquisition Workforce that empowers acquisition leaders and the workforce to become vastly flexible, agile and mobile. Organizations will need to operationalize agile acquisition at both the organization level and, for employees, at the tactical level. The most important benefit to the workforce of the coming changes is the shift from a one-size-fits-all system of training and certification toward a system that can be tailored to varied performance needs across jobs or assignments.

MODIFIED TRAINING AND EDUCATION

The existing construct of the defense acquisition workforce will evolve in multiple ways. It is likely that some of the current 14 acquisition career fields (13 in the Army) will be discontinued. The Level I, II and III certification process of the Defense Acquisition Workforce Improvement Act (DAWIA) will likely undergo significant modification. Streamlined universal training will be completed early in an employee's career, to be followed by on-demand and job-specific training and credentialing as needed, as well as careerlong learning and development with easily accessible refresher training. The idea will be to leverage high-impact training and development that supports lifelong learning.



AGILITY MEANS MORE CHOICES

A new, agile framework for the Army Acquisition Workforce promises much greater flexibility and mobility at all levels of an organization, from hiring throughout workforce members’ careers. (Graphic by U.S. Army Acquisition Support Center)

The Army functional community will be key in developing competencies associated with apprentice, journeyman and expert levels for identified positions. Supervisors, as well as other leaders within commands, will be central to identifying which on-demand, job-specific training and credentialing will be needed for acquisition members within their ranks.

We’re trying to create a more agile, less boundary-laden acquisition workforce. Our talent management and career development processes need to change much more rapidly with the times, and be more creative and unique than they have in the past. As we move away from one size fits all, training and development need to be creatively applied to the individual to ensure relevance to current needs.

Acquisition is a complicated profession. We’re trying to solve complex problems. In 1985, the Packard Commission and a DOD

review found that the acquisition workforce was undertrained and inexperienced. DAWIA was enacted in 1990 to establish education and training standards for the defense acquisition workforce. Having built a strong foundation, it’s now time for an extensive upgrade. Today’s environment requires acquisition professionals to perform duties that cut across multiple acquisition career fields.

FOCUS ON SUPERVISORS

Career management and career development are very personal. Everybody in the Army Acquisition Workforce has an individual development plan, constructed by an employee in concert with their supervisor to determine not only what needs to be done to succeed at today’s job, but also what the employee needs to do over the next three to five years to prepare for success at the next level.

As we move toward more decentralized career management, supervisors will be key to tracking and managing employees.

The most important benefit to the workforce of the coming changes is the shift from a one-size-fits-all system of training and certification toward a system that can be tailored to varied performance needs across jobs or assignments.

Supervisors will have an even greater responsibility to identify what each of their employees needs—what training, which specific skills and credentials—in order to be successful.

While we have given a lot of opportunities to the individual employee, we have also made a tremendous effort at making supervisors as good at their craft as we possibly can. Those efforts will pay off for us now; we have to have a network of committed and dedicated supervisors who understand their roles and responsibilities. It will be up to supervisors to identify the “point-of-need” competency requirements when developing a team to manage a program. Do team members need new learning or other training, for example, to remain current in their skill sets and knowledge?

We’re obviously asking a lot of our supervisors, which means our selection of who becomes a supervisor becomes even more important. It’s fairly straightforward to look at a potential supervisor’s set of experiences and see if they’ve had the right kinds of jobs to be technically competent. But determining whether they’re going to

be a good leader of people is much more difficult.

That’s why many of our top programs use the Senior Rater Potential Evaluation (SRPE), which measures not performance, but potential. Of vital importance to anyone who wants to be a program manager in the civilian acquisition workforce, the SRPE is a tool allowing a selection board to look at a historical set of evaluations of an employee’s potential. It gives the board insight into an individual’s strengths and their potential to perform in a leadership capacity.

What we ask of our supervisors is only going to increase. To build that pipeline of future supervisors and provide the opportunity for potential supervisors to perform at higher levels, organizations can offer short-term experience working at a higher level or in rotational assignments, with the chance to demonstrate competence and capacity to perform in a new area.


Giving someone a rotational opportunity that’s relatively low risk enables them to do what you’d be asking them to do if you

were to hire or promote them. And you get the chance to see them in action. You get to see them apply their skills and develop a degree of confidence that they’re ready for the next step.

The Army Director for Acquisition Career Management Office offers advanced leadership development courses like the Acquisition Leadership Challenge Program, the Defense Acquisition University – Senior Service College Fellowship, the Defense Civilian Emerging Leader Program, Inspiring and Developing Excellence in Acquisition Leaders, Senior Enterprise Talent Management/Enterprise Talent Management, the Emerging Enterprise Leader program and the Professional Development Series offered by the Army Acquisition Center of Excellence.

CONCLUSION

Since DAWIA’s inception 30 years ago, the Army has spent a lot of money to create a highly trained, skilled and talented workforce. That investment has paid off. But maintaining a static position will not allow us to compete on a global scale in today’s environment. We are in a very complex world with adversaries that aren’t playing by the same rules we do. If we are to provide the Army and our Soldiers the greatest capabilities possible, ones that exceed those of our adversaries, we have to invest in the future. We cannot remain static, because our adversaries aren’t remaining static.

The talent that we have is the critical piece that allows us to be successful, so we spend a lot of time and effort to understand to the best of our ability the data associated with what we know and what we don’t know, and we use that data to make smart decisions to create a better future for our acquisition workforce. 

DATA SUPPORTS TRAINING

The Army DACM Office's supervisor competency assessment results help justify targeted training.

by Jacqueline M. Hames

Knowing the capabilities of your workforce is key in managing employee talent—it allows you to see their strengths, as well as areas for improvement, and provides a framework to see what training will be needed in the future. But how do you find out what capabilities your workforce possesses? Through a competency assessment, of course!

The Army Director for Acquisition Career Management (DACM) Office conducted a two-part workforce competency assessment between 2017 and 2019. The 2017 fiscal year (FY) Acquisition Workforce Career Development Assessment—Part 1—surveyed the entire Army Acquisition Workforce to determine which training would increase its leadership and technical competencies. The results of Part 1 of the assessment told the DACM Office how important skill was to the employee's position, the amount of time an employee spent developing a skill, and the employee's understanding of that skill—for each of the acquisition career fields. The DACM Office then compared that information for each career field to the Office of the Secretary of Defense's Acquisition Workforce Qualification Initiative, a tool that's used to identify specific gaps in job experience, allow for identification of on-the-job developmental opportunities and capture demonstrated acquisition experience.

Part 2, the fiscal year 2019 Army Acquisition Workforce Competency Assessment – Supervisor Feedback, captured data on workforce competencies as assessed by acquisition employees' supervisors. The fiscal year 2019 assessment marked the first time that common AAW technical competencies had been identified and rated.

UNIVERSAL COMPETENCIES

"[In] March of 2019, we started down the path of drafting and conducting a competency assessment for both leadership and functional competencies to validate the competency assessment we did in FY17," said Jason Pitts, chief of the Acquisition Workforce Proponency Branch. The fiscal year 2019 assessment surveyed both acquisition and non-acquisition supervisors—about 12,000

people—and asked questions similar to the fiscal year 2017 assessment on leadership, functional competencies and competencies common among all 14 career fields, he said. Of the 12,000 people surveyed for the fiscal year 2019 assessment, roughly 3,000, or 24.8 percent of them, responded.

The fiscal year 2019 assessment’s objectives were to identify the strengths and training needs of the AAW, inform and improve human capital planning initiatives to develop the workforce, and gather information for decision-makers and stakeholders in planning for professional development. The report on the assessment’s results will be shared with supervisors and senior acquisition leaders across the community.

Jerry Baird, an analyst with the Acquisition Workforce Propensity Branch, explained that before the fiscal year 2019 assessment was launched, the DACM Office conducted focus groups with various stakeholders from the fiscal year 2017 assessment. The focus groups helped determine the six universal competencies common among the career fields, which are:

- **Critical thinking:** The ability to analyze situations and make sound decisions that are most effective.
- **Writing and communication:** The ability to translate concepts into comprehensive guidance that is actionable and easy to understand.
- **Decision-making:** The ability to make critical and rapid decisions and to respond in a methodical and effective way when quick action is required.
- **Planning and analysis – integration:** The ability to understand how product support management activities lead, integrate, impact and trade among other functional activities required for that particular product.
- **Risk management:** The ability to create and implement risk management plans and apply risk management throughout the total life cycle of a program.
- **Acquisition strategy and planning analysis:** The ability to collect technical inputs, including cost, schedule and financial information; to identify program problems; and to propose mitigation plans.

“Every competency was rated in two ways: First, how important did they think it was on a scale of one to five? Second, how proficient did they think the people they supervise, specifically their acquisition workforce members, were in that competency?” Baird said. “So, each competency had two lenses: importance and proficiency.” A gap was deemed to exist “if something was

important, but the proficiency was lower than the importance rating,” Baird said.

QUANTIFIABLE DATA

Both competency assessments are aligned with the DACM Office’s Human Capital Strategic Plan and the Army’s People Strategy to improve workforce development and further the Army’s goal of talent management. “While talent management is about the entire human resource life cycle—acquire, develop, employ and retain—we feel this effort can help organizational leaders identify leadership- and acquisition-specific developmental focus areas,” Pitts said.

The DACM Office hopes to provide supervisors and senior acquisition leaders better insight into their organizations with the fiscal year 2019 Supervisor Competency Assessment report. “All we tried to do was arm them with a few leadership and functional competency gaps that are quantified with data,” Pitts said. “This allows them to create strategic IDPs [individual development plans], for example, to target their gaps.”

The assessment also enables the DACM Office, which manages the Defense Acquisition Workforce Development Account (formerly the Defense Acquisition Workforce Development Fund), to prioritize the 1,300 submissions received every fiscal year, he said. It provided quantifiable data to validate the decisions of senior acquisition leaders across the community and the DACM Office’s priorities, before the Army committed resources to specific submissions.

“If there’s a gap, and it’s important, divisions or commands need to make sure their training opportunities are geared at filling those gaps,” Pitts said.

For more information, go to <https://asc.army.mil/web/hcsp/>.

JACQUELINE M. HAMES is an editor with Army AL&T magazine. She holds a B.A. in creative writing from Christopher Newport University. She has more than 12 years of experience writing and editing news and feature articles for publication.

WHAT YOU NEED TO KNOW

The 2019 competency assessment that went out to AAW supervisors captured their perspectives on the competencies necessary for optimal leadership and technical understanding of acquisition programs, among other demands of AAW careers. (Graphic courtesy of the DACM Office)

2019 ARMY ACQUISITION WORKFORCE (AAW) COMPETENCY ASSESSMENT - SUPERVISOR FEEDBACK



YOUR DEVELOPMENT IS IMPORTANT!

The Army DACM Office conducted an assessment in August and September 2019 with supervisors of acquisition professionals to:

- Identify and understand gaps in leadership and technical competencies required for peak job performance.
- Inform future AAW human capital planning and investment.

24.8%
RESPONSE RATE



2,953 RESPONDENTS ACROSS
ACQUISITION AND NON-ACQUISITION SUPERVISORS



14 ACQUISITION CAREER FIELDS



10 LEADERSHIP COMPETENCIES IN ORDER OF IMPORTANCE



6 NEWLY IDENTIFIED AND MEASURED TECHNICAL COMPETENCIES FROM FOCUS GROUPS AND STAKEHOLDERS IN ORDER OF IMPORTANCE

-  CRITICAL THINKING
-  WRITING AND COMMUNICATION
-  DECISION-MAKING
-  PLANNING AND ANALYSIS INTEGRATION
-  RISK MANAGEMENT
-  ACQUISITION STRATEGY PLANNING AND ANALYSIS

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LOOK AT IT THIS WAY

As a DIU HACQer, the author had the opportunity to contribute to efforts targeting some of the most pressing capability challenges the U.S. military faces. "I couldn't believe I was actually a part of the DIU team," she said. (Image by Laguna Design/Getty Images)

'HACQing' for Defense

An acquisition professional recounts her eye-opening four-month assignment at the Defense Innovation Unit in California's Silicon Valley.

by Rajal Ganatra

One morning in December 2018, an email arrived in my inbox with the subject, "Applications Now Open: Defense Innovation Unit (DIU) – Hacking Acquisition (HACQer) Program." The four-month developmental assignment sounded interesting, but as soon as I saw the location—Mountain View, California—I closed the email. I work in the Warfighter Deployed Medical Systems Project Management Office of the U.S. Army Medical Materiel Development Activity (USAMMDA), at Fort Detrick, Maryland, and have a family.

That evening, I told my husband about the developmental opportunity. He looked up DIU, was struck by its focus on artificial intelligence and machine learning, and said it seemed to be an awesome assignment. "It's in California," I said. Still, he was supportive.

After a day or two, I opened the email again. The deadline was in two weeks, so I started writing my letter of intent. By the weekend, I had a first draft. Meanwhile, I sent an email to my supervisor, telling her that I was interested in applying for this temporary duty assignment, and asked if she would ask my senior rater to write an endorsement letter for me.

When DIU extended the application deadline—and offered an option to submit a project proposal or problem statement—I put together a project proposal for a medical device that's not only an Army requirement but a joint service requirement. Finally, I felt my application was ready, and submitted it after the Christmas holiday. I was nervous, excited and relieved that it was done.

THE SPEED OF RELEVANCE

Even the selection for this assignment went at commercial speed: Less than a week after the application period closed, I received an email that DIU wanted to arrange a telephone interview the following week. As I prepared for the interview, I noticed that DIU used LinkedIn quite a bit to post articles on its portfolios, other-transaction authority and other topics, as well as to post current solicitations—which is unusual for a defense agency.

My interview was lively and interactive, and our conversation lasted for almost an hour. In less than a week, I received the email saying I'd been selected. I almost jumped out of my chair! I read it over and over again before I finally forwarded it to my husband.

I flew out early on Monday, April 14, to the San Jose, California, airport. The DIU office is in a small building owned by the Army Reserve Office and right next to NASA's Ames Research Center.

Denzil Thomas, a fellow within the cohort, escorted me to the office, which had three conference rooms—"Arpanet," "GPS" and "Duct Tape"—equipped with full video teleconferencing capability and used primarily for vendor visits, pitches and demonstrations. After that, Denzil took me through the second secured door to where the DIU staff sits.

The office setup was an open floor plan, no cubes. There was only one dedicated office, for the DIU director; everyone else found an open space around one of the tables, booths or sofas,

wherever they felt comfortable. There were seven conference rooms, one of which was equipped with a massage chair. There were also three noiseproof telephone booths with USB ports and wall outlets. The setup was totally different from a typical federal office—high-tech, and more like something you'd see at a startup company.

Within a half-hour of my arrival, I received a sleek MacBook Air and a Common Access Card activated for secure entrance through the DIU's doors. That was one of the fastest in-processing times I've ever seen!

I was then introduced to the acquisition pathways director, Maj. David Rothzeit, who had interviewed me for this assignment, and his team. I asked what the normal office hours were. Flexible, he said, depending on the workload. If there were deadlines to meet, people usually worked until late in the evening and on the weekend, too. I was really taken aback when he said that for today, because it might have been a long day for me so far, I could leave and go settle in at my apartment.

JUST THE FIRST WEEK

DIU uses a web application called Asana to organize, track and manage the tasks. The app also featured a list of training sessions to familiarize us with the way DIU functions, which is totally different from other federal agencies. DIU uses web applications for day-to-day activities, like Asana, Google Hangout, Google Drive and Google Docs. What I found particularly interesting, however, was that DIU uses other-transaction authority rather than contracts based on the Federal Acquisition Regulation (FAR) to award contracts at commercial speed.

One of the biggest differences I noticed in the office was that military employees didn't wear uniforms, except at all-hands



VITAL SIGNS OF POTENTIAL

Research psychologist Lt. Jenna Jewell and research physiologist Lt. Travis Doggett monitor aircrew vital signs during flight patterns in the Fluctuating Altitude Simulation Technology system in January 2019 at the Navy Experimental Diving Unit in Panama City, Florida. Development of prototypes for a physiological monitor was one of the DIU projects the author was involved in during her assignment. (Photo by Anthony Powers, Naval Surface Warfare Center Panama City Division)

meetings. Later, I found out that, in the earlier days of the organization, vendors couldn't make out the rank from the uniform and were afraid to use the wrong rank. This same philosophy—"When in Rome, do as the Romans do"—serves to lower the barrier to entry and to invite innovative, nontraditional companies to work with DOD.

In my first week at DIU, David provided training on the fundamentals of other-transaction authority, program manager best practices, commercial solutions openings and statements of work. That same week, we also had an opportunity to go to Stanford University in Palo Alto to listen to pitches from students involved in the Hacking for Defense (H4D) program. H4D is an initiative by the National Security Innovation Network to present research universities with military problems for professors, veterans and students to work on. During the pitch session,

professors grilled the students to identify ideas with potential for a prototype.

A PRESCIENT PROPOSAL

Right before starting my assignment, I'd submitted a project proposal on using artificial intelligence for predictive maintenance of medical devices, in response to a request from Joint Artificial Intelligence Center (JAIC) National Mission Initiatives. As the workshop was to be held in Virginia, just a week after I arrived at DIU, I participated by teleconference.

However, David had introduced me to the product managers of the artificial intelligence and machine learning portfolio, who were going to be at the JAIC follow-on workshop. I talked with them about my project, and they introduced me to another DIU colleague, a data scientist working on predictive maintenance for Air Force aircraft. We talked at length, and his questions helped me learn more

about the intent of the idea I was presenting in my slide—more than I knew at the time of submission.

When the DIU product managers came back from the JAIC workshop, they told me they really liked my proposal and suggested that we could start to work on it while I was at DIU. The first and foremost task was to collect the maintenance data for them to evaluate, and then come to a conclusion on whether we had enough data to develop an artificial intelligence algorithm. I gathered data with the help of two experts from the U.S. Army Medical Materiel Agency, and I consolidated the information and provided it to the DIU product managers. (We are still working on the project, and I'm confident that we are moving in the right direction toward a solution.)

ALMOST FAMOUS

During my third week, something even more interesting happened. A FedScoop article published the names of the 2019 DIU HACQer cohort, which totaled eight of us, selected out of 80 applicants. I was almost famous! That week, we were invited to attend the Defense Innovation Board's public listening session on artificial intelligence ethics at Stanford University. Along with being nearly famous and attending the public meetings, I began networking within DIU and was introduced to one of the product managers from the human systems portfolio. At that time, he was working on the physiological monitor project. (See "In Search of Solutions.")

At the time I joined, DIU had just awarded a contract to selected vendors to develop individual prototypes based on the problem statement for the physiological monitor. Only a week later, DIU arranged a meeting with the customer and one of the vendors to

IN SEARCH OF SOLUTIONS

During my time at DIU, I was involved in several projects very different from my typical work as an assistant product manager in USAMMDA's Warfighter Deployed Medical Systems Project Management Office:

Physiological monitor—Naval Air Systems Command wanted to monitor neural, respiratory, circulatory and other physiological functions of airmen in the operational environment, for enhanced individual awareness and more actionable information to support better planning by military decision-makers.

Predictive medicine—DIU leveraged a provision in Title 10 Section 2373 of the U.S. Code called "quick acquisition for experimentation, research and testing," for which the unit wrote the contract to purchase a small number of augmented reality microscopes. Augmented reality enables real-time image analysis and presentation of the results of machine-learning algorithms directly into the field of view. These machine learning-enabled microscopes, as well as an upgrade kit for the existing microscopes, were for experiments to determine whether the enhanced microscope's deep-learning algorithm could assist pathologists and other medical professionals in diagnosing certain disease states, and to evaluate the impact on pathologist workflow.

Cybersecurity deception—The cybersecurity deception solicitation focused on detecting and alerting unauthorized access or breaches to the deception layer, which is created specifically to deceive an attacker. The intent is to engage the attacker to inform further study of tools, tactics and procedures, and to allow for centrally managed or autonomous manipulation and monitoring of post-breach actions.



INQUIRING MINDS

The author, center right, with Maj. David Rothzeid, right, acquisition pathways director, and fellow members of the 2019 DIU HACQer cohort: from left, Denzil Thomas, Jaylene Carteret and Steve Rapp, on screen. (Photo courtesy of the author)

MULTIPLE PATHS TO 'RAPID'

DIU leverages several kinds of vehicles for innovative projects—prototype other transactions (10 U.S. Code Section 2371(b)); production other transactions (10 U.S. Code Section 2371(f)); and experimentation procurement projects (10 U.S. Code Section 2373). DIU developed the commercial solutions opening process for competitive evaluation of prototype projects from nontraditional vendors.

The process includes:

Phase 0: Posting the solicitation or areas of interest for a minimum of 7–21 days.

Phase 1: Evaluating solution briefs, which may be either a five-page white paper or 15-page slide deck, received from the prospective vendors for initial selection.

Phase 2: Inviting selected companies from Phase 1 to make pitches in person or via Google Hangout. After the final down-select that follows, the draft statement of work is prepared with DIU, Army Contracting Command – New Jersey, the DOD customer and the vendor company during the same meeting (either by phone or in person, if practical) to agree upon expectations for the statement of work and other transaction authority.

Phase 3: A request for pilot proposal is sent to the selected vendor to trigger submission of the proposal. The submitted proposal includes terms and conditions, statement of work and payment milestones.

develop the statement of work, and I was asked to be part of that team.

Also during my first month, I had the opportunity to review and provide comments to the due diligence document for Synthetic Molecular Biological Agent and tactical augmented reality projects. The work was really engaging and enlightening, and I couldn't believe I was actually a part of the DIU team.

MAKING CONNECTIONS

During my second month, I was introduced to a product manager at DIU's Boston office who ran the critical supplies delivery program in the field. That manager asked me to talk to my home organization about this project and bring them on board if they were interested in improving field delivery of medical supplies.

At the same time, I met with DIU's health systems portfolio director to discuss two capability gaps: a product for hemorrhage detection and a multichannel intravenous infusion pump. The director asked me to contact the product manager at USAMMDA to find out if they would be willing to use DIU to facilitate finding product prototypes. During this time, I was surprised to learn that DIU provided its services to DOD, and some other federal agencies on behalf of DOD, without charge.

I wanted to share this with my own organization, so I reached out to the U.S. Army Medical Research and Development Command's Office of the Principal Assistant for Acquisition. She invited DIU representatives and the DIU HACQers to Fort Detrick to give a presentation on other-transaction authority and commercial solutions opening processes. A commercial solutions opening refers to a merit-based, competitive evaluation process to award prototype projects



DOUBLE DUTY

DIU's Mountain View, California, office is in a small building that houses the headquarters of the U.S. Army Reserve's 351st Civil Affairs Command. (Photo courtesy of the author)



RIGHT AT HOME

The author shows her children one of DIU's high-tech independent teleconference booths during a visit from her family to the DIU facility in Mountain View. (Photo courtesy of the author)



NOT A CUBICLE IN SIGHT

With its largely open floor plan, the choice of where to work, and high-tech amenities such as noiseproof telephone booths with USB ports and wall outlets, DIU's setup differs greatly from a typical federal office. (Photo courtesy of the author)

under other-transaction authority to best-of-breed commercial companies that may otherwise not work with DOD. (See "Multiple paths to 'rapid.'")

The entire process of writing the terms and conditions, determination and findings documents, and issuing the letter of contemplation—a narrative of the intent—took less than 45 days. This option was as an extremely cost-effective method, providing the government with the opportunity to purchase small quantities of newly developed commercial off-the-shelf technology to be tested for suitability and reliability. At DIU, we coordinated teleconferences with pathology departments at military hospitals to find participants for this experiment. It all gave me a sense of achievement that I was contributing to a very important project at DIU.

But we were having fun, too.

On the last Thursday of each month, the DIU team went to NASA Ames Research Center's Space Bar for drinks and networking, and one Friday we went to a cafe in Shoreline Park near the Googleplex, Google's corporate headquarters. On that particular Friday, I realized that

my time at DIU was ending in just one short month.

HEADING FOR HOME

That morning, I had noticed that one of the solicitations related to the cybersecurity portfolio was closing, so I approached David, the acquisition pathways director, and asked to participate in the source selection. I was stepping out of my comfort zone, but as I neared the end of my time at DIU, I wanted to get as much hands-on experience as possible with the commercial solutions opening.

David agreed, and for a week, I helped vet solution briefs against the criteria stated in the offering, sending out the merit proposals and inviting the vendors for an in-person pitch to the DIU team. I also provided support to complete evaluation forms and write non-selection letters for those who didn't make the cut, while also helping develop the statement of work with the winner and DOD customer to submit it for a full written proposal. During the entire process, from advertising the areas of interest on the DIU website through the request for proposals, the contracting team worked hand in hand with DIU to ensure that the timeline did not exceed 120 days.

I wished that I had enough time at DIU to witness the award of the project, but my assignment came to a close before that happened. I had felt like I was working in the most enriched environment I'd ever experienced. Every day was an opportunity to learn something valuable.

It was a bittersweet moment when I left DIU on Aug. 16—bitter because it was my last day at DIU, and sweet that I was going home to a reunion with my family.

For more information on DIU, go to <https://diu.mil>. For more information on USAMMDA, go to <https://www.usammda.army.mil>.

RAJAL GANATRA is a DA civilian working as an assistant product manager at USAMMDA at Fort Detrick. She holds an M.S. in biotechnology from the University of Maryland University College and a B.S. in chemical engineering from Dharamsinh Desai University. A member of the Army Acquisition Corps, she is Level III certified in systems engineering and Level II certified in program management.



COL. DAVID WARNICK

COMMAND/ORGANIZATION:

Joint Attack Munition Systems Project Office, Program Executive Office for Missiles and Space

TITLE: Project manager

YEARS OF SERVICE IN WORKFORCE: 17

YEARS OF MILITARY SERVICE: 27

DAWIA CERTIFICATIONS:

Level III in program management

EDUCATION:

MBA, Naval Postgraduate School; Master of Strategic Studies, Air War College; B.S. in management and systems engineering, United States Military Academy at West Point

AWARDS: Defense Acquisition Workforce Individual Achievement Award for Program Management; Meritorious Service Medal (four oak leaf clusters); Army Commendation Medal; Army Achievement Medal; Army Aviator Badge

THE SQUEAKY WHEEL GETS THE ACQUISITION CAREER

Nearly 20 years ago, then-Capt. David Warnick was finishing his troop command as an aviation officer and a Kiowa Warrior pilot and was “not necessarily impressed with the direction of the platform.” Research into how modernization and improvements took place led him to the Acquisition Corps. “After talking with some mentors, I felt this would be a great way to apply my aviation background and ensure that future pilots had platforms that brought the greatest capability to the battlefield.”

Warnick—now a colonel—has had a dynamic career since then, starting as assistant program manager in the Aviation Rockets and Missiles Product Office and the Close Combat Weapon Systems Project Office within the Program Executive Office (PEO) for Missiles and Space; then serving as a warranted contracting officer at Fort Drum, New York; a Department of the Army systems coordinator in Washington; as executive officer for the deputy for acquisition and systems management in the Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology; and eventually returning to PEO Missiles and Space in July 2016 to serve in his current role: project manager for the Joint Attack Munition Systems (JAMS) Project Office.

“Our office is responsible for designing, developing and delivering air-to-ground munition systems that over time have been adapted to be fired from a variety of platforms for employment against a wide range of target sets,” Warnick said. The office’s Hellfire missiles and Hydra rockets, along with their associated launcher systems, have been used extensively in current overseas contingency operations, and the Joint Air-to-Ground Missile (JAGM) has recently been fielded for use in multidomain operations. “We are very proud of the long history of our programs and the efforts we have taken to extend that legacy, and we continue to provide safe, reliable and effective munitions,” he said.

“I am truly blessed to have the greatest job in the Army. It has given me the opportunity to work with some of the most dedicated and caring professionals you will ever find,” Warnick added. “They are an incredibly gifted and talented group, but what separates them from other organizations is their cohesiveness and genuine concern for the warfighters they support and for each other.”

Given the number and variety of platforms that Warnick’s office oversees, it’s not surprising that he considers stakeholder management to be the most challenging aspect of his job. “I have a portfolio of products with a variety of end users from all U.S. services, numerous foreign partners, multiple platforms with unique integration requirements, and our extensive supply chain of industry partners,” he said. He advocates and supports decision-making at the appropriate levels for product managers and functional leadership as a way to address that challenge. “I am



THAT'S MY JAMS

Warnick and the other members of the JAMS Project Office. (Photo by Henry S. Norton, Cruise Missile Defense Systems Project Office)

fortunate to work with great leadership in those positions, and they make it possible to keep the organization and our product lines on track," he added.

What would he look for if he were hiring someone for his position? "First and foremost, I would like to keep my job," he said. "It is the most rewarding position imaginable, with a critical mission, and incredible people executing challenging tasks. Unfortunately, I know I can't stay here forever. The skills most important for my successor to possess are the ability to empower subordinates, followed closely by patience. It is difficult but necessary to fully empower subordinates, but with clearly defined left and right limits to operate within," he said. "Patience is also key while processes are being refined to optimize to the establishment of [the U.S.] Army Futures Command."

"You should never do anything that compromises your own integrity, and you should demand the same from your peers

and subordinates," Warnick said. "I tell my team that if we provide good information to leaders and they make bad decisions, sleep well. The alternatives of providing misleading information to get what we believe is the right decision, or providing incomplete information, leads to an uninformed decision and compromises our integrity, and that should never be done."

Late in 2019, Warnick received the Defense Acquisition Workforce Individual Achievement Award for Project Management for his accomplishments on several fronts. He led efforts to ensure that the JAGM program earned a successful milestone C decision in June 2018 and achieved initial operational capability in March 2019. Joint testing for the missile was completed in May 2019. The JAGM will eventually replace the TOW and Hellfire missile families. Additionally, Warnick oversaw increases in production for the Hellfire missile in response to increased demand, and led efforts within

the Aviation Rockets and Small Guided Munitions Product Office to cut costs and enhance the reliability and capability of the Hydra-70 Rocket System and Small Guided Munitions.

"I was very surprised when the [award] announcement was made," Warnick said. "There are so many high-profile efforts going on across the DOD, and even though I'd put my team up against anyone, I know there were many excellent contenders for the award.

"I am honored to have been selected for this very prestigious award, and appreciative of the recognition it has brought to our office and the accomplishments of our amazing team," he added. "The past few years have been extremely challenging, and for the most senior acquisition leaders to acknowledge the effort and sacrifices made by our office to support the warfighter is very humbling."

—SUSAN L. FOLLETT

RIGHT RESOURCES, RIGHT TIME

Supervisors of Army Acquisition Workforce professionals get the resources they need in the new supervisor readiness portal.

by Jacqueline M. Hames

Anywhere there is work, there is a need for resources. Construction workers need blueprints and materials; warfighters need arms and ammunition; and office professionals need training and office supplies. You get the idea—if you want to do a job, you need to have ready access to the right information and materials.

Supervisors of Army Acquisition Workforce (AAW) professionals have quite a number of resources at their fingertips on the website of the U.S. Army Acquisition Support Center’s Army Director, Acquisition Career Management (DACM) Office—but information specifically for them is in many different places. That’s why the folks in the Army DACM Office are developing a supervisor readiness portal on the DACM Office website that compiles information, guides and other resources into a one-stop shop for supervisors of AAW professionals.

“Supervisor readiness is one of the top-priority strategic initiatives with regard to the AAW HCSP [Human Capital Strategic Plan], specifically in Goal 4, which is employee engagement,” said Norm Hilton, chief of the AAW Engagement Branch within the Army DACM Office. Goal 4 specifically is focused on improving AAW engagement to advance a sense of purpose, dedication, persistence, effort and commitment to the acquisition mission, the organization and the acquisition profession. Hilton and the AAW Human Capital Strategic Plan Council want to know what will best help supervisors provide solid career and leader development advice to AAW professionals. To find out what that is, Hilton stood up an integrated product team (IPT), which identified subject advisers outside of the Army DACM Office who can provide advice and guidance from organizations across the acquisition enterprise.

“That IPT gets after ... the things we want to develop and provide to supervisors of acquisition workforce members: What are the kinds of tools that we want to have readily available to better help them manage their workforce?” Hilton said.

The IPT is staffed with civilian and military professionals from across the AAW, “so we have a pretty experienced group of folks, a pretty senior group of folks” ensuring that the portal contains useful supervisory information, said Gary McKenna, an acquisition career manager with the Army DACM Office and the IPT lead.



STRONGER, TOGETHER

A new online portal developed by the DACM Office will enhance supervisor skills and strengthen the relationship between supervisors and the AAW professionals whose careers they have a hand in developing. (Images by the U.S. Army Acquisition Support Center)



TAKE A CLOSER LOOK

The supervisor readiness portal that the Army DACM Office is developing aims to be a one-stop shop for supervisors of AAW professionals.

ACCORDING TO PLAN

If you're not familiar with the AAW Human Capital Strategic Plan, its intent is to provide a commitment to the acquisition profession by supporting every acquisition professional, from recruitment to retirement, with the tools and systems, effective communication products and personnel support they'll need. Supervisor readiness, or Goal 4.2a within the plan, further educates supervisors on current acquisition practices, improves communication and engagement between supervisors and members, and enhances AAW professional development.

The goal of Hilton and his team is to have a supervisor's corner on the website in 2020. It will feature helpful links, articles and quick reference guides to many different things, such as how to write an individual development plan, how to support the accumulation of continuous learning

points and how to conduct a senior rater potential evaluation. These evaluations in particular generate a lot of questions from the field, Hilton said—specifically from supervisors asking about the process and how to use it. The quick reference guide will help to explain that process.

However, Hilton emphasized that the point of the portal is not to teach supervisors. "We're not trying to teach our leaders," he said. The intent is to equip supervisors of acquisition professionals with the tools and resources they may need during their tenure. The Army DACM Office may develop targeted training later, but that's a goal one or two years down the road.

"The Army already provides supervisor courses for individuals. But we are talking about, at some point, developing or piloting a course for supervisors of acquisition professionals. Whether that's a 1½-

a two-day type of course, it would be a Supervisor 101 type of deal, where they can go in and get all of the training and development required of a supervisor of acquisition professionals," Hilton said.

INFORMATION FOR SUCCESS

The information portal will also be a place to house tips, tricks and reminders for supervisors. "I envision a monthly article" that might explain organizational acquisition points of contact, acquisition career management advocates or reminders about upcoming senior rater potential evaluations, McKenna said. "I could see an article on the portal saying: 'Hey, supervisors, it's not too late, you need to start reviewing your IDPs, your individual development plans, to make sure your supervisor chain is aligned correctly,' and all the rest of it, instead of crunching in September when [the evaluation] is about to execute."

Above all, the portal will "provide supervisors with the information they need to better manage their employees and better communicate with their employees," McKenna said. Giving supervisors access to the right resources when they need them is important. Hilton and McKenna believe this portal will not only enhance supervisors' skills, but also will ultimately enhance the relationship between the supervisor and the AAW professional.

For more information about the portal, or to provide feedback, contact Gary McKenna at gary.m.mckenna.civ@mail.mil.

JACQUELINE M. HAMES is an editor with Army AL&T magazine. She holds a B.A. in creative writing from Christopher Newport University. She has more than 12 years of experience writing and editing news and feature articles for publication.



FROM BOSS TO SPONGE TO AWARD CEREMONY

“**T**he Acquisition Corps doesn’t have all the guns and the glory, but we know that the work we’re doing helps Soldiers get the job done, get back to base safely, and recharge before they head out for their next mission,” said Maj. Eugene Choi. “I’m glad to be a part of that.”

Choi, formerly an armor officer, came to acquisition five years ago. “During my cavalry troop command, I applied to join the Army Acquisition Corps because I believed that my experience on three major armored platforms—Abrams, Bradley and Stryker—would benefit the Acquisition Corps when it comes to research and development or program management of future combat vehicle systems,” he said.

The transition to acquisition “exceeded my expectations,” Choi said. “I’ve been blown away by the expertise, professionalism and knowledge of the officers, noncommissioned officers and DA civilians I’ve met, and I’m grateful for the training and support they’ve provided in developing solutions for the warfighter. I’ve told my active-duty friends as well as my civilian friends: Acquisition has a wealth of job opportunities—for civilians and for Soldiers after they leave active duty.”

Choi’s first acquisition position was as a contract specialist in the Warfighter Support Center within the Army Contracting Command – New Jersey (ACC-NJ) at Fort Dix. “I went from being a boss to being a sponge. Although I was a captain promotable, I felt like a lieutenant again, trying to learn a whole new world of jargon, policies and regulations,” he said. He relied on group managers and contracting officers to coach him in the technical field of contracting, as well as contracting “battle buddies”—newly promoted GS-11s who helped him with questions and contracting system troubleshooting. “Without that ‘it takes a village’ mentality of mentoring and coaching, I would not have been able to learn as much as I did at ACC-NJ,” he said.

Starting in October 2017, Choi led and managed the 683rd Contingency Contracting Team within the 414th Contracting Support Brigade (CSB), providing contingency contracting administrative services for the Logistics Civil Augmentation Program (LOGCAP) Task Order 14 contract at 16 sites in seven African countries. His team supported several named operations, multinational exercises and requirements for the Combined Joint Task Force – Horn of Africa, Air Forces Africa, U.S. Special Operations Command Africa and U.S. Army Africa. In September 2018, he deployed to Iraq in support of Operation Inherent Resolve, serving as the lead administrative contracting officer for the LOGCAP Task Order 7 contract in the 408th CSB.

Providing contingency contracting in Africa before deploying to Iraq “paid dividends because I already knew and understood LOGCAP, quality assurance and change management,” Choi said, and he had established working relationships with the program office and the contracting officers at Army Contracting Command –

MAJ. EUGENE CHOI

COMMAND/ORGANIZATION:

U.S. Army Contracting Command

TITLE: Team leader/contracting officer

YEARS OF SERVICE IN WORKFORCE: 5

YEARS OF MILITARY SERVICE: 14

DAWIA CERTIFICATIONS:

Level II in contracting

EDUCATION: M.S. in systems engineering management, Naval Postgraduate School (expected in June 2021); B.S. in international relations, United States Military Academy at West Point

AWARDS: Defense Acquisition Workforce Individual Achievement Award for Acquisition in an Expeditionary Environment; Army Contracting Command – Contingency Contracting Officer Award; Bronze Star Medal; Meritorious Service Medal (three oak leaf clusters [OLCs]); Army Commendation Medal (three OLCs); Army Achievement Medal (four OLCs); Ranger Tab; Airborne Badge



SUPPORT REWARDED

Choi, center, receives the Contingency Contracting Officer Award in November from Brig. Gen. William M. Boruff, deputy commanding general of U.S. Army Contracting Command, for his achievements as a warranted contracting officer in Iraq supporting LOGCAP. From left are Jim Ward, deputy to the commander of the 414th CSB; Col. Phillip Smallwood, 414th CSB commander; Choi; Boruff; and Command Sgt. Maj. Larry Metcalf, 414th CSB command sergeant major. (Photo by Ana Rios, 414th CSB)

Rock Island (ACC-RI), Illinois. “The experience I gained managing the multi-agency contingency contracting team in a much faster-paced combat zone prepared me to become a better contracting officer and leader in the future,” he added.

“‘Trust, but verify’ was our team’s motto in Iraq,” Choi said. “Although the LOGCAP contractor is a strategic partner, we were there to check the quality of their work to ensure they were adhering to all terms and conditions of the contract. It’s also a great motto to live by when exercising mission command. There’s so much going on each day, and every leader needs to be able to trust their subordinates and contracting officer representatives to accomplish the mission. However, the leader also needs to manage their time to follow up, double-check and conduct inspections and investigations, to ensure that all policies

and procedures are met while upholding the highest standards of excellence.”

As a result of his efforts, Choi received the Defense Acquisition Workforce Individual Achievement Award for Acquisition in an Expeditionary Environment in October 2019. “The award means a great deal to me,” he said. “It represents the sacrifices and hard work of my contingency contracting services team of Soldiers, Airmen and civilians with the Defense Contract Management Agency; and our partnerships with Stephanie Brown, the procurement contracting officer, and her team at ACC-RI, and Patrick Rowe, senior LOGCAP professional for Task Order 7, and his team. The support and leadership I received from my battalion and brigade commanders were crucial to our success as well. Lastly, and most importantly, it represents the sacrifices that our families

made while we were deployed. Their support was invaluable.”

Choi received the award at a ceremony at the Pentagon, accompanied by his father, who emigrated to the U.S. from Korea. It was the elder Choi’s first trip to Washington, and it was his 80th birthday. “It was so meaningful for me to share that event with him, especially since he and my mom sacrificed so much and worked so hard for me. I’m so grateful for everything this country has given me and my family.”

Choi is currently at the Naval Postgraduate School (NPS), halfway through a new Army acquisition-oriented program in which he’ll earn a master’s degree in systems engineering management. “I would highly recommend it to anyone,” he said. In the 18-month program, participants earn Level III equivalencies in program management, contracting and systems engineering, and Level II certification in test and evaluation. Officers also earn credit as captains promotable and majors for their Intermediate Level Education, and can pursue other professional certifications while at NPS.

The NPS program “is a great way to get all those certifications at once,” Choi said, “and the instructors at NPS all have federal acquisition experience, so you get a unique viewpoint. Our discussions, our coursework and the people here provide a DOD-wide perspective of defense acquisition, and I don’t think I would have gotten that if I pursued an MBA or other advanced degree somewhere else. This degree will definitely make me a better acquisition officer, and will prepare all my classmates to be successful contracting officers and program managers as well.”

—SUSAN L. FOLLETT

ON THE MOVE



PROGRAM EXECUTIVE OFFICE FOR AVIATION

1: CHANGE OF CHARTER AT PEO AVIATION

Patrick Mason, right, accepted the charter of the Program Executive Office for Aviation from **Dr. Bruce D. Jette**, assistant secretary of the Army for acquisition, logistics and technology, during a ceremony Jan. 14 at Redstone Arsenal, Alabama. Mason replaces **Maj. Gen. Thomas H. Todd III**, who served as program executive officer from January 2017 to January 2020.

Mason, who retired from the Army in 2016 with more than 30 years of uniformed service, was sworn in to the Senior Executive Service in June 2017. Before becoming program executive officer, Mason served as the deputy program executive officer and senior civilian under Todd.

Over the course of his 30-year military career, Todd has served in PEO Aviation for 23 years and through six ranks. Jette presented Todd with the Legion of Merit award during the change-of-charter ceremony. Todd's predecessor, **Maj. Gen. William T. "Tim" Crosby**, USA (Ret.) presented Todd with the Honorable Order of Saint Michael Gold Award from the Army Aviation Association of America (AAAA). Todd's next assignment is as deputy commander of the Combined Security Transition Command – Afghanistan. (Photos by Denise DeMonia, PEO Aviation)





PROGRAM EXECUTIVE OFFICE FOR COMMAND, CONTROL AND COMMUNICATIONS – TACTICAL

2: TACTICAL NETWORK STANDS UP NEW OFFICE

Lt. Col. Natasha Coleman accepted the charter of the new Product Lead for Unified Network Capabilities and Integration during a ceremony hosted by **Col. Shane Taylor**, project manager for Tactical Network (PM TN), Jan. 24 at Aberdeen Proving Ground, Maryland.

Coleman previously served as an assistant product manager for the Commander’s Risk Reduction Dashboard, the Deployed Theater Accountability System and the Tactical Personnel System in the Program Executive Office for Enterprise Information Systems (PEO EIS), and as an acquisition assignments officer at the National Guard Bureau.

The new product office in the Program Executive Office for Command, Control and Communications – Tactical consolidates tactical network integration efforts for current, evolving and future capabilities across PM TN’s portfolio and broader Army modernization efforts. It will support the integration of line-of-sight and beyond-line-of-sight tactical network transport systems, as well as evolving tactical network architectures.

As part of its responsibilities, the organization will also manage the program capabilities of the Sustainment Tactical Network (STN). Legacy STN systems, which transferred to PM TN from PEO EIS in October 2019, support the Army’s logistics community and currently run over a commercial network architecture. The new organization is tasked with modernizing and integrating STN into the tactical network architecture, as part of phase two of the Army’s transport convergence efforts. (U.S. Army photo by Lynn Harkins, PM TN)

3: NEW HOME FOR MILTECH SOLUTIONS

The Program Executive Office (PEO) for Enterprise Information Systems became the office of primary responsibility for the Product Lead for Military Technical (MilTech) Solutions, as part of an effort to align the organization’s services to enterprise network resources. MilTech Solutions will transition from the PEO for Command, Control and Communications – Tactical, effective April 1.

The move represents a change in organizational alignment only; there will be no impact to current MilTech services. The transition will be completed by Sept. 30. (Photo by Harris Siegel, Product Lead for MilTech Solutions)

PROGRAM EXECUTIVE OFFICE FOR MISSILES AND SPACE

4: CCWS PROJECT DIRECTOR RETIRES

Dean Barten, project director in the Close Combat Weapon Systems (CCWS) Project Office within the Program Executive Office (PEO) for Missiles and Space, retired Dec. 31, capping a career that spanned more than 35 years of service as a Soldier and civilian. During a Jan. 7 retirement celebration at Redstone Arsenal, Alabama, Barten received the Army Meritorious Civilian Service Medal, induction into the Order of Saint Maurice and a flag flown over the U.S. Capitol.

As the project director for CCWS, Barten managed the product offices for Javelin; the Tube-Launched, Optically Tracked Wireless Missile; Rapid Capability Products; and the Improved Bradley Acquisition Subsystem. Barten also served as chief of staff for PEO Missiles and Space; product manager for the Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System; and product director for Small Unmanned Air Vehicles in PEO Aviation's Unmanned Aircraft Systems Project Office. Before his Army civilian assignments, he was a flight test engineer at the Naval Air Warfare Center at Patuxent River, Maryland.

Barten served 7½ years on Army active duty, during which he earned the rank of captain. He also served more than 15 years in the U.S. Army Reserve, retiring in 2003 as a chief warrant officer 3. (Photo courtesy of PEO Missiles and Space)

5: NEW LEADER FOR HELLFIRE OFFICE

Lt. Col. Christopher P. Hill assumed responsibility of the Hellfire Product Office within the Tactical Aviation and Ground Munitions (TAGM) Project Office from **Patrick V. Miller**, acting product manager, during

a ceremony Dec. 12 at Redstone Arsenal marking the standup of the Air-to-Ground Missile Systems Product Office. (Photo by Gloria Bell, TAGM Project Office)

ARMY OFFICER PROMOTIONS AND CIVILIAN APPOINTMENT

The chief of staff of the Army announced the following officer promotions to the ranks indicated below:

Maj. Gen. Robert A. Rasch Jr., currently serving as program executive officer for Missiles and Space at Redstone Arsenal, Alabama.

Maj. Gen. Kenneth T. Royar, currently serving as commanding general, U.S. Army Aviation and Missile Command, Redstone Arsenal, Alabama.

Brig. Gen. John L. Rafferty Jr., currently serving as director, Long Range Precision Fires Cross-Functional Team, Fort Sill, Oklahoma.

The Civilian Senior Leader Management Office announced the following appointment:

Kathryn Yurkanin to the Senior Executive Service and principal deputy in the Office of the Chief Legislative Liaison, Office of the Assistant Secretary of the Army for Acquisition, Logistics and Technology.





QUIZ SHOW

As the new decade begins, we look back at predictions about what Army acquisition would look like in 2020.

We as a species are uniquely able to collaborate, communicate and dream the future that we want to make. But, as the saying goes, the future looks a lot like the past. The hard part of predicting the future is understanding what to pay attention to in the past.

Army AL&T has been publishing since 1960, which gives us a substantial archive to browse. We did so with an eye toward creating a quiz to start the new decade (even if you're of the opinion that the new decade doesn't begin until 2021). As a species, we seem to be more hopeful about the long term than the short. Things looked more hopeful for 2020 in 2000 and earlier. We now have multidomain warfare, but AirLand Battle was multidomain (and a more descriptive name). The saying goes that every good idea needs to be reinvented.

Remember Joint Vision 2020 and the Global Information Grid? Remember the Objective Force? How about Future Combat Systems and Brigade Combat Team Modernization? They're all in the past, and yet, who would argue that multidomain warfare isn't network-centric warfare?

In predicting the future, our predecessors in Army acquisition were as spectacularly right as they were wrong. What's

most evident in looking back at the last 50 to 60 years of Army AL&T is how the same issues and themes arise again and again. Cost overruns. The need to modernize. The need to professionalize and continue to professionalize the acquisition workforce. The quest for new and innovative technologies. The need somehow not to treat the Soldier as a "Christmas tree," as then-Col. Bruce D. Jette and Bill Brower wrote in the magazine in 1998. The desire to somehow institutionalize innovation. The thirst for more and more energy. The tension between technology development and program management. The sense that we are in danger of falling behind our rivals and losing our technological edge. The need for reform. And, of course, crippling bureaucracy.

All of the answers to the quiz are based on content from Army AL&T and its predecessor publications, Army Research and Development, Army RD&A Bulletin and Army RD&A (the name changed each time the name of the office for the Army acquisition executive changed).

One of our witty acquisition colleagues here at the U.S. Army Acquisition Support Center dubbed 2020 "the year of hindsight." And so, a brief quiz on Army acquisition history.

THE QUIZ

1 Starting in about 1985, the Army was fully invested in something called MANPRINT, which was written up in the magazine several times. What was it? (MANPRINT was an acronym, of course, short for “management and personnel integration,” which really doesn’t provide much of a clue.)

- A.** The integration of management with rank-and-file employees.
- B.** A process that imposes human factors, manpower, personnel and training considerations across the entire materiel acquisition process.
- C.** A form of biometrics that never fully matured before being abandoned.
- D.** A full-body equivalent of a fingerprint.

Answer: B. The MANPRINT program was intended to live up to what Gen. Creighton Abrams, Army chief of staff, said about equipping Soldiers: “The difference between us and the U.S. Air Force is that they man equipment and the Army equips men.” It was, according to the author, Col. John Tragesser, the forerunner of “people are our most important resource.” MANPRINT was going to provide the Army of 2020 the materiel it needed. By 2003, the concept had been narrowed to “human/system interaction.”

2 When did the first Army artificial intelligence system come online, based on mentions in this magazine?

- A.** 1997
- B.** 1967
- C.** 1987
- D.** 2007

Answer: B. The Human Resources Research Office of George Washington University, which was the Army’s principal training research agency and was terminated in 1975, launched project IMPACT—an acronym for the tortured name of the program, Instructional Model Prototypes Attainable in Computerized Training—in 1967 (roughly). The project was “intended to incorporate proven principles of the learning process into a single

pattern or model” and was expected to be of “vast significance to the education community as well as to its primary beneficiaries—Army personnel seeking advanced skills.” Another program, PLATO (Programed [sic] Logic for Automatic Operations), which Army RD&A wrote about in 1965 and was later profiled in the early 1970s as an offshoot of IMPACT, morphed into a “proprietary mainframe based training system marketed by Control Data Corp.,” which supported MALOS-QDX (Quick Decision Exercise), a training system that used PLATO.

The Army will always train, and always look for ways to do it more effectively and efficiently.

3 Army Futures Command’s Soldier Lethality Cross-Functional Team recently announced Soldier Centered Design. What other efforts to make “the Soldier the Centerpiece” has the Army undertaken?

- A.** MANPRINT
- B.** Soldier as a system
- C.** Human factors engineering
- D.** All of the above.

Answer: D. An article in the May-June 1991 issue of Army RD&A Bulletin extolled the use of MANPRINT in the development of the Patriot Air Defense Artillery System. The authors, John R. Erickson and Gary L. Kurtz, wrote that “The HEL [the U.S. Army Human Engineering Lab, not high-energy laser] facilities and their mission funding posture provided a bridge over fluctuations in project funding caused by normal technological perturbation in the program. This led to major contribution to the air defense community, which included the development of the first simulation of the operating console for Patriot and the application of [human factors engineering] to the total Patriot system.”

The Soldier-as-a-system concept first appeared in the magazine in the November-December 1992 issue, in an article by Dr. Madeline Swann about “The Soldier As A System (SAAS) Symposium/Exposition,” an event held by the U.S. Army Materiel Command that drew “more than 700 attendees from government and private industry.” Six foreign governments also sent

representatives—Japan, Great Britain, Spain, Australia, South Korea and Israel. The January-February 2000 issue noted that “COL Bruce Jette, PM Soldier, and COL Henry L. Kinnison, TRADOC Systems Manager for the Soldier, received special MANPRINT Achievement Awards for their work in refining and clarifying the requirements for the Land Warrior System.”

4 Power—whether that means gasoline, kerosene, batteries, natural gas, electricity generation or even food—has always been a factor in the success of the Army. That is especially true in remote and austere locations. The MH-1A was intended to help with that. What was it?

- A.** The first mobile, shipborne solar panel farm, which generated approximately 3 megawatts of power.
- B.** A ship designed to harvest wave energy from the ocean waves, which was said to be ahead of its time and ultimately failed.
- C.** A World War II-era ship with its propulsion system removed and replaced with a nuclear reactor sufficient to power thousands of homes.
- D.** An award-winning technology from the 1960s that converted waste paper to glucose.

Answer: C. The Army contracted for the MH-1A Sturgis in 1961 and accepted the shipborne nuclear reactor, built into a Liberty class ship from World War II, in 1967. At that time, it was moored in Gunston Cove at Fort Belvoir, Virginia, near the SM-1, the land-based electricity-generating nuclear reactor once used for Army nuclear training at Fort Belvoir. The Sturgis had its propulsion system removed and was essentially a barge. The power plant traveled to the Panama Canal to help make up for electricity shortages, where it remained until the mid-1970s until it was towed back to Fort Belvoir to be denuclearized and deactivated. Disposal of the ship was finally completed in 2019. There was a program in the 1960s that turned waste paper to glucose, but it wasn't the MH-1A.

5 The Army killed the mule in the summer of 2011—that is, it killed the MULE program (Multifunction Utility Logistics and Equipment vehicle). That MULE was one of the systems within the Future Combat Systems. It just killed another one—more accurately, it decided to recompete for the squad multi-purpose equipment transport vehicle. Still, the idea of a mule vehicle continues with the Next Generation Combat

Vehicle program. “The Army has long desired a robotic mule,” noted a National Defense Magazine article on Jan. 8.

Despite having killed at least one, the Army still likes mules. Which of the following was not among the Army's mules?

- A.** The Gama Goat
- B.** Actual mules
- C.** The Modular Universal Laser Equipment (MULE) program
- D.** The M274 Mule
- E.** All of the above.

Answer: A. The Gama Goat—a six-wheeled articulated vehicle named for the inventor of the articulated joint that enabled it (Gamaunt) and its sure-footed mountain goat-like performance in rough terrain—was a vehicle in its own right. Actual mules are about as surefooted as goats but better at hauling. Maybe that's why they're used in the Grand Canyon.

The M274 was a mule, but not an actual one. It was developed by Willys, the same folks who gave us the original Jeep, and it not only could be ridden like a truck, the steering wheel could be flipped over, as an article in the magazine in 1988 about Yuma Proving Ground (YPG), Arizona, noted. “In the 1960s YPG tested an Army and Marine Corps cargo hauler propelled by a ‘20-mule-power’ air-cooled cylinder engine. It could be driven from a hard little seat, or after flipping the steering wheel around, from the ground when the terrain was too rough to ride.” That's according to the author, Fran Northon, who was the Automotive Systems Engineering Section chief from October 1983 to May 1988 at YPG. He mentions a fair number of other interesting concepts demonstrated at YPG, which included 130-pound bulletproof tires that achieved their ballistic protection with some kind of foam. As Northon tells it, the tires seriously altered a vehicle's handling, turning the wheels into gyroscopes. During the Apollo program era, the M274 was considered as a potential vehicle platform for the lunar rover in the Army Vehicle Lunarization Study, released in April 1966.

The laser program was an outlier in mule terms, but still a MULE.

—STEVE STARK

DEPARTMENT OF THE ARMY
ARMY AL&T
9900 BELVOIR RD
FORT BELVOIR, VA 22060-5567

ASC.ARMY.MIL

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Dr. Bruce D. Jette
Army Acquisition Executive
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PIN: 206396-000